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PERCEPTIONS OF BODY WEIGHT, SHAPE, OBESITY, AND BODY IMAGE AMONG GENERATIONS OF ABORIGINAL AND NON-ABORIGINAL WOMEN IN AUSTRALIA.

Renata Leah Cinelli

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy.

November, 2013
AUTHOR’S DECLARATION

This is to certify that:

I. this thesis comprises only my original work towards the Doctor of Philosophy Degree
II. due acknowledgement has been made in the text to all other material used
III. the thesis does not exceed the word length for this degree.
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Signature(s): .................................................................

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Date: 17.10.14.....................................................................
ABSTRACT

Background: Since the commencement of the European colonisation of Australia in 1788, the lives and worlds of Australian Aboriginal peoples have changed dramatically. Following separation from land, family, culture, and a rapid change in diet and lifestyle, Aboriginal peoples now encounter a range of health concerns, such as obesity, type 2 diabetes, poorer mental health, and lower life expectancy, that did not exist prior to colonisation. Body image has previously been a White, middle class, female concern, with other populations such as Black and Indigenous populations, considered immune. In contemporary Western society, the sociocultural messages surrounding body ideals, particularly the thin female ideal are considered to be so pervasive that they are thought to have infiltrated minority cultures.

Methodology: The present study examined the perceptions of body weight, shape, obesity, body image, body satisfaction and body ideals of Aboriginal and non-Aboriginal women (N=625) from rural and urban locations within NSW. The participants completed the quantitative “Body Image for Women” questionnaire that was designed specifically for this study in consultation with the University of Sydney Koori Centre using validated scales. The participants’ ages ranged from 11-90 years.

Results: Results indicated similarities with other studies of Australian women. The Aboriginal women in the present study had poorer body image, greater body dissatisfaction, were more likely to engage in strategies to modify weight and increase muscles, compared to the non-Aboriginal women. The Aboriginal women also had an acceptance of larger body ideals, and were more likely to be underweight, or obese. BMI was shown to be the largest predictor of desired body weight, figure rating scale selections, and body appearance ratings in both Aboriginal and non-Aboriginal women. The majority of women in the normal weight category desired weight loss, although the Aboriginal women in the normal weight category were more likely than their non-Aboriginal counterparts to desire weight gain.

Discussion: A close inspection of the results reveals that any differences in the perceptions and attitudes of Aboriginal and non-Aboriginal women may not reflect differences borne of cultural background, but rather a difference in body weight, which in turn impacts on perceptions.
Despite the fact that the present study may not indicate higher body esteem or more positive body image among Aboriginal women as has been previously suggested, the greater propensity toward obesity among Aboriginal women is worthy of concern. Considering the health implications of obesity and a greater acceptance of larger body sizes, the present findings suggest the need for urgent further investigation so these concerns can be addressed through the design and implementation of culturally appropriate and relevant health education and disease prevention programs.
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They say “it takes a village to raise a child”, and I feel that while my name goes on this PhD, it is certainly thanks to a whole village that my thesis has reached this point. This has been an epic journey that would not have happened without the involvement of many individuals.

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CHAPTER 1 - INTRODUCTION

1.1 Problem overview

Prior to the ‘discovery’ of Australian Aboriginal model Samantha Harris in 2004, and the launch of modelling initiatives such as the 2008 Nova Unearthed calendar featuring all Aboriginal models, with the exception of athletes, there was little representation of Aboriginal women in the mass media or fashion industry. In recent times, there has been a notable increase in the emergence of Aboriginal models represented in women’s magazines like Vogue, on television shows such as Australia’s Next Top Model, and on global catwalks. These individuals have been cementing the place of Indigenous Australians on the fashion media map, so to speak, providing young Indigenous women with more role models in the media they can look up to and aspire to be like. This presence in the fashion media, however, also represents a degree of acculturation to Western ideals and the arrival of Aboriginal women into the dysfunctional world of distorted and unrealistic body images.

Mirroring the limited early media representation, prior to 2004, there is no known research focusing on Indigenous, or Aboriginal Australians body image perceptions or attitudes (e.g. Mellor, McCabe, Ricciardelli, & Ball, 2004; Ricciardelli, McCabe, Ball, & Mellor, 2004). Rather, early research reflects the ‘measuring’ of Aboriginal physical bodies (e.g. Norgan, 1994; Piers, Rowley, Soars, & O'Dea, 2003; Rutishauser & McKay, 1986). This means that while there is an understanding of Aboriginal peoples’ physical body weight and shape, there is little representation of how Aboriginal people think and feel about these constructs. Further, while there is increasing focus on Aboriginal youth and health issues, there is little understanding of the effect the mainstream media has on the health of young Aboriginal people. Given the known detrimental effects of the mainstream media on the health of Western youth (Tiggemann, 2002), and the reported effectiveness of education in addressing these outcomes, it is imperative to understand the perceptions of Aboriginal youth and outcomes the media has on body image constructs for the purpose of creating culturally relevant and appropriate health education initiatives if and where they are needed.

Certain tensions exist when examining the construct of body image among Aboriginal and non-Aboriginal women in Australia. These occur between Western and Indigenous cultures, including ways of thinking, knowing and being (Grieves, 2009). Similarly, it is interesting to recognise that successful Australian Aboriginal models, such as Samantha Harris and Emily
Cattermole, may represent cultural diversity, but also represent successful models because they conform to the slim ‘measurements’ of other Western mainstream models. Understanding what this Western construct of the ideal female body means and the place of Aboriginal women’s bodies within this construct may have important implications for the development of positive or negative body image among young Aboriginal women. Further, whilst it is known that higher proportions of Indigenous Australian adolescents are overweight than their non-Indigenous counterparts, McCabe and colleagues (2005) recognise that little is known about the associated behaviours and attitudes. This underrepresentation of Aboriginal women in body image literature needs to be addressed in order to redress some of the health and education inequities facing the Indigenous Australian population.

1.2 The history of body image scholarship and the changing Western ‘ideal’ female

The study of the body image construct has changed significantly over time. In the early 1900’s, neurologists studied brain injury and sought to understand unusual forms of body perception and experience of their patients, and neuropathological forms of body experience such as phantom limb syndrome (e.g. Cash & Smolak, 2011; Fisher, 1990). Around 1935, neurologist Paul Schilder expanded the scope of body image from neurological, emphasising the need to encompass neurological, psychological and sociocultural elements- coined a biopsychosocial model (Cash & Smolak, 2011; Fisher, 1990). From the 1950’s, psychologist Seymour Fisher, one of the most influential body image scholars, produced decades of work focusing on psychodynamic views of the body, including body image boundaries, body awareness, distortions of body perceptions, and assigning meaning to specific body areas (Cash & Smolak, 2011).

Another psychologist, Franklin Shontz (1969), was critical of the psychodynamic viewpoint, and argued for body image as multi-dimensional (Cash, 2004) and examined both cognitive and perceptual elements of body experience (Cash & Smolak, 2011). Following this, the 1990’s saw a boom in body image research, through the significant increase in research and publication in the field including books such as Body Image: Body Image, Deviance, and Change (Cash & Pruzinsky, 1990), Body Image Disturbance: Assessment and Treatment (Thompson, 1990), and Grogan’s (1999) Body Image: Understanding Body Dissatisfaction in Men, Women, and Children.
Into the 21st Century, the scholarly literature around body image continued to grow, mirroring the increasing dissatisfaction and poor body image occurring in society. *Body Image: An International Journal of Research* was inaugurated in 2004, reflective of the ever expanding field of scientific inquiry into both the profound and subtle meanings of human embodiment (Cash, 2004). Today, there continues to be an increase in the interest and inquiry into the field of body image, that is increasingly encompassing cross-cultural groups, both genders, and all ages.

It is known that in Western societies, the ‘ideal body’ for females has been shrinking throughout the past decades (Myers & Biocca, 1992; O'Dea, 2007a; Spitzer, Henderson, & Zivian, 1999). Grogan (2008) explains it is possible to trace a cultural change in what is considered ideal for a woman’s body, from the voluptuous figures favoured from the Middle Ages to the turn of the century, to the slender body types favoured by the media of today. In the past, the ideal body of a woman has been more curvaceous and fuller figured, as it was considered a sign of fertility (O'Dea, 2007b). This fuller “reproductive figure”, as depicted by many artists, was represented with full rounded hips and breasts (Grogan, 2008).

This trend continued from the 1600’s through the 1800’s and began to shift toward a slimmer figure in the 1920’s. The shift is said to be the outcome of successful fashion marketing, whereby photographs of women in magazines were widely distributed and meant to represent a “fantasy image of how women should look” (Grogan, 2008, p. 19). Mazur (1986) pointed out that body ideals were developed through clothing fashions in that

…certain styles exposed shoulders and décolletage, while corseting and fitted bodices revealed the forms of waists and busts; but the body below the waist was completely covered with bulky skirts, so the shapes of hips and legs were irrelevant to fashion (p.282-283).

What followed in the 1920’s was a shift to a “boy-like, flat-chested figure to show off the straight, low-waisted dresses” (Grogan, 2008, p. 19). Mazur (1986) also explained that beneath these 1920’s dresses the ideal bodies “became curveless, almost boylike [sic]” (p.287). Mirroring this, the 1920’s saw an emergence of “the new phenomena of eating disorders” (Grogan, 2008, p. 19).

The 1930’s and 1940’s saw a shift back towards a more shapely figure, where breasts became more fashionable, with small waists and slim legs (Grogan, 2008). Mazur (1986) explained
the change “risqué curves have been added to the basically slender line of the flapper, but there is absolutely no superfluous fat” (p.288). This time also represented social context of war and famine, when food scarcity was common, hence fuller figures represented wealth and prosperity. The 1950’s and 1960’s witnessed another shift toward slimness, a trend that continued, with the ideal getting slimmer and slimmer into the 1980’s and 1990’s (Sypeck, Gray, & Ahrens, 2004).

This shift has led to what is now perpetuated as the ‘ideal’ body for women in Western cultures- a young, tall, long-legged, large-eyed, toned, thin, moderately large breasted, tanned, clear skinned female and with predominantly White features (e.g. Buote, Wilson, Strahan, Gazzola, & Papps, 2011; Diedrichs, Lee, & Kelly, 2011; Tiggemann, 2011). An ‘ideal’ body that is thinner than 98% of women (National Eating Disorders Association, 2002). Combined with digital modification techniques, these standards of beauty and thinness are almost impossible to reach by any healthy means for most women (Tiggemann, 2011).

There is speculation about whether this contemporary Western construct of the ‘ideal woman’ applies cross culturally. However, comparative to Western groups, there is limited existing research on minority populations, due to the long held belief that body dissatisfaction and associated issues were confined to affluent, White women (Forbes et al., 2012) and the assertion that some populations are ‘immune’ (e.g. Bordo, 2013; Chithambo & Huey, 2013; Flynn & Fitzgibbon, 1998). Conversely, despite the limited data on minority populations, it has been shown that the desire for the ‘perfect’ Westernized body may permeate traditional cultures, such as Pacific Islander populations (McCabe, Ricciardelli, Waqa, Goundar, & Fotu, 2009) and the Indigenous Aboriginal population of Australia (Ricciardelli et al., 2004; Wang & Hoy, 2004) giving rise to poor body image, body dissatisfaction, and eating disturbances where they were not known to previously exist (e.g. Hay & Carriage, 2012).

1.3 Body Image, Body Dissatisfaction, and Eating Disorders

In a modern world where thinness and beauty are associated with happiness, success, self-confidence, popularity and acceptance (Evans, 2003; Mischner, van Schie, & Engels, 2013) it is unsurprising that such vast portions of women are striving to achieve this extreme thinness (Tiggemann, 2011) and experiencing dissatisfaction when they fail to reach it (Snapp, 2009). While positive body image plays a vital role in fostering healthy psychological development, poor body image is known to have an array of negative consequences (Wertheim, Paxton, &
Blaney, 2009). Specifically body image concerns are associated with overall poor self-concept in early adolescents, including poor physical, social and academic self-concepts (O'Dea, 2006), as well as low overall self-esteem (Strauss & Pollack, 2003).

According to Dounchis, Hayden, and Wilfley (2001), levels of obesity, body image concerns and dissatisfaction are expected to continue to escalate in tandem for children and adolescents, including those from diverse ethnic backgrounds. Holt and Ricciardelli (2008) concur that there is increasing evidence of weight and muscle concerns that include body dissatisfaction along with problem eating. These trends among young people are salient because of the associated physical and mental health implications including depression, decreased wellbeing, self-harm and other psychopathology (Muehlenkamp & Brausch, 2012; Wertheim et al., 2009).

Eating disorders are widely recognised as psychiatric illnesses, that are also culturally induced diseases promoted by economic and social institutions profiting from this “cult of thinness” (Hesse-Biber, Leavy, Quinn, & Zoino, 2006). Similarly, the development of serious eating disorders has long been linked with cultural pressures on women to be thin and to diet (Dounchis et al., 2001; Garner, Garfinkel, Schwartz, & Thompson, 1980) and are often seen as a severe consequence of poor body image and body dissatisfaction.

Eating disorders, which can include excessive exercise, compensatory behaviours aimed at preventing weight gain, restricting food intake, and frequent concerns about eating, weight and shape (Treasure, Claudino, & Zucker, 2010), often require a medical diagnosis and long term medical and psychological treatment. Conversely, body image does not require a diagnosis and has been explained as “a persons’ perceptions, thoughts and feelings about his or her own body” (Grogan, 2008, p. 3) and “…how people think, feel, and behave with regard to their own physical attributes” (Muth & Cash, 1997, p. 1438). More comprehensively, Cash explained body image to be

…the multifaceted psychological experience of embodiment, especially but not exclusively one’s physical appearance…it encompasses one’s body-related self-perceptions and self-attitudes, including thoughts, beliefs, feelings and behaviours (Cash, 2004, p. 1).

Put simply, body image is how one thinks or feels about his or her body. This can be vastly different to the corporeal reality of their shape, size or appearance. Further, Davis, Sbrocco,
Odoms-Young, and Smith (2010) explain that body image is only one component of attractiveness and that, particularly cross-culturally, ideals of attractiveness and beauty can vary and encompass many components.

Body image is known to be a dynamic rather than static concept, a process that undergoes constant fluctuation throughout the lifespan and is a composite of both psychological and physiological factors (Janelli, 1993). Janelli (1993) further described body image as encompassing the surface and internal workings of the body as well as attitudes, values, and reactions to one’s body.

These definitions surmise that body image is a subjective concept and likely to differ between individuals. Further, body image has been postulated as an elastic and changeable concept that can be determined through new information and social experience (Grogan, 2008). In that way, body image can be damaged or enhanced through outside influences, such as peers and the media. This means that education and intervention programs are of great importance to the promotion of positive and healthy body image. While body image can be positive or negative, Grogan (2008) explains that body dissatisfaction is “a person’s negative thoughts and feelings about his or her own body” (p.4).

It is essential to recognise that the deleterious effects of body dissatisfaction are not limited to the women who are clinically diagnosed with eating disorders (Forbes et al., 2012), but rather reach across the lifespan, across cultures and impact on both sexes. Depression, low self-esteem, self-harm, disordered eating, social avoidance (Maphis, Martz, Bergman, Curtin, & Webb, 2013; Muehlenkamp & Brausch, 2012; Wertheim et al., 2009) and other such outcomes of poor body image and body dissatisfaction among children and adolescents, particularly during puberty, suggest an urgent need for these issues to be addressed in both health and educational settings.

While it would be negligent to ignore that eating disorders, poor body image, and body dissatisfaction are inextricably linked, it’s important to recognise that they are separate entities and that poor body image and body dissatisfaction can exist without developing into a diagnosable eating disorder. Poor body image is only one of many factors involved in the ontology of eating disorders. Similarly, exposure to the mass media that markets the specific western body ideals and promotes the “cult of thinness” (Hesse-Biber et al., 2006) does not necessarily mean that women will go on to develop body dissatisfaction or an eating disorder.
There are certain moderating factors that can “protect” or reduce the impact of the mass media and these thin ideals - such as high self-esteem, media literacy, exercise, and peer and familial support (e.g. Delfabbro, Winefield, Anderson, Hammarström, & Winefield, 2011; O'Dea & Abraham, 2000; Yamamiya, Cash, Melnyk, Posavac, & Posavac, 2005). Similarly age (Baker & Gringart, 2009) and certain cultural backgrounds, such as Black populations in America (Poran, 2006) have been posited to be potential protective factors.

In reality, eating disorders are relatively rare among the general population, although few studies are able to provide accurate statistics regarding incidence or prevalence (e.g. Preti et al., 2009; Smink, Hoeken, & Hoek, 2012). In a study spanning six European countries, Preti et al. (2009) suggested that less than 4% of the adult female population experience an eating disorder (anorexia nervosa, bulimia nervosa, binge eating or binge eating disorder). It is suggested the rates are higher among adolescent females, and that up to one in five adolescent females are or have been struggling with eating disorder related issues (Isomaa, Isomaa, Marttunen, Kaltiala-Heino, & Björkqvist, 2009). Further, considering the secretive nature of eating disorders the incidence is likely to be underestimated.

Contrasting this, it is estimated that over 80% of women, across numerous cultures, are living with body dissatisfaction (e.g. Forbes et al., 2012). This discontent is so widespread that it is considered ‘normative’ (Sabik, Cole, & Ward, 2010; Tiggemann, 2011). The preoccupation with unrealistic thinness is entrenched among many women, particularly Caucasian, upper class women (Forbes et al., 2012; Rierdan & Koff, 1997; Snapp, 2009). Whilst the trends become less prominent when focusing on males, there is recent evidence from the literature that societal body image pressures are also reaching men (Grammas & Schwartz, 2009), adolescents and children as young as five years old (O'Dea & Caputi, 2001). For this reason, it is important to distinguish that the following research seeks to investigate body image and body satisfaction rather than eating disorders.

1.4 Australian Aboriginal Peoples

There are over 400 million Indigenous people worldwide, all known to suffer poor standards of health associated with poverty, overcrowding, malnutrition, poor hygiene and prevalent infections, which is compounded by inadequate health care (Gracey & King, 2009). Gracey and King (2009) went on to explain that some Indigenous groups, in their transition from traditional to modern lifestyles, are rapidly acquiring lifestyle diseases, such as obesity,
cardiovascular disease, type 2 diabetes and physical, social and mental disorders related to drugs and alcohol misuse. Unfortunately, the plight of Indigenous Australians in terms of health is no different, and is acknowledged and well documented (e.g. Armstrong, 2004; Carson, Dunbar, Chenhall, & Bailie, 2007).

Despite Aboriginal and Torres Strait Islander people comprising only approximately 2.5% of the total Australian population (Australian Bureau of Statistics, 2006), Australian Aboriginal peoples have experienced (and continue to experience) a tumultuous journey in terms of health, education, rights, land and many other matters since European settlement in 1788. In one of the wealthiest countries in the world, one of the oldest surviving cultures and peoples are facing a legacy of disadvantage. This comes in many forms, such as the 23 year life expectancy gap between Aboriginal and non-Aboriginal Australians (Cooke, Mitrou, Lawrence, Guimond, & Beavon, 2007), an over-representation of Aboriginal people in the justice system, poverty, domestic violence and substance abuse (Armstrong, 2004).

In 2005, approximately one in three Indigenous Australians were overweight, and one in three were obese (Australian Bureau of Statistics, 2008), which is slightly higher than the three-fifths of all Australians classified as overweight or obese in 2013 (Australian Institute of Health and Welfare, 2013). High body mass is associated with type 2 diabetes, ischaemic heart disease and asthma- three of the five leading causes of the burden of disease among Indigenous Australians (Australian Bureau of Statistics, 2008). Further, Aboriginal people are more likely to have type 2 diabetes (Wang, Hoy, & Si, 2010) and lower rates of physical activity (Blair, Zubrick, & Cox, 2005) than their non-Indigenous counterparts. Considering these grim statistics that contribute to the poorer health and 23 year lower life expectancy of Australian Aboriginal peoples (Cooke et al., 2007), it is essential to understand the underlying meaning of body size for Australian Aboriginal peoples. Specifically, whether Aboriginal people have an acceptance of larger body sizes as has been found among Aboriginal youth (Cinelli & O'Dea, 2009) and other Black populations (Chithambo & Huey, 2013). Further, an awareness of the body weight and shape perceptions, coupled with body image and body satisfaction of Aboriginal women, is essential for designing relevant and appropriate initiatives to be effective in addressing these specific health issues.

Prior to 2004, there was no known research specifically exploring the body image perceptions of Aboriginal Australians. Since then, only a handful of studies have emerged (e.g. Cinelli & O'Dea, 2009; Hay & Carriage, 2012; McCabe et al., 2005; Mellor et al., 2004; Ricciardelli et
al., 2004), although they predominantly focus on adolescents. To date there are no known studies of the body image perceptions of Aboriginal women across the lifespan, nor any that provide evidence for how these body image perceptions may be similar or different to non-Aboriginal women’s perceptions. It is for these reasons that the unique focus of this research will be on the body image of Australian Aboriginal women, and include non-Aboriginal women so any differences can be examined. This also allows the sample of non-Aboriginal women to be compared to existing Australian body image data. While homogeneity is not assumed among all Indigenous and minority populations, considering the limited nature of Australian research available, research with minority and non-Western populations around the globe is used as a point of reference throughout this study as has been done in other studies (e.g. Ricciardelli et al., 2004).

When referring to Australia’s first people, various terminologies are frequently used and the term Indigenous incorporates both Aboriginal and Torres Strait Islander peoples (Nelson, Abbott, & Macdonald, 2010). In 1981, the Department of Aboriginal Affairs published the now widely accepted threefold definition of an Australian Aboriginal person: 1) a person who is a descendant of an Indigenous inhabitant of Australia, 2) a person who identifies as an Aboriginal person and 3) a person who is recognised as Aboriginal by members of the community in which he or she lives (Department of Aboriginal Affairs, 1981).

Throughout this thesis when referring to cultural background as has been the subject of previous research, the terminology used in other literature will be used here, such as “Indigenous”, “Aboriginal”, “Black” and “White”. Further, “Aboriginal” and “non-Aboriginal” are used when referring to the cultural background of the current participants. “Aboriginal” is used rather than “Indigenous” as all data was collected in NSW and no Torres Strait Islander women participated. No specific information regarding individual Aboriginal groups or nations (such as Wiradjuri, Eora, Darug, Dharawal) was collected, and hence is not reported. Cultural sensitivity and research methods will be discussed in more detail in the methodology chapter.

1.5 Sociocultural Theory

While Tiggemann (2004) identified that a major inadequacy of research in the area of body image is the lack of use of an underlying theoretical framework, there are several theories used to conduct body image research. These include but are not limited to objectification
theory (Tiggemann, 2004), acculturation theory (Ball & Kenardy, 2002), social comparison theory (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999) and sociocultural theory (Gray, 2003).

The sociocultural perspective is the most commonly used lens to research body image issues, eating pathologies and cross-cultural issues (Gray, 2003). This is because the sociocultural perspective encompasses not only the person, the person’s immediate environment and the larger culture in which the person develops (Gray, 2003). Also called Thompson's Sociocultural Norm Theory (Thompson et al., 1999), this perspective contends that the attitudes people hold toward their body are the result of one’s environment, in terms of social, cultural, and historical influences, often conveyed in the mass media (Buote et al., 2011; Tiggemann, 2002). For example, Gray (2003) explains that the prevalence of eating disorders increased rapidly in the 1970’s and 1980’s in North American and Europe, reflective of a period of social and historical change whereby Western culture became increasingly obsessed with dieting and the thin ideal for women.

Similarly, McCabe identified that body image and body dissatisfaction is often understood to be influenced by sociocultural pressures from parents (and family), peers and the media (McInerney & McInerney, 2006), which has been coined the Tripartite Influence Model (Thompson et al., 1999; Tiggemann, 2011). These ‘ideals’ are then perpetuated by these powerful and pervasive sociocultural influences, that consequently impact on the attitudes and behaviour of young people (Thompson et al., 1999; Tiggemann, 2011). Tiggemann attested to the importance of the media. She recognised that in most of her body image research a sociocultural perspective has been adopted, as this attributes “the current high levels of body dissatisfaction and disordered eating among women… in Western societies to current rigid societal standards for beauty” (McInerney & McInerney, 2006, p. 442).

Kalin, Morrison, and Morrison (2004) explained:

Sociocultural theory contends that women's dissatisfaction with their physical appearance stems from: (1) the thin body ideal that is promulgated in Western societies; (2) the tendency for women to adopt a "body as object" rather than "body as process" orientation; and (3) the thin is good assumption which emphasizes the rewards that are accrued by being attractive (i.e., thin) and, concomitantly, the costs that are associated with being unattractive (i.e., fat) (p.571).
Tiggemann (2011) outlines the mechanism by which body dissatisfaction is operationalized using sociocultural theory:

… the sociocultural model holds that (1) there exist societal ideals of beauty (within a particular culture) that are (2) transmitted via a variety of sociocultural channels. These ideals are then (3) internalized by individuals, so that (4) satisfaction (or dissatisfaction) with appearance will be a function of the extent to which individuals do (or do not) meet the ideal prescription (p.13).

In other words, the sociocultural perspective assumes that within a particular culture, failure to meet societies prescribed ideals will result in dissatisfaction. This perspective has been adopted in many studies (e.g. Miller & Halberstadt, 2005; Snapp, 2009). Further, Thomas (2001) explains that women’s satisfaction with body image is influenced by a number of factors such as physical characteristics and the way others react to them, comparison of their physique to others around them, as well as a comparison to cultural ideals.

Considering how few women in society measure up to the ‘thin ideal’ that is so widely promulgated, sociocultural theory implies that the majority of women would experience dissatisfaction. However, Tiggemann (2011) explains there is a caveat. There are a number of biological and psychological factors that can serve to moderate one’s degree of vulnerability to dissatisfaction (Tiggemann, 2011) such as high self-esteem, high media literacy and strong support networks.

A person’s ethnic identity has been shown to impact upon body image. Ethnic identity is the degree to which a person identifies with their own ethnic group, and it influences a person’s cultural behaviours, beliefs and attitudes (Dounchis et al., 2001). A shift from identifying with one’s own ‘original’ or ‘heritage’ culture, towards adopting the ideals and values of Western or mainstream culture, particularly in terms of body image, is known as an acculturation effect (Ball & Kenardy, 2002; Berry, Phinney, Sam, & Vedder, 2006; Mellor et al., 2004). Ricciardelli et al. (2012) stated that in the case of first nation’s peoples acculturation can be used to refer to how these groups have adapted to an imposed “superculture” (p.3). They went on to recommend that given the

…complex and dynamic nature of Aboriginal men’s cross-cultural experiences, and the challenges to Indigenous cultures that have occurred in Australia, it appears necessary to adopt a bidimensional view of acculturation and consider the
identification with traditional culture separately from the imposed Western culture (Ricciardelli et al., 2012, p. 3).

It has been hypothesised that ethnic identity confusion is linked with the struggle to accept body types valued by one’s own culture (Dounchis et al., 2001). Similarly, Lynch and colleagues put forth that individuals who more strongly identify with White cultural ideals of thinness may be at greater risk for eating disorders and high levels of dissatisfaction, compared to those who more closely align themselves with more traditional cultural ideals (Lynch, Heil, Wagner, & Havens, 2007).

Ball and Kenardy (2002) reported that risk factors for weight and eating pathology were present across a range of ethnic groups. Further, it was found that women who reported a longer time since immigrating to Australia from Italy, Greece, New Zealand, the UK, Vietnam, or ‘other’ (including non-English speaking countries), identified body weight, dissatisfaction and eating behaviours similar to Australian-born women (Ball & Kenardy, 2002). Erickson and Gerstle (2007) expressed that cultural messages are a salient example of a socio-cultural risk factor for eating disturbances. These studies suggest that there may be differing perceptions of weight issues among different cultural groups, in particular, Indigenous and non-Indigenous young people and that the more acculturated and Westernized people become, the more stereotyped, negative and dangerously unachievable their body image may become. This suggests that rural participants in the present study are less likely to be influenced by Western culture.

### 1.6 Aim and research approach

The main aim of the study is to investigate the perceptions of body image, weight, shape, obesity and body satisfaction of Aboriginal and non-Aboriginal Australian women across the lifespan. Considering the high degree of concern Aboriginal and non-Aboriginal youth place on body image (Mission Australia, 2011, 2012) and the conflicting and limited available information (e.g. Cinelli & O'Dea, 2009; McCabe et al., 2005; Mellor et al., 2004; Ricciardelli et al., 2004) the current research study is justified.

Following the sociocultural framework (Tiggemann, 2011), and considering the difficulty of achieving the thin Western female ideal body for all adult women, it is hypothesised that high proportions of women in this study will be dissatisfied with their weight and aspire to be thinner. As the research covers both rural and urban locations, it is expected that the effect of
mainstream media and other sociocultural influences will be stronger in urban locations, and hence urban women will have poorer body image and greater drive for thinness than rural women. Considering the limited knowledge base for the body image of Aboriginal women, and hence no previous studies with adult Aboriginal women to compare, the rationale for this research was more exploratory and empirical than theoretical. Findings are intended as a starting point and point of reference for future researchers.

To accomplish the aim, Chapter 1 introduces the topic, defines the main constructs relevant to the study, including Australian Aboriginal peoples, the Western ‘ideal’ body, and body image, and details the etiology of body image as a contemporary issue. Chapter 2 provides a review of the literature to date, including body image globally in both Western and non-Western contexts and across age groups and both genders. The methodological process, development of the research and the ethical issues are detailed in Chapter 3. The results, by cultural background and weight status are presented in Chapter 4, along with the predictors of desired body weight, body figure ideals and physical self-perception scores and responses to open-ended questions. Chapter 5 is a discussion of the results relative to literature, implications of the research, strengths and limitations and conclusions. Chapter 6 provides the reference list.
CHAPTER 2 - LITERATURE REVIEW

This chapter aims to review the literature on the body image of women and men, including in both Western and non-Western countries and cultures. The literature review has included males and females, throughout childhood, adolescence, adulthood and older age. The intention is to present a broad perspective of the status of the Western concept of body image and body satisfaction globally, and then narrow the focus specifically to research with Aboriginal women in Australia. Similarly, while the focus of the study is on females, the literature review also includes literature pertaining to males to provide a comprehensive overview of how the constructs of body image and body dissatisfaction are positioned in societies around the world. Identifying how body image and associated factors may function differently among males and females will assist in providing a justification for the need for this study and why it is important to have specific studies that address the needs of males and females separately.

2.1 Body Image Research from Westernised Countries

In recent times, there has been an explosion of information in the media regarding bodies, shapes and appearance. There has been an emergence of body image themes with headlines such as the size “zero” for women, the “apparent” obesity epidemic, and muscularity in males. All of these media themes bring an unhealthy focus and preoccupation on body size and shape, and the apparent need to conform to specific socially prescribed physical standards. It is not just adults the media are dragging into the spotlight as body image issues have become increasingly studied and reported among children and adolescents in Australia and other Westernised societies' worldwide (Parnell et al., 1996).

In examining the existing body of literature, some generally agreed upon ‘truths’ about the body image perceptions of women in the Western world exist. These include that many young people in the normal weight category experience discontent with their body image and are trying to lose weight (e.g. Gagne et al., 2012; Tremblay & Lariviere, 2009; Worsley, Worsley, McConnon, & Silva, 1990) and that most women, regardless of body weight express desires to be thinner (e.g. Aruguete, Nickleberry, & Yates, 2004; Jones, Fries, & Danish, 2007; Wardle & Marsland, 1990).
Unrealistic, underweight ideals are part of the ‘culture’ presented in Western society. Bordo (2013) explains ‘culture’ to be the fashion industry, the media, the contradictory messages in magazines. She states

The average model is 5’10” and weighs 107 pounds; the average American woman is 5’4” and weighs 143 pounds. With a gap like this, it’s a set up for the development of eating disorders, as girls and women try to achieve bodies that their genetics, for the most part, just won’t support (Bordo, 2013, p. p.272).

It is recognised that body image is shaped by age, culture, ethnicity, gender, health status, sexual preference and social class (Hurd Clarke & Korotchenko, 2011), however there is limited information about the ethnic or socio-cultural factors associated with body image. Moreover, little is known about the negative, positive or potentially protective impact of ethnicity or culture upon the body image of children and adolescents (Cinelli & O'Dea, 2009), and consequently, little is known about how to promote a more positive, healthy, functional body image for children in schools and other educational settings.

That women are dissatisfied with their body weight and shape, and desire figures smaller than their own has been widely reported and acknowledged for decades (e.g. Cohn et al., 1987; Fallon & Rozin, 1985; Huenemann, Shapiro, Hampton, & Mitchell, 1966). However, in the past, research on body image has primarily accrued among Western women who highly value the thin ideal (Williams, Ricciardelli, McCabe, Waqa, & Bavadra, 2006). This emphasis on thinness for women in Western countries is indicative of the media representations of women and vice versa, a theme which is emphasised by the fact that there was an increase in disordered eating in the U.S.A. during the 1920’s and 1980’s when the media depiction of the “ideal woman” was the thinnest (Harrison & Cantor, 1997). This excessive desire for thinness, dissatisfaction with body size and weight is so common among women today that it has been aptly termed “normative discontent” (Tiggemann, 2011, p. 12)

There has been extensive research into the influences on body image over the past five decades. Stanford and McCabe (2005) identified that society provides messages about how people should ideally look, and that it is both the actual and the perceived messages that influence body image. Further, these messages are not just coming from society and the media, but from other sources including family members and peers (e.g. McCabe &
It has been speculated that adoption of Western body ideals is detrimental to body ideals of men and women due to the often unrealistic nature of these ideals (Humphry & Ricciardelli, 2004). In a study of Muslim-Australian women, Mussap (2009) found support for potential risks to body image encountered by minority women who adopt Western values. They also found evidence of the benefits in retaining heritage cultural values that promote a positive self-image. Similarly in a study of Asian women, Humphry and Ricciardelli (2004) reported that acculturation with Western society and the adoption of the slim ideal female body size are the primary factors that have contributed to higher levels of eating pathology. Considering this, it could be concluded that exposure to Westernised society and the messages it projects can be detrimental to the health of both Westernised people and people from other non-Westernised cultures.

It has been identified that BMI is closely linked with levels of body satisfaction of women living in Westernised countries. Muth and Cash (1997) remarked that heavier women were especially dissatisfied and distressed about their physical appearance. Yates, Edman, and Aruguete (2004) similarly reported a strong correlation between BMI and body dissatisfaction, in that the higher the BMI, the greater the body dissatisfaction for women. The findings among males are less clear cut. In a study consisting of Whites, Asian subgroups, Pacific Islanders and African Americans, Yates and colleagues (2004) reported that White males presented a higher than average BMI but the lowest body/self dissatisfaction of any male group, whereas Nowell and Ricciardelli (2008) discussed that males with higher BMIs demonstrated high body dissatisfaction and drive for muscularity. This ambiguity surrounding BMI suggests caution must be used when employing this measure, regardless of using it with men, women or children.

This drive for muscularity can also have important repercussions for the body image of women. A desire to increase their muscle size is not a trait commonly associated with women and one that is frequently associated with men (e.g. Labre, 2002; Nowell & Ricciardelli, 2008). Recent research found muscle enhancing behaviours to be common among both sexes, although, consistent with previous research, most muscle enhancing behaviours were more common among males (Eisenberg, Wall, & Neumark-Sztainer, 2012). Exercise is commonly motivated by weight/shape control (Goncalves & Gomes, 2012) and exercise is a known
contributor to muscle tone and development (Tiggemann & Williamson, 2000). McCabe et al. (2002) found that increasing exercise or eating to increase muscles was significantly more common among adolescent males than among adolescent females. Further, they found that these behaviours were more common among younger females (grade 7) than older females (grade 9) (McCabe et al., 2002). Using the same measures in another study, McCabe and colleagues (2005) reported that Indigenous female adolescents were more likely to engage in strategies to increase muscles than were their non-Indigenous counterparts. Eisenberg et al. (2012) suggested that muscle-enhancing behaviours among young people are more common than previously suggested and are cause for concern.

2.1.1 Body image across the lifespan and in older adults.

It is widely recognised that males and females in Westernised societies have different perceptions of ideal bodies (Bowen, Tomoyasu, & Cauce, 1992; Jones et al., 2007), with an emphasis on thinness for females (Mazur, 1986; Tiggemann, 2002) and muscularity for males (Ricciardelli & McCabe, 2003; Tiggemann, 2002), with low levels of body fat preferred for both (Ricciardelli & McCabe, 2003; Wardle & Marsland, 1990).

Whilst there is a plethora of research pertaining to children, adolescents (e.g. Abrams & Stromer, 2002; Davidson & McCabe, 2006; Hargreaves & Tiggemann, 2004; van den Berg, Mond, Eisenberg, Ackard, & Neumark-Sztainer, 2010) and young and middle-aged adults body image (e.g. Tiggemann, 2004; Wilfley et al., 1996), to date there has been a scarcity on the older population or elderly (e.g. Roy & Payette, 2012). Roy and Payette (2012) postulated that there are both similarities and differences in the body image experiences of Western seniors and the younger population. Extending this, Hurd Clarke and Korotchenko (2011) recognised that whilst in recent times there has been an increase in the scope and depth in body image research on older heterosexual women of middle-class, European decent, there remains insufficient attention to issues of diversity. This means the literature often represents a one-sided and limited view of the complex nature of body image perceptions and the variety of physical and sociocultural aspects of these perceptions.

Among the adult population of developed countries such as Australia and the U.S.A., issues of body dissatisfaction and poor body image are common (Knoesen, Vo, & Castle, 2009; McCabe & Ricciardelli, 2004), with large portions of males (22%) and females (40%) reporting unfavourable overall body image (Muth & Cash, 1997). In their study of
adolescents, Standley, Sullivan, and Wardle (2009) had very similar findings in that 24% of males and 43% of females described themselves as “too fat”. This is consistent with reports that body image stays relatively stable over the lifespan (Grogan, 1999). Whilst this shows that weight is a known issue for young people, Hurd Clarke and Korotchenko (2011) astutely stated “weight is a thorny issue for women of all ages” (p.499).

Despite the majority, not all women desire thinness as they age. The women in Tunaley and colleagues’ study thought of weight gain as normative and inevitable in later life, and considered advanced age to be a stage of life in which one had earned the right to eat whatever they desired, regardless of the physical consequences (Tunaley, Walsh, & Nicolson, 1999). Similarly Hurd Clarke (2002) acknowledged that some older women resist the thin ideals currently in vogue and prefer the more curvaceous shapes that were coveted in their youth. Grogan (2011) expressed that while some of the physical changes associated with aging, such as increases in body weight and reduction in body tone and muscularity, move people further from the idealised toned and slender body, it may not necessarily translate to greater body dissatisfaction.

In their review of the literature, Hurd Clarke and Korotchenko (2011) concluded that acculturation may play a role in the development of older women’s attitudes towards their weight and bodies. For example, a study of three generations of Russian-American women found that the middle-aged mothers had more negative feelings about their weight gain than did their mothers (Kishinevsky, 2004). Further, the middle-aged women engaged in often-severe dieting practices to maintain a slim figure that aligned with the North American body ideal, while their mothers felt they could retire from feminine beauty work in their old age and dedicate their lives to family, as is the way with Russian custom (Kishinevsky, 2004).

Considering the corporeality of everyday life, several authors have identified that there may be a shift in values and importance surrounding the body as people age, in that older adults may value functionality as opposed to appearance (Baker & Gringart, 2009; Reboussin et al., 2000; Tiggemann, 2004). This is particularly true among the quite elderly. Despite this, Halliwell and Dittmar (2003) found that all women in their study deemed aging to be detrimental to their physical appearance. Further, whilst Grogan (2008) postulated that women aged 16-63 years expressed similar levels of body dissatisfaction, Tiggemann (2004) reported that as women age, the sources of body dissatisfaction often shift from thighs, stomachs and fat to things that often deteriorate with age such as hands, eyes and joints. In
another study of women aged 20-84, Tiggemann and Lynch (2001) found that whilst body image remained stable across the ages, body monitoring, self-objectification, appearance anxiety, and disordered eating symptomology all decreased significantly with age. Tiggemann (2004) explained this simply “…with age women’s bodies deteriorate, they remain equally dissatisfied, but it matters less to them” (p.35). Reinforcing this, Hurd (2000) found that for the women in her study, the onset of health issues and the associated loss of functional abilities preceded a re-evaluation of personal priorities whereby looks became less salient.

This importance of functionality as opposed to appearance is not just relevant to the elderly (Baker & Gringart, 2009), but has also been reported by some younger people belonging to Indigenous groups, such as Canadian Aboriginals (Fleming et al., 2006) and Fijians (Williams et al., 2006). Despite these changing priorities, appearance continues to be an issue of importance for older women (Baker & Gringart, 2009). Similarly, when examining the construct of body image, Roy and Payette (2012) found that the importance placed on body dissatisfaction and body distortion as it relates to physical appearance in Western seniors was lower compared with younger samples.

In recognising the enduring nature of body dissatisfaction, Hurd Clarke and Korotchenko (2011) stated that there has been an increasing acknowledgement of how older women attend to their bodies through various forms of beauty or appearance work. This ‘appearance work’ was defined as the use of clothing, cosmetics, dieting, exercise, hair care and other similar behaviours and practices employed to maintain or alter one’s appearance (Hurd Clarke & Korotchenko, 2011, p. 500). It is known that engaging in these ‘appearance work’ behaviours can increase women’s self-esteem and improve women’s psychological self-perceptions (Nash, Fieldman, Hussey, Leveque, & Pineau, 2006). This is unsurprising considering it has been shown that women wearing cosmetics are perceived as healthier, more confident and with a greater earning potential than those without make-up (Nash et al., 2006).

The association between body image and self-esteem is recognised to be prominent issues for children and adolescents, although it has received less attention in gerontological literature. In their study from the USA, Kaminski and Hayslip (2006) found that among older adults self-esteem was a significant predictor of appearance esteem. Further, they explained when considering the level of satisfaction one has of appearance or function of their body, self-esteem is a strong correlate among older adults in general (Kaminski & Hayslip, 2006).
Wilcox (1997) also discussed the interactions between age and body attitudes, and mentioned social comparisons as important in maintaining body and self-esteem. For instance, looking at an age matched peer who is unwell or having more difficulty along a particular dimension can lead a person to conclude that they are doing well, despite the physical changes synonymous with aging (Kaminski & Hayslip, 2006; Wilcox, 1997).

In a study with a diverse age spread, Tiggemann and Stevens (1999) discussed that while weight concern may remain relatively stable across the lifespan, it is likely that based on the context of other life events, goals and transitions, the meaning attributed to weight and appearance will change. Further, they found that global self-esteem remained virtually constant throughout the age range of 18-60 years (Tiggemann & Stevens, 1999). Despite this, the weight concern shifted, and it was only for the two middle aged groups that a negative relationship was found (Tiggemann & Stevens, 1999). In adults older than those in Tiggemann and Stevens (1999) study, Baker and Gringart (2009) found that body image concerns are significant to self-esteem in older adults, such that whilst older women’s self-esteem remained stable between 65 and 85 years of age, there was a significant decline in the self-esteem in older males. This was attributed to the fact that as women age, they seem to adopt strategies to counter the effects of aging, whilst men seem to be more negatively affected, especially concerning body functioning (Baker & Gringart, 2009).

On from this, Whitbourne and Skultety (2004) state that ideally as one ages, their sense of self will remain stable even as they incorporate information about their aging into that sense of self. This is known as the process of identity balance, which is believed to be related positively to high self-esteem (Whitbourne & Skultety, 2004). Finally, in a self-esteem study of 9-90 year olds, Robins and colleagues found that self-esteem levels were high during childhood, dropped during adolescences, rose gradually throughout adulthood and then declined sharply in old age beginning around age 70 (Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002).

2.1.2 Body image among females.

The desire for a reduced weight and slim body shape have long been acknowledged as major concerns for women (Bowen et al., 1992). Over the past few decades it has become widely recognised that these concerns translate into a desire for thinness that is prevalent among females in Western populations (e.g. Abrams & Stromer, 2002; Banitt et al., 2008; Cohn et
al., 1987; Wardle & Marsland, 1990) and that this may be reflective of the ‘perfect’ slim body ideals represented in the media and in these societies (e.g. Ata, Ludden, & Lally, 2007; Diedrichs et al., 2011; Dittmar, 2009; Hargreaves & Tiggemann, 2004; Miller & Halberstadt, 2005).

Authors have suggested that body image dissatisfaction and women’s preoccupation with thinness are major factors in the aetiology of eating disorders (Drewnowski & Yee, 1987; Greenberg & LaPorte, 1996). Throughout the 1900’s, the societal ideal body for females has yo-yoed in size, from being round and buxom in the early 1900’s (Mazur, 1986), to being skinny and shapeless after 1990 (Grogan, 2008). Authors agree that over the past 30 years, the ideal woman’s body size has become increasingly and alarmingly thinner (Leit, Pope, & Gray, 2001; Powell & Kahn, 1995), which leaves some women dieting to degrees that are extremely health damaging (Mazur, 1986). Further, Mussap (2009) reports that this Westernised preoccupation with thinness is psychologically damaging even for women who are normal weight because from the standpoint of Westernised ideals, even normal weight is not thin enough. This is largely due to the unattainable media representation of the ultra-thin emaciated female (James, Phelps, & Bross, 2001), and the resulting cycle of feelings of failure which result from repeated attempts to lose weight. However, not all women in this society display this strong attitude for thinness (Bowen et al., 1992) and the perceptions and attitudes toward body shape and size vary according to culture and degree of cultural affiliation.

Whilst there has been a recent surge in the acknowledgement of body dissatisfaction among males (e.g. Dittmar, 2009; Grammas & Schwartz, 2009; Jones, 2001; Knoesen et al., 2009; McCabe & Ricciardelli, 2004; Pope, Olivardia, Gruber, & Borowiecki, 1999), it is consistently reported that females experience greater body dissatisfaction (e.g. Bowen et al., 1992; Labre, 2002; Tiggemann, 2004; Yates et al., 2004) coupled with a more negative body image and stronger investments in their appearance (Muth & Cash, 1997). It is suggested that women experience significant pressures to achieve thinness and to conform to the illusory idea of beauty that denotes an unhealthy thinness (Bowen et al., 1992), which is, at least in part, involved in the aetiology of eating disorders and body image disturbances (Powell & Kahn, 1995).

Mellor and colleagues (2010) discovered that the relationship between body dissatisfaction and self-esteem was strongest for women 31 years of age or younger, and that people who
had lower self-esteem were more likely to report dissatisfaction with their body size or shape. This research is exemplary of the way positive self-esteem can improve body satisfaction and vice versa, whilst low self-esteem can increase body dissatisfaction. Further, Bailey and Ricciardelli (2010) put forth that the role of social comparisons should not be ignored when looking at the development and maintenance of body dissatisfaction, as social comparisons were found to be more important even than contingent self-esteem.

2.1.3 Body image among adolescents.

Early studies from the USA from Rosen and Gross (1987) speculated that the cultural pressure for young women to be thin has likely been infiltrating adolescents and has prompted many of them into weight reducing regimes. It is well established that body image and body dissatisfaction have continued to be salient issues for both male and female adolescents in Westernised societies throughout the 1900’s and into the twenty first century (Ata et al., 2007; Huenemann et al., 1966; McCabe & Ricciardelli, 2001; Wardle & Marsland, 1990).

In a recent national Australian study, Mission Australia (2011) found that body image is a major concern for over 30% of both male and female adolescent respondents, with this increasing with age. Looking specifically at the results of the young females, body image was reported as a major concern for 42.5%. Further, these concerns are not confined to girls, or to adolescents but rather, body image is a major concern among young people regardless of gender and age, in children, adolescents and young adults. A comparison of the results of the 2007 and 2009 Mission Australia reports, observed a slight decrease in the percentage of young people concerned about body image, from 32.3% in 2007 to 25.5% in 2009 (Mission Australia, 2009, 2011), although this has risen again to 33.1% in 2011 (Mission Australia, 2011). That body image remains such a high concern for young people provides justification for the need for further research and action the area.

In an advanced study for its time, Huenemann and colleagues (1966) found that teenagers were predominantly dissatisfied with their weight, fatness or leanness and stature along with various other body dimensions including the size of waists, hips, thighs and calves. Further to that, large portions of the girls described themselves as fat- that number growing as the age of the girls increased (Huenemann et al., 1966). In contrast, the males thought they were too thin or were reasonably satisfied with their body composition (Huenemann et al., 1966).
Providing further and more recent evidence of this gender difference, Storvoll, Strandbu, and Wichstrom (2005) reported that girls had a more problematic body image than boys, both in 1992 and 2002.

In the half century since Huenemann et al. (1966) published their report, many authors have consistently reported very similar findings. For instance, Wardle and Marsland (1990) also reported that girls were likely to describe themselves as fat, and to desire smaller bodies, particularly their stomachs, hips, thighs and bottoms. They also reported that this issue was more prominent among older girls than among younger girls (Wardle & Marsland, 1990).

As with adults, the body concerns of adolescents are often gender specific, with numerous studies confirming that girls feel differently about their bodies than boys (McCabe et al., 2005; Wardle & Marsland, 1990). For instance, females are reportedly less satisfied with their bodies (McCabe & Ricciardelli, 2001; McCabe et al., 2005; Miller & Halberstadt, 2005; Wardle & Marsland, 1990), engage in more weight loss strategies (McCabe & Ricciardelli, 2001; McCabe et al., 2005; Rosen & Gross, 1987) and want to decrease the overall size of their bodies/lose weight (Ata et al., 2007; Wardle & Marsland, 1990). This preoccupation with appearance, in particular body shape and size, and high levels of dissatisfaction are not surprising given the socio-cultural pressure placed on young people to attain these unrealistic ultra-thin (Bowen et al., 1992; Dittmar, 2009; Jones, 2001) and ultra-muscular body ideals (Jones, 2001; Labre, 2002; Pope et al., 1999). Banitt et al. (2008) also affirmed that it is not uncommon for young women in Westernised societies to desire thinness, which is hardly surprising given the focus placed on appearance and body shape in so many different environmental and social areas.

Several studies have postulated that body satisfaction decreases with age for females (Koff & Rierdan, 1991; Rierdan & Koff, 1997) and increases for males (Labre, 2002). During puberty, males and females experience various changes to their bodies and they are more attentive to changes during this period (Ata et al., 2007), particularly changes in weight and shape (Banitt et al., 2008). Girls experience a normative increase in body fat (McCabe & Ricciardelli, 2001; Thomas, Ricciardelli, & Williams, 2000), which causes them to have about twice as much body fat as boys (Rosen & Gross, 1987). An Australian study of 242 adolescent females also recognised an increase in body dissatisfaction as resultant of the fact that increasing age moves adolescent girls further from the thin female beauty ideal (Tiggemann, 2005). Many studies support this notion that puberty moves females away from the socio-
cultural thin ideal for women (Faust, 1983; Labre, 2002; Thomas et al., 2000; Wilcox, 1997). Conversely, puberty for males brings about changes, such as increases in muscularity that inevitably brings them closer to the societal muscular ideal male body (Labre, 2002; McCabe & Ricciardelli, 2003), which could explain the increase in body satisfaction for young males (Labre, 2002).

Rierdan and Koff (1997) recognised that during early adolescence some girls may readily accept implausible ideals surrounding thinness, or have responses from others, both from within and outside their family about their developing bodies that leads to extreme body dissatisfaction and a vulnerability to depression. In accordance with the normative weight gain associated with adolescence for females (Thomas et al., 2000), BMI is significantly associated with weight dissatisfaction and weight concerns (Rierdan & Koff, 1997). Similarly, it is not uncommon for girls even in the healthy weight range to consider themselves “too fat” (Wardle & Marsland, 1990).

Desmond, Price, Gray, and O'Connell (1986) had comparable findings of girls overestimating their weight, with 39% of the “thin” girls perceiving themselves to be normal weight, and 43% of the normal weight girls thinking they were “heavy”. Further, Williams et al. (1986) reported that whilst only 11% were actually overweight using age specific guidelines, 36% felt they were overweight or very overweight. This is a notable discrepancy between actual weight and perceived weight. It would be beneficial to replicate these studies to see if the proportions of adolescent girls using these methods has grown over the past quarter century as the sociocultural thin ideal continues to reign supreme.

This strong desire for thinness among adolescent females has long been acknowledged to be associated with unhealthy weight control practices. For instance, as early as 1985, Crowther, Post, and Zaynor (1985) suggested that alarming numbers of adolescent girls were using dangerous methods of weight control, including self-induced vomiting (11.2%), laxative use (4.7%), and fasting (36.4%). Considering the health harming nature of the frequent and prolonged use of these techniques, the proportion of young women using these methods is of grave concern (Crowther et al., 1985). Williams and colleagues (1986) reported similar findings; 8% of the participants vomited after eating, 4% used drugs to lose weight, and 60% regularly skipped meals (Williams et al., 1986).
Even positive feedback about weight and body shape can have a negative impact on the body image of young women, as positive comments often serve to remind girls that they are being evaluated on their looks, appearance and body (Nowell & Ricciardelli, 2008). Reinforcing this, Thomas (2001) postulated that women’s satisfaction with their looks is influenced by their physical appearance but also by the way others react to them and a comparison of themselves to others around them. Care must therefore be taken when educating young people, with an emphasis placed on healthy eating and exercise as opposed to weight, shape and appearance.

The issue of body dissatisfaction in young people is widespread in Westernised society and been reported in many countries including Australia (e.g. Hargreaves & Tiggemann, 2004; Ricciardelli et al., 2004), America (e.g. Banitt et al., 2008; Lynch et al., 2007), New Zealand (e.g. Miller & Halberstadt, 2005), South America (e.g. Mellor et al., 2008), The United Kingdom (e.g. Wardle & Marsland, 1990), and Norway (e.g. Storvoll et al., 2005). This provides evidence of the pervasiveness and severity of the issue of poor body image and body dissatisfaction among young women.

Self-esteem and body dissatisfaction are known to be linked. Specifically, studies have expressed links between low self-esteem, negative body image and depression. For instance, Paxton and colleagues (2006) reported body dissatisfaction to be a predictor of low self-esteem and depressive mood in early adolescent girls and mid adolescent boys. Van den Berg and colleagues (2010) also found body dissatisfaction and self-esteem to be strongly related among nearly all groups of adolescents in their study of 4,746 11-18 year olds. The findings also showed that the association between body dissatisfaction and low self-esteem for males and females was similar, although that males overall have lower body dissatisfaction and higher overall self-esteem (van den Berg et al., 2010).

Similar to Paxton et al. (2006), Levine and Smolak (2004) also acknowledged the greater tendency for females to be depressed than males which generally begins after age 14, which could be attributable to adolescent females feeling less positive about their changing body shapes and competencies. Further they reported that for adolescents’ negative body image is correlated with some aspects of neuroticism, including depression, low self-esteem, fear of negative evaluation, anxiety, and obsessive-compulsive tendencies (Levine & Smolak, 2004).
Likewise, Davidson and McCabe (2005) found self-esteem to be predicted by body image variables among all groups and found few gender differences in the overall strength of the association between body image and self-esteem. Drawing upon van den Berg et al. (2010), Davidson and McCabe (2006) expressed that whilst girls were more likely than boys to have negative body image, the relationship between overall body image and adolescent self-esteem was very similar across genders. This signifies a strong association between negative body image and low self-esteem for boys and girls (Davidson & McCabe, 2006).

On the other hand, Mellor and colleagues (2010) found an association between higher self-esteem and lower body dissatisfaction. Ricciardelli and McCabe (2001) found that in adolescent boys, self-esteem had the positive moderating impact on the sociocultural influences in predicting body change strategies. They also found that it was the boys with low self-esteem who were more affected by sociocultural pressure, whilst girls were affected by sociocultural pressures regardless of self-esteem (Ricciardelli & McCabe, 2001). This shows that, at least for the boys in that study, having positive self-esteem could be a protective factor useful for resisting sociocultural pressures associated with body dissatisfaction.

Self-esteem development and enhancement is recognised to improve factors known to contribute to body image and eating problems (O'Dea, 2005). O'Dea (2005) provides the example that the development of positive self-image and a strong sense of self-worth are likely to help children and adolescents increase their body satisfaction in terms of size and shape, and become more resilient and resistant to the unrealistic body ideals presented in the media. Further it was expressed that children who have high self-esteem are better able to cope with issues that are associated with eating problems, such as teasing, stress, anxiety and criticism (O'Dea, 2005).

Research shows that girls from particular ethnic minority groups may have greater body satisfaction than their Caucasian counterparts (Flynn & Fitzgibbon, 1998). Snapp (2009) provides the possible explanation that ethnic minority girls may not feel judged based on their appearance, which may be related to their greater body satisfaction. In opposition to this, several authors have recognised that belonging to an ethnic minority group may no longer buffer the effects of negative body image in Western society due to the pervasiveness and high saturation of these ideals (e.g. Mussap, 2009; Perez, Voelz, Pettit, & Joiner, 2002; Shaw, Ramirez, Trost, Randall, & Stice, 2004). Similarly, in the past it was suggested that the desire for thinness was more closely associated with females of high socioeconomic status, however
Rosen and Gross (1987) found that even the majority of females from lower classes in their study were also trying to lose weight, indicating that this thin ideal has infiltrated many divisions of society.

**2.1.4 Socio-cultural influences on adolescents’ body image.**

As discussed, physical appearance and weight control are known to be major concerns for many teenagers (Desmond et al., 1986). There is agreement among researchers that the body image of adolescents can be influenced by a number of factors including gender, self-esteem, media messages and pressure or support from friends and family (Ata et al., 2007; Miller & Halberstadt, 2005; Storvoll et al., 2005). Further, although adolescence is the primary developmental period addressed in the literature surrounding eating disorders, recent research has uncovered that biological, psychological, and sociocultural risk factors are beginning to emerge in preadolescence (Erickson & Gerstle, 2007). Similarly, Attie and Brooks-Gunn (1989) uncovered that girls who in early adolescence felt most negatively about their bodies were more likely than others to develop eating problems two years later. Becker (2004) also identified that exposure to media imagery is known to have a profound effect on adolescents and young adults. Hence preadolescence is now being recognised as a salient and vulnerable period for the development, or prevention of body image disturbances (Erickson & Gerstle, 2007).

Despite some recent large cross-cultural studies (McCabe et al., 2012; Swami et al., 2010), the majority of body image research is focused on Caucasian populations, with less known about the body image of other racial groups (Abrams & Stromer, 2002). Similarly, McCabe et al. (2005) reported that the dominant literature regarding females is based around White populations, with little reference to Indigenous populations. It is for this reason that more multi ethnic studies would assist in establishing an understanding of the variance in the body image, perceptions and attitudes held by young people, in order to best address the issue of poor body image and high dissatisfaction in Australia, a multicultural country with such diversity.

The salience of sociocultural influences on the development of adolescents’ body image is widely recognised (e.g. McCabe & Ricciardelli, 2003; Mellor et al., 2008; Mellor et al., 2009; Ricciardelli et al., 2004; Shaw et al., 2004). McCabe and Ricciardelli (2003) recognised that adolescence is a time of change and often messages about the body are transmitted to young
people from family and peer groups. These messages and feedback can shape body image and influence body change strategies in both positive and negative ways, and some messages may carry more importance depending on who it comes from (McCabe & Ricciardelli, 2003).

Parents have been found to be the most salient transmitters of socio-cultural messages to adolescents of both sexes, even more important than peers and the media (McCabe & Ricciardelli, 2003). Particularly, specific feedback from mothers and fathers was found to affect adolescents’ satisfaction with their bodies as well as influencing extreme body change strategies such as food supplementation and binge eating (McCabe & Ricciardelli, 2003).

After parents, peers have an important influence. It has been shown that the opinions of peers are of increasing influence during preadolescence (Erickson & Gerstle, 2007). This is also true during adolescence. McCabe and Ricciardelli (2003) researched the socio-cultural influences on body image and change strategies among adolescent boys and girls, finding gendered differences. For boys, feedback from best male friend influenced body change strategies, whilst feedback from best female friend and mothers were more salient for girls. Further, peers appeared to wield some pressure among adolescent girls who adopt extreme weight loss behaviour (McCabe & Ricciardelli, 2003). Surprisingly, Ata et al (2007) reported that the pressure to gain muscles for males was higher than the pressure for females to lose weight. Often the feedback young people receive regarding their bodies, in terms of weight and shape come in the form of positive comments from parents and peers. Nowell and Ricciardelli (2008) suggested these positive comments may serve as a double-edged sword, because whilst they may promote a more positive body image, they could also serve as a motivator for further self-improvement.

In a study of young Australians, Diedrichs et al. (2011) reported that the participants felt that the mass media are dominated by narrow appearance ideals that are not representative of everyone. Dittmar (2009) described the mass media as a “particularly potent and pervasive source of influence” (p.2) on the development of body dissatisfaction, due to the depiction of the ultra-thin body perfect ideal, and the use of media models that are typically underweight. Similarly, media imagery and consumer culture has also been coined a “pervasive and powerful influence” (Becker, 2004, p. 535) on girls at a critical developmental stage. Tiggeemann (2002) reinforced this, explaining that the messages sent by the mass media certainly influence society’s standards of beauty. Participants in a study by Diedrichs and colleagues (2011) commented on the desirability of these rigid body standards stating
“…there is this stereotypical, blonde female with large breasts and the perfect body. No cellulite, and…she is quite slim. And girls aspire to be that…” (p.261) and “…they airbrush them and make them look perfect. It’s what you aspire to be…” (p.261). Dittmar (2009) further explained that if women adopt the socially constructed ultra-thin ideal as their own ideal self, there is likely to be a large and psychologically significant gap between their ideal and actual self. Exposure to these thin female images projected by the media may then highlight the gaps between the actual and ideal self and cause negative effect and body dissatisfaction (Dittmar, 2009).

Further, the influence coming from society is not restricted to that of the media, but also to the environment in which a person is surrounded. Rintala and Mustajoki (1992) identified mannequins in clothing stores as a possible influence on women’s perceptions of ideal weight, and that in measuring the proportions of modern mannequins revealed that a woman with that shape and size would probably be too thin to menstruate. Gaining a greater understanding of how people perceive the messages portrayed in the media regarding body size, shape and beauty would assist in the development of effective campaigns such as this one, and health education programs that target the promotion of a health body image across generations.

2.1.5 Body image among children.

Increasingly research has shown that Westernised body image ideals are so pervasive in today’s society that they are reaching people of all ages, and both sexes, including young children (O’Dea & Caputi, 2001; Saling, Ricciardelli, & McCabe, 2005; Thomas et al., 2000). Wardle and Marsland (1990), in a study of adolescents, found that more than 50% of the girls felt too fat and wanted to lose weight. Further, weight concern was almost as high in the 11 year olds as it was in the 18 year olds, suggesting that weight concerns are beginning earlier than previously thought (Wardle & Marsland, 1990), and reaching further towards childhood.

In an early study of school aged children, O’Dea and Caputi (2001) found that body image and weight concerns were present in children as young as six years old, and they noted that body image concerns increased with age. Saling and colleagues (2005) also found body image and eating issues being present in very young children, aged 7-10 years old, while Davison, Markey, and Birch (2000) reported that one-fifth of the five year old girls in their study were at least moderately concerned about their weight. Davison et al. (2000) recognised
that while the weight concern of the girls in their study could be questionable, at the very least the girls were aware of the dialogue surrounding weight status and the desirability of a thin body. Echoing this, Smolak (2004) explained that children as young as three years old may already be aware of anti-fat prejudice, although they are not seriously committed to it.

Several authors have startling findings that large amounts of young people in the normal weight range are discontent with their weight or body image and many are trying to lose weight. Tremblay and Lariviere (2009) uncovered that in their study of young Quebecers, around 80% of the participants were in the normal weight range, yet, more than half of the 9-year-olds and almost half of the 13 and 16-year-olds were not satisfied with their body image. Similarly, Worsley and peers (1990) found that of 15 year old New Zealand adolescents, 75% were within the normal BMI range, yet 68% of the girls and 19% of the boys wanted to lose weight (Worsley et al., 1990). In another study, O'Dea and Caputi (2001) found that about 40% of girls considered themselves ‘too fat’, but up to 80% were actually trying to lose weight. These findings are distressing considering such large portions of healthy weighted children and adolescents are discontent, and there are no health reasons to justify this discontent. This clearly shows that body image, weight, shape and size, irrespective of actual weight, are of considerable concern for young people and that continued efforts to address the issue are critical.

Consistent with O'Dea and Caputi (2001), Holt and Ricciardelli (2008) noted that whilst there are weight and muscle concerns present in young children, they occur with lower frequency and intensity than they do in adolescents and young adults. Recent data from Mission Australia (2009, 2011) found that this was also the case among Indigenous youth, for whom body image concerns increased with age. These socio-cultural ideals of the perfect body are communicated to children from a very young age and through a variety of mediums. For instance, young girls aged 5-7 reported lower body esteem and a greater desire for thinness after playing with dolls such as Barbie (Dittmar, Halliwell, & Ive, 2006). Considering this, it is not surprising that young girls develop body dissatisfaction.

Smolak (2004) reported that some children are already worried about their appearance in order to be accepted by their peers. Similarly O'Dea and Abraham (1999a) discussed that prepubescent children of both sexes who were overweight considered themselves to be less socially acceptable. Unfortunately, children have also been found to employ techniques such as food restrictions and exercise in order to evoke change in their bodies (Smolak, 2004). It
has been stated that BMI is a major predictor of body dissatisfaction and problem eating among children and that children of both sexes who had a larger BMI desired a thinner body (Thomas et al., 2000). Further the girls with a larger BMI were more likely to be plagued by thoughts of dieting or engaged in dieting behaviours (Thomas et al., 2000). These concerns found among children exemplify the inescapable nature of these societal body ideals. It is unknown whether these perceptions are also held by Australian Aboriginal children, and if they are not, what their perceptions are. Further research is required in order to clarify this.

### 2.1.6 Ideal bodies in different cultures.

Beyond perceptions of actual body size, notions of what constitutes the ideal body size across cultures are receiving an abundance of attention in contemporary research. In examining cross-cultural variation in body size ideals, it is important to first understand what ‘fat’ or being heavier represents. Historically, and still in some places around the world today, a certain level of body fat represented health, wealth and prosperity, and weight loss or thinness was a sign of deteriorating health (Becker, 1995; Marlowe & Wetsman, 2001), weakness or worry (McDonald, 2006). Marlowe and Wetsman (2001) argued that in subsistence-oriented societies, such as Hadza people in Africa, the men will find fatter women attractive, due to thinness being an indication of infections, tapeworms or diarrhea. Adipose tissue (or body fat) represents storage of calories, in turn indicating food availability (Marlowe & Wetsman, 2001) and as such, in contexts marked by resource uncertainty individuals would likely suggest heavier bodies are ideal due to the link between fatness and access to food resources (Swami et al., 2010). The same concept has been reported among Indigenous populations for whom the ability to gain weight during ‘good’ seasons, enabled survival during the ‘bad’ seasons (McDonald, 2006).

Around the world, studies have established that certain cultural groups hold larger ideals than others. The ‘ideal female’ in contemporary Western society reflects a very slim, yet toned, attractive female that is incredibly hard to achieve, if not realistically impossible for the majority of women. What is considered ideal is context specific and has been shown to vary across cultural settings. For instance, Asian American women have been shown to have thinner body ideals than European Americans (Barnett, Keel, & Conoscenti, 2001), and Caucasian women reportedly have smaller ideals than African American women (Kronenfeld, Reba-Harrelson, Von Holle, Reyes, & Bulik, 2010).
Further, Forbes and colleagues (2012) found that the mean ideal self figure as selected by US women, was significantly smaller than that of Argentinian or Brazilian women, and Kronenfeld and colleagues (2010) reported African American women preferred larger figures as ideal. Kronenfeld et al. (2010) found that even after controlling for BMI, African American women still preferred larger silhouettes than White women. However, in the report of the large study by Swami et al. (2010), the authors suggested that once socio-economic differences are controlled or absent, cross-cultural differences in body weight ideals are small at best.

### 2.1.7 Risk and Protective Factors.

As introduced in chapter one, there are a number of factors that can either increase or reduce an individual’s risk of experiencing body dissatisfaction or poor body image. Section 2.1 in its entirety has identified many of these factors, including but are not limited to: age, cultural background, gender, body shape and size, exposure to the media, peer group and family support or interaction, education and the environment. Most of these factors can serve as either risk or protective factors being potentially protective or potentially risky depending on the individual’s experience and personality. Similarly, for some, factors that have previously been protective may now serve as risk factors.

For instance, while body dissatisfaction was previously believed to be specifically a ‘white women’s issue’, it is now known to exist cross-culturally and among males and females (Forbes et al., 2012). It is known that up to 80% of women (Forbes et al., 2012) and that increasing numbers of men are experiencing dissatisfaction with their bodies (Grammas & Schwartz, 2009), hence gender can be a risk factor for both males and females alike.

Certain cultural backgrounds, such as those of African-American heritage, have been previously considered to protect women from internalisation of the Western thin ideals and body dissatisfaction, due to a perceived acceptance of larger body sizes (Jones et al., 2007; Poran, 2006). Despite this, recent studies have found body dissatisfaction and poor body image to have permeated minority or non-white cultural groups (e.g. Aruguete et al., 2004; Bordo, 2013) where these may not have traditionally been issues of concern. Particularly, acculturation and culture-clash have been found to contribute to eating pathology (Humphry & Ricciardelli, 2004), body dissatisfaction and poor body image (Ball & Kenardy, 2002; Mussap, 2009).
In a similar manner, age has been found to be both protective and a risk factor for body dissatisfaction. Adolescence is a time known for the genesis of body concerns, particularly sanctioned by the high levels of body comparison with peers that takes place during that developmental period (Carey, Donaghue, & Broderick, 2014) and the increase in body weight that occurs during puberty (Banitt et al., 2008). Adulthood has also presented as a life stage when women are at risk of body dissatisfaction (Roy & Payette, 2012). Body attitudes may change over time, and dissatisfaction may therefore be experienced in different ways by older women (Tunaley et al., 1999). In creating a more comprehensive understanding of positive body image, Tiggemann and McCourt (2013) found that although body appreciation increased with age, body dissatisfaction was still present in many women, meaning that while older women may appreciate the functionality of their bodies, they may simultaneously be dissatisfied with them.

Larger BMI and larger body shapes and sizes have been found to predict body dissatisfaction in adolescent girls (Barker & Galambos, 2003; Stice & Whitenton, 2002), as larger bodies deviate further from the thin ideal valued for women in many cultures. Similarly, unfavourable social comparisons also contribute to body dissatisfaction (Bailey & Ricciardelli, 2010; van den Berg et al., 2007). Social comparison is considered to be an increasing risk factor for body dissatisfaction given the exponential growth in the use of social media sites, such as Facebook (Joinson, 2008). Given the ability of users to construct, reconstruct, or represent ‘reality’ in various ways (Zhao, Grasmuck, & Martin, 2008), critical media literacy is needed to assist users navigate and avoid upward social comparisons (Tiggemann & Polivy, 2010) that result in negative feelings towards themselves.

Low self-esteem has also been found to predict dissatisfaction with body size and shape (Mellor et al., 2010). Supporting this, another study reported that higher body dissatisfaction was associated with lower self-esteem among adolescent females (van den Berg et al., 2010). As such, programs that enhance protective factors by building on a developing self-esteem and resilience skills are likely to reduce body dissatisfaction among adolescents (O'Dea, 2004).

Perceived pressure from parents and peers to lose weight is associated with negative body esteem, body image and eating attitudes (Ata et al., 2007). Similarly, appearance-focused family culture (including parental commentary about weight/size) has been linked to increased disordered eating and body image dissatisfaction in daughters (Kluck, 2010).
Conversely, parental support and family connectedness have been associated with lower levels of unhealthy weight change behaviours and psychological distress (Mellin, Neumark-Sztainer, Story, Ireland, & Resnick, 2002).

Considering that many risk factors for the development of body dissatisfaction and poor body image, such as cultural background, age, and gender, are unmodifiable, a focus on the more fluid and potentially protective factors would be beneficial. These include the promotion of positive physical self-esteem, development of critical media literacy, and a focus on competence unrelated to appearance.

### 2.2 Body Image Research from Different Ethnic Groups

In the past, body image issues and eating disorders have been viewed as affecting only ‘White girls’, with Black women considered ‘immune’, or at least less susceptible to thin body ideals (e.g. Bordo, 2013; Chithambo & Huey, 2013; Flynn & Fitzgibbon, 1998). More recent findings however, challenge this assumption (Mellor et al., 2004) and show that body dissatisfaction is an issue reaching around the globe to many different cultures and ethnic groups (e.g. Becker, 2004; Fleming et al., 2006; Grammas & Schwartz, 2009; Lynch et al., 2007; Yates et al., 2004). Further it is now known that eating disturbance, weight concern and the pursuit of weight loss is also rampant among ethnic minority groups (Li-Wey Soh & Walter, 2013), and research asserts that body image disturbances among ethnic minorities are reaching parity with Western women (e.g. Hay & Carriage, 2012; Shaw et al., 2004).

Culture has shown to have a salient impact on the development of either body satisfaction or dissatisfaction. In a cross-cultural study in eight countries, adolescent females from Fiji (Indigenous), New Zealand, and Tonga reported higher body satisfaction than those from Australia, Chile, China, Greece, Malaysia or Fiji (Indian) (McCabe et al., 2012). Further, in a large scale international study across 26 countries, Swami et al. (2010) found that body dissatisfaction and desire for thinness was commonplace in high socioeconomic status settings. These studies show that while there may be cultural differences in body satisfaction of women, the issue of dissatisfaction is now very widespread and requires international attention.

As established, many studies have reported that people of Western societies have poorer body image and a desire for lower body weight and smaller shape than other groups (Aruguete et al., 2004; Jones et al., 2007; Thompson, Sargent, & Kemper, 1996). A British study provides
support for the ‘immunity’ idea, in that among children with eating disorders, only 1% were Black/Black mixed ethnicity children, while 86% were White British children (Nicholls, Lynn, & Viner, 2011). Bordo (2013) explains that despite the previous assertions that Black men and women have expressed distaste for the “hyper-skinny models” (p.267) valued by Western society, this does not mean body dissatisfaction does not occur among Black populations. On the contrary, in their multi ethnic study of Asian, Blacks, White and Hispanics, Shaw and colleagues (2004) found that ethnic groups may have reached parity in terms of eating disturbances owing to the pervasiveness of socio-cultural pressures to reach thinness that is reportedly now reaching all ethnic groups.

Providing further evidence of this, in their study of African American college females, James et al. (2001) found that the participants had accepted the White standards of beauty as appropriate and one’s that should be achieved. This assertion has important implications for healthy body image promotion and education interventions, and requires more research to assure this is true of all populations. Further, the relationships between appearance norms, social status, ethnicity and health goals require further research (Allan, Mayo, & Michel, 1993).

The westernised thin ideal for women may cause many women to have high levels of body dissatisfaction (Powell & Kahn, 1995; Yates et al., 2004) and to diet to a degree that is detrimental to their health (Mazur, 1986). Most women cannot achieve the levels of thinness depicted by the media as ideal, which accounts for why such large portions of females have poor body image and eating disorders (Attie & Brooks-Gunn, 1989; Hawkins, Richards, Granley, & Stein, 2004). Authors have identified that most ethnicity studies on body image have focused on differences between Black and White individuals in the U.S, with less attention paid to other minority groups (Shaw et al., 2004). However, not all Black women foster the same attitudes regarding body preferences. There are often ambiguities in findings about the opinions and attitudes of Black men and women. This could be in part due to overgeneralisations about a group and neglect of important in-group differences (Flynn & Fitzgibbon, 1998).

Bordo (2013) has expressed that we have a changing world and culture, whereby the increasing popularity of culturally diverse stars such as Jennifer Lopez and Beyoncé Knowles has given Black and other non-white people an opportunity to set new standards of beauty (p.267). This new standard reflects a curvaceous body that is rigorously toned, firm and
athletic which, rather than reflecting a positive shift in body image, has expanded the repertoire of eating problems from starvation diets to include exercise addictions (Bordo, 2013). Further Homan (2010) suggested that endorsement of the firm, athletic body ideal has received limited attention.

In any case, Bordo (2013) makes the assertion that it’s likely that more college girls today, regardless of race or ethnicity, are likely to aspire to some version of this new toned and slim ideal than are pursuing the ultra-slim or ‘hyper-skinny’ ideal. Webb, Warren-Findlow, Chou, and Adams (2013) provided support, in that European American and African American college women reported admiring celebrities who more closely embodied an athletic/fit ideal than an extremely thin ideal. Similarly, Fijian and Australian girls were found to value an average sized, fit and curvaceous body, and while all the girls did articulate a preference for thinness, the Australian girls communicated that extreme thinness was not favourable (Williams et al., 2006).

In the American context, Bordo (2013) explains how for cultural minorities, such as Black populations, ascribing to the mainstream thin ideals when their own cultures are known to support larger body ideals, can make them feel like cultural pariahs. This acculturation, whereby minority women assume the ideals of the mainstream culture (Ball & Kenardy, 2002) can contribute to a culture clash, such that the women are ‘stuck’ between two cultures- not meeting the ideals of either culture (e.g. Fleming et al., 2006; Humphry & Ricciardelli, 2004; Nelson, 2012). This means that women grappling two cultures, and failing to ‘measure up’ in either context, could be facing ‘double’ dissatisfaction.

In examining gender, it is well known the body image perceptions of women and men are different (Ata et al., 2007; Fallon & Rozin, 1985; Miller et al., 2000; Muth & Cash, 1997). Along with gender; ethnicity and acculturation may be salient factors in the determination of body image perceptions, body weight, and disordered eating (Ball & Kenardy, 2002). Fallon and Rozin (1985) recognised that men think women desire heavier statured men than women actually report, and women think men like women to be thinner than what the men actually desire. Moreover, it was found that men do desire women to be thinner than what women perceive themselves to be (even if their perceptions are unrealistic), which suggests there is some realistic basis for the difference between current and ideal figures for women, and hence the pressure women feel to pursue thinness (Fallon & Rozin, 1985).
2.2.1 Ethnic groups within the USA.

There are a vast number of cultural and ethnic groups in the USA. This means there is a great diversity of body shapes and sizes, as well as opinions regarding those shapes and sizes and what is considerable attractive and desirable. There are however, inherent complications with cross-cultural or multi-ethnic studies, due to the fact that ‘comparing’ people of different cultures does not allow much scope for people to identify with multiple cultures. Oetting and Beauvais (1991) saliently explain that “instead of cultures being placed at opposite ends of a continuum, cultural identification dimensions are independent of each other, and increasing identification with one culture does not require decreasing identification with another” (p.665).

There are some ambiguous findings regarding ethnic differences when using body size for body dissatisfaction (Erickson & Gerstle, 2007). There are further complications when examining literature on the body image of bi-ethnic preadolescents due to the homogeneity and low representation of ethnic minorities in these samples (Erickson & Gerstle, 2007). It is important to examine the attitudes of people from all cultural groups in order to understand the scope of the body image concerns facing the modern world.

2.2.2 Body image among African American adults.

Owing to a plethora of studies, it is widely recognised that there are various differences in the body size perceptions of African American and Caucasian populations in the USA (e.g. Allan et al., 1993; Banitt et al., 2008; Flynn & Fitzgibbon, 1998; Henriques, Calhoun, & Cann, 1996; Parnell et al., 1996; Poran, 2006; Powell & Kahn, 1995). Research has consistently shown that White women choose significantly thinner current and ideal body sizes than Black women (e.g. Flynn & Fitzgibbon, 1998; Malpede et al., 2013; Powell & Kahn, 1995; Webb et al., 2013) and that African Americans of both genders, have a greater acceptance of, and often desire for, larger body sizes than their Caucasian counterparts (Jones et al., 2007; Poran, 2006). This indicates that ethnicity has a salient impact on body image, as does one’s social environment. Further, while perceiving larger figures as ideal may potentially reduce the incidence of eating disorders or other harmful behaviours, it can also have serious implications for the development of health concerns such as obesity, diabetes, cardiovascular disease and the like.
Allan and colleagues (1993) highlight that the social environment of most African American women does not endorse conformity to the thin ideal, nor does it promote weight loss activities. Similarly, Greenberg and LaPorte (1996) stated that there may be less pressure in African American communities to lose weight. This could, in part, explain the differences in attitudes about weight and shape found between African American and White women.

It has been suggested that some ethnic minority cultures provide a “protective” factor in terms of preventing body image issues due to a cultural acceptance of larger body sizes and rejection of the Westernised, or mainstream, ultra-thin and extremely muscular body ideals (Chithambo & Huey, 2013; Flynn & Fitzgibbon, 1998). Poran (2006) however, rejected this theory of “Black culture” as a buffer from the negative effects of body representations, and proposed that young Black women are indeed feeling pressures to be thin and to conform to mainstream beauty standards. Further, Poran (2006) found that rather than being insulated or protected from body image concerns, young Black women were confused and felt pressure from so many conflicting judgements and expectations placed upon them.

Specifically, with females, African American women have been shown to be more satisfied with their bodies than are White women, despite having higher weights (Aruguete et al., 2004; Cachelin, 2001; Wilfley et al., 1996). Many authors have uncovered similar findings. In selecting current and ideal figures, African American women chose larger figures for both than did Caucasian women (Jones et al., 2007). Supporting this, Powell and Kahn (1995) found that Caucasian women chose significantly thinner ideals than did African American women, and expressed more concern about weight and dieting. African American women evaluated their appearance more positively, display less concern about dieting, fatness and weight fluctuations as well as reporting fewer negative thoughts about their bodies (Rucker & Cash, 1992). Further, African American women reported heavier body weights, less problematic eating and dietary restraint and heavier body satisfaction than did White women (Henriques et al., 1996). This strongly suggests that African American women are less preoccupied with thinness than White women, but does not conclusively show that African American women are satisfied with their weight.

In accordance with this, Davis and colleagues (2010) hypothesised that African American women would rate heavier models as more attractive than the thinner models, expected to be rated as attractive by the Caucasian women. Similarly it was expected that African American women would rate dressed models as most attractive. Contrary to expectations, and extant
research (e.g. Jones et al., 2007; Poran, 2006; Powell & Kahn, 1995) both groups of women rated the thin, dressed, Black models as most attractive (Davis et al., 2010). This could potentially be due to a high degree of acculturation of the African American women in the study, and in part provides support for the notion that the Western ‘slim’ beauty ideal has permeated many cultures. Davis and colleagues (2010) made the salient point that the general adoption of larger body ideals and lower body dissatisfaction may be less of a reality for African American women today compared to previous generations. The authors continued to explain that being of African American decent and adhering to the culture and traditions may no longer be a protective factor against the process of adopting the body ideals traditionally seen among Caucasian culture (Davis et al., 2010).

Rucker and Cash (1992) explained that whilst African American women are surrounded by the same majority culture standards of beauty as White women, a different set of body image criteria and influences may exist for them. It has been put forward that White women experience greater social pressure than Black women to achieve thinness (Powell & Kahn, 1995) and that Black culture is more accepting of women larger than society’s extremely thin ideal, and places less emphasis on thinness (Powell & Kahn, 1995). The data of Wilfley and colleagues (1996) suggests that Black women may live in an environment that is more permissive of overweight, and that whilst Black women still reported body dissatisfaction, the levels were lower than that of White women of the same overweight status. The differences in cultural attitudes were further explained by Allan and colleagues (1993) in that the majority of Black and White women described extreme thinness as unhealthy. Contrasting with this, almost all of the White participants, compared with less than 25% of the Black women expressed overweight to be unhealthy. Moreover, this contrast in cultural pressure on White women to be thin, Black women were influenced or felt pressure from family and friends to maintain a larger weight and accepted as “just fine” being heavier (Allan et al., 1993).

These differences have also been explained in terms of females’ perceptions of males’ desires of women. Males, regardless of race, have been shown to prefer larger female figures as ideal, than the figures females’ chose as ideal for themselves (Jones et al., 2007; Thompson et al., 1996). African American males and females chose larger figures as ideal for males than did their Caucasian counterparts and Caucasian males chose larger figures for themselves as ideal than did Caucasian females (Jones et al., 2007). Poran (2006) reported that Black
women feel pressured to look good for men and they are confused by the perceived conflicting expectations of men: that White men like skinny girls and that Black men want “butts” and “boobs” (p.745). This is supported by the findings of Thompson and colleagues (1996), that Black adolescent males were more likely to select a larger ideal hip/buttock size than White participants, suggesting a greater approval and social acceptance of a larger body size for Black females by Black males. The perceived preferences of Black men were not reportedly experienced by women as a safeguard but rather as a pressure (Poran, 2006).

It has been suggested that the difference in females lies not in that they have differing desires to lose weight when they are overweight, but rather that they have different perceptions of what is overweight and what is not. Thompson et al. (1996) have proposed that Black females are as likely as White females to attempt weight loss if they perceive themselves to be overweight; however, proportionately fewer Black females perceive themselves to be overweight. This sociocultural factor, along with Black males' greater approval of larger female body sizes, may possibly be part of the aetiology of the higher rates of obesity (Thompson et al., 1996), and lower rates of eating disorders in the Black female population (Powell & Kahn, 1995). It seems that Black culture “protects” Black women from eating disorders by providing an environment that is less focused around extreme thinness (Powell & Kahn, 1995).

Hence, while some research suggest that Black culture is protective of negative body image (e.g. Chithambo & Huey, 2013; Flynn & Fitzgibbon, 1998; Powell & Kahn, 1995; Thompson et al., 1996; Wilfley et al., 1996), there has been an increase in contrasting research suggesting this may no longer be the case (e.g. Davis et al., 2010; Poran, 2006). This indicates the need for further research, to fully understand and address the implications of African American women’s body image perceptions.

2.2.3 Body image among African American adolescents.

African American and Caucasian adolescent groups also often have differing perceptions when it comes to what is attractive, healthy and desired in terms of body shape and size. Over the past half century, there has been a plethora of studies featuring African American adolescents and their body image perceptions (e.g. Banitt et al., 2008; Huenemann et al., 1966; Parnell et al., 1996).
Whilst concern about overweight is rife among White young girls (Banitt et al., 2008; Jones et al., 2007), in the past it appeared that Black adolescent girls may have been more concerned with underweight (Huenemann et al., 1966). The same was also found among the males. Huenemann and colleagues (1966) reported that Black girls were more satisfied with their figures, and less concerned with wanting smaller hips and thighs than the Caucasian girls. Similarly, Parnell and colleagues (1996) reported that the body size considered ideal by Black females was significantly larger than the size selected as ideal by White adolescent females. This provides further evidence of the variance in perceptions that exists between African American and Caucasian populations, in particular the greater acceptance of, and often desire for larger body sizes among African Americans, even among adolescent groups.

More recently, van den Berg and peers (2010) found that Black adolescent girls had higher self-esteem and lower body dissatisfaction than many other racial/ethnic groups and a weaker relationship between body dissatisfaction and self-esteem than White girls. Van den Berg and colleagues (2010) postulate that cultural differences emphasising or deemphasising appearance as a basis for self-evaluation may be a factor.

2.3 Body Image among Indigenous Populations

There are inconsistent findings surrounding the subgroups of Indigenous people from America and Canada. There are vast differences in the attitudes, perceptions and cultures of Indigenous peoples around the world and it is important to take care when making comparisons between groups. Similarly, care must be taken when interpreting findings, particularly when examining Indigenous perceptions around Western constructs, where meaning may be contextually or culturally different. Further it is indicated that there can be vast in-group differences, such as between traditional tribes (Flynn & Fitzgibbon, 1998) which need to be considered when making claims about Indigenous or Aboriginal populations. Flynn and Fitzgibbon (1998) also recognised that with ethnicity studies, it can be difficult due to the fact that many people identify with more than one ethnicity.

2.3.1 Body image among Canadian Aboriginal peoples.

It has been identified that for many Aboriginal peoples, cultural identity informs their personal attitudes, beliefs and knowledge about food and food choice (Willows, 2005), as culture is a very central part of Aboriginal peoples’ lives. In their research with Canadian Aboriginal girls, Fleming and colleagues (2006) found that Aboriginal culture is often
strikingly different from the beliefs of people from dominant White culture. The participants explained the difficulties faced when they cannot fit into the dominant White culture. This culture clash was experienced by participants when their own Aboriginal culture was in conflict with the White culture within which they live or go to school (Fleming et al., 2006). This polarity of attitudes was particularly prominent regarding body size perceptions, as explained by participants. For instance, on home reserves participants explained that everybody is overweight and if you are thinner you are likely to be criticized for being thinner, whereas away from that culture, the cultural expectation is to be thinner (Fleming et al., 2006). Similar findings that centred around authenticity and belonging were echoed in a study with urban Indigenous young people in Australia (Nelson, 2012). Nelson (2012) had a participant explain the complexity of fitting in in various contexts “Cause everyone says I act like a whitefella when I go down (to) Blackwood (an Indigenous community). Like when I come up to Busydale (a large city) they say I act like a real Blackwood girl” (p.67).

Providing further evidence for this difference between Indigenous and mainstream cultures were the findings of Willows (2005), regarding the cultural significance of food for Canadian Aboriginals. The consumption of traditional foods is not just about eating; rather it is the endpoint of a series of culturally meaningful processes including harvesting, preparation and distribution of foods (Willows, 2005). Likewise, in many other traditional communities food carries great significance. This is because in many cultures, such as some Fijian or African cultures, thinness and weight loss is considered a sign of illness or deteriorating health (Becker, 1995), or starvation (Rguibi & Belahsen, 2006) and fatness may be considered a sign of health, beauty, prestige and prosperity. The significance of food and culture can impact the values and attitudes toward the body and health.

Beyond the cultural significance of food, the importance of certain cultural contexts have been identified relating to factors such as food security and access. For instance, Willows and colleagues have reported on the importance of food security among Canadian Aboriginal households (Willows, Veugelers, Raine, & Kuhle, 2009) and how the change in diet from pre-European settlement to contemporary diets contributes to the high levels of obesity evidenced among Canadian Aboriginal peoples today (Vallianatos et al., 2008; Willows, 2011). In a similar fashion, weight gain during pregnancy was explored, and it was reported that Cree women associated “healthy foods” with traditional foods (Vallianatos et al., 2008) and that women who gained what was considered a healthy amount of weight during
pregnancy had greater nutritional knowledge and greater social support (Black, Raine, & Willows, 2008).

Further, there may be a clash in traditional expectations and contemporary body size expectations. For instance, traditionally, lactating mothers were encouraged to maintain their heavier weight following birth, because the type and amount of food she consumed would affect the quality and quantity of her milk supply (Vallianatos et al., 2008). This belief extends that if a mother lost too much weight following birth, she would not produce enough milk and the infant would become skinny and potentially ill (Vallianatos et al., 2008). Understanding these salient links between food security, knowledge, importance and beliefs are an essential first step in understanding the cultural influences on body size attitudes and the implications these have in designing health promotion catering to Aboriginal women. Vallianatos et al. (2008) stressed the importance of community involvement in designing and implementing programs, where social support and traditional knowledge can be provided by Elders and other women, as well as the information and opportunity to overcome some of the economic, social, political and environmental barriers to healthy eating and physical activity.

In another study, Canadian Aboriginal girls and women were found to select heavier desired, most attractive and healthiest shapes for girls compared to non-Aboriginal women (Marchessault, 2004). Further, the Aboriginal participants selected heavier shapes to represent their current shape than did non-Aboriginal participants (Marchessault, 2004). An interesting finding of this study was that greater proportions of Canadian Aboriginal girls (65.8%) and women (82.5%) than non-Aboriginal girls and women (36.1% and 62.2% respectively) expressed desires to be thinner, which suggests that Canadian Aboriginal girls and women are very concerned about their weight (Marchessault, 2004). These findings are a little ambiguous and contradictory and call for further research and clarification. Nonetheless, these findings provide support for the notion that weight concerns are rife among even minority populations.

Further, the unexpected findings of Marchessault (2004) which show greater proportions of Aboriginal girls desiring to be thinner, provides evidence that not all Aboriginal populations are the same and means care must be taken when generalising results with specific populations. Willows (2005) identified that the varying preferences for body size found among Aboriginal peoples may be based in traditional cultural values. Further, it was postulated that culture changes in response to social dynamics that change over time, and
influence from non-Aboriginal cultures cannot be ignored in terms of adoption of body size preferences (Willows, 2005).

2.3.2 Body image among Native Americans.

Unlike the abundance of research surrounding the African American population, there are fewer findings with specific reference to Native Americans in terms of their body image perceptions and behaviours. There are many similarities between the two populations, such as a higher BMI than Caucasian populations (Lynch et al., 2007) along with several most important differences.

A prominent article by Lynch and colleagues (2007) explores the ethnic differences, weight concerns and eating behaviours of Native American, White and Hispanic adolescents (Lynch et al., 2007). It is discussed that the Native Americans had higher BMI’s, on average than the Hispanics and Caucasians in the study. Unlike African Americans who has also been found to have higher BMI’s than other groups as well as a greater acceptance of larger body sizes (Flynn & Fitzgibbon, 1998; Powell & Kahn, 1995), the Native American adolescents were discussed as engaging in high rates of purging behaviours and problematic eating (Lynch et al., 2007). Further to that, it was found that for Native American boys there is a significant link between BMI and purging behaviour, which indicates that purging behaviour may be a particularly significant problem for these Native adolescents, particularly the overweight boys (Lynch et al., 2007).

Acculturation levels have been identified as a determining factor in the aetiology of eating pathology. Several authors have identified that the degree of acculturation may be a key factor influencing body image (Cachelin, Monreal, & Juarez, 2006). Similarly, Perez and colleagues (2002) found that the relationship between body dissatisfaction and bulimia was intensified among ethnic minority women who reported high levels of acculturative stress. It was further explained that combining acculturative stress and body dissatisfaction may cause minority women to experience a greater vulnerability to bulimic symptoms, whereas the nonexistence of acculturative stress in minority women may serve as protective from bulimic symptoms, even with the presence of body dissatisfaction (Perez et al., 2002).
2.4 Body Image Research from Non-Westernised Countries.

Around the world, perceptions of the ideal body can be very different, and in fact, even completely opposite. As previously mentioned, in Westernised countries such as the United States, Australia and New Zealand, the focus is on extreme thinness and low levels of body fat (Mazur, 1986; Miller & Halberstadt, 2005), which is vastly different to the traditional attitudes found in countries such as Fiji, Pacific Islands, Indonesia, and Tonga where there is often an acceptance of, or desire for, larger body sizes, including a pursuit of muscularity (e.g. Alleyne & LaPoint, 2004; McCabe et al., 2009; Ricciardelli, McCabe, Mavoa, et al., 2007; Williams et al., 2006). Providing further support for this, Yates and colleagues (2004) reported that Pacific Islander women tend to be heavier than many others, yet more accepting of their bodies despite their size. This is consistent with reports from other non-Westernised countries where by women are more accepting of larger bodies sizes, such as Fijians and Tongans (Mavoa & McCabe, 2008).

The focus on muscularity found in Western society for males, appears to be present also in non-Westernised societies (Ricciardelli, McCabe, Mavoa, et al., 2007). Similarly, in contrast to traditional preferences that favoured large, robust bodies, research has documented a shift towards thinner ideal body shapes among Pacific Island populations (McCabe et al., 2009). The Westernised body ideals have become increasingly pervasive in recent years. Internalization of the Westernised thin ideal has been proposed to explain the increase in body dissatisfaction and eating disorders even in non-Westernised women (Mussap, 2009). There is a growing body of evidence that demonstrates a shift towards thinner ideal body shapes among Pacific Island and non-Westernised populations in contrast to traditional robust bodies (McCabe et al., 2009). This comes with the rapid globalisation and spread of media influences, such as the introduction of television (Becker, 2004). Becker (2004), in congruence with Mussap (2009), recognised that eating disorders, that were once prevalent in post-industrialised and Westernised societies, now have a global distribution.

In Becker’s (2004) study of Fijian adolescent girls, the influence of television on body image was striking. When asked whether television has affected the way she feels about her weight and body, one participant articulated that “…very much…when I see them (television actors) I think that I have to lose weight” (Becker, 2004, p. 541). Another participant recognised the affect television has on Fijian culture: “Culture in Fiji normally accepts women here as big, heavy. In the TV, women are thin, so it has affected cultural traditions in Fiji” (Becker, 2004,
These examples show that with the introduction of television and the media, traditional cultures, views and attitudes are changing and becoming more Westernised. These findings of Becker (2004) corroborate the earlier findings of Tiggemann and Pickering (1996) that among Western adolescent females, time spent viewing soaps and movies predicted body dissatisfaction, and watching music videos predicted drive for thinness.

In a similar way, television, or the media, has been said to represent a narrow appearance ideal. Diedrichs et al. (2011) found that in examining the media, men and women alike were frustrated with the lack of appearance diversity and desired a new “average and healthy” ideal (p.261). This provides further evidence for the notion that this thin ideal is so pervasive it is invading many cultures globally.

In traditional communities, it has often been reported that muscularity is desired for attainment of strength and fitness, sporting performance, physical work, dominance and health (Ricciardelli, McCabe, Mavoa, et al., 2007). McCabe and colleagues (2009) also cited that males chose functional reasons for muscularity. Despite the reported increase in the adoption of the Westernised thin ideal, in their study of Fijian and Australian adolescent girls, Williams and colleagues (2006) found that the Fijian girls did not desire extreme thinness, and they were more focused on their functionality of their bodies, compared with the Australian girls who desired thinness to look aesthetically pleasing. Further to that, Fijian girls had no concept of their weight (in kilos) or size (in clothes) (Williams et al., 2006). These measures were irrelevant to them, which indicates that care must be taken when conducting research with minority, or traditional groups, to ensure relevance and understanding.

It is known that there is a high prevalence of diseases such as obesity and diabetes in people from non-Westernised countries or traditional cultures such as Fiji, Tonga (Mavoa & McCabe, 2008), African American (Alleyne & LaPoint, 2004; Banitt et al., 2008) and Islander populations (Wang, Rowley, Wang, Piers, & O'Dea, 2007). This higher prevalence of disease has often been attributed to the adoption of “Westernized” diets, that entailed higher consumption of foods high in fat, sugar, and salt, coupled with a decline in physical activity (Ricciardelli et al., 2012). The contemporary Western way of life is in stark contrast to the traditional lifestyles of Indigenous populations, that way very active and did not contain refined foods. Further, the shift from traditional to modern ways of life has had widespread health repercussions for many different cultural groups across the globe.
It is well established that men, across most cultures, have a more positive body image than women (Bowen et al., 1992; Davidson & McCabe, 2006). This however, does not mean that men are satisfied with their body weight and shape. The body of research that examines the body image of men across cultures has uncovered inconsistent findings (Ricciardelli, McCabe, Williams, & Thompson, 2007). Cultural differences are widespread, with White males presenting with the lowest levels of body/self dissatisfaction compared with over one third of Hawaiian males, who were already quite large, desiring a larger stature (Yates et al., 2004). Similarly, nearly 40% of Japanese males wished to be larger (Yates et al., 2004). Grammas and Schwartz (2009) also found that Asian males were less satisfied with their amount of muscularity than Caucasian males. This shows that body dissatisfaction is a salient issue for both men and women all across the globe, and not just specifically in regard to Westernised populations. This issue requires further and more extensive research in non-Westernised countries due to the lack of knowledge regarding perceptions and attitudes coupled with the high rates of obesity, diabetes and other illnesses.

Body image and dissatisfaction is not an issue confined to adults. In a salient study, it was found that when examining ideal body sizes chosen by Chinese children, the gender difference was clear in children as young as six years old, in that boys chose significantly larger sizes for themselves than did the girls (Li, Hu, Ma, Wu, & Ma, 2005). These perceptions which differed by gender were further reinforced as girls chose smaller ideal body sizes for the boys than the boys chose for themselves, and the boys chose larger ideal body sizes than the girls chose for themselves (Li et al., 2005).

Li and colleagues (2005) also found that children and adolescents’ ideal figure selection was similar and had no relation to their own BMI status. Further to this it was found that the mental representation children under five had of their own body was not necessarily an accurate representation of their body (Li et al., 2005). The majority of children reported satisfaction (40.1%) with their bodies, with less mildly dissatisfied (36.4%) and about one fifth moderately dissatisfied (23.5%). However, Chinese children and adolescents did not show greater body dissatisfaction compared to their counterparts in developed countries (Li et al., 2005). Interestingly, in contrast with children in developed countries, more Chinese girls desired a larger body (Li et al., 2005).
2.5 Body Image Research from Australia

Less research has been conducted in Australia than in the USA with specific reference to body image perceptions and attitudes. That said, there is no shortage of research and there are authors who have contributed significantly to the body of knowledge. It is reported that body image in Australia is similar to that of other Westernised countries, whereby females are greatly preoccupied with thinness and a desire to be smaller (Monteath & McCabe, 1997), while men desire lean muscularity (Stanford & McCabe, 2005). According to Yager and O'Dea (2005), body image and weight control issues affect the majority of young adults in some way and to some degree. Due to the pervasive and widespread nature of body dissatisfaction in modern society, it is essential that efforts are made to tackle these unrealistic ideals.

2.5.1 Body image among Australian adults.

In the past, in Westernised countries including Australia, the studies of body image have focused predominantly on females (Ball & Kenardy, 2002; McCabe & Ricciardelli, 2004; Paxton, Schutz, Wertheim, & Muir, 1999), with only a recent surge in the inclusion of males in these studies (e.g. Hargreaves & Tiggemann, 2004; McCabe et al., 2005), or an emergence of male focused studies (Knoesen et al., 2009; Ricciardelli, McCabe, & Ridge, 2006). While the focus of this study is females, future research including or focused on males should reflect the growing awareness and emergence of body image as a concern among males in countries such as Australia. Studies including males should include perceptions and attitudes around desire for muscularity, behaviours focused on body change strategies, poor body image and dissatisfaction and supplement use, as research has suggested these to be increasingly prevalent issues for males (Eisenberg et al., 2012; Grammas & Schwartz, 2009; Tatangelo & Ricciardelli, 2013).

A chronological summary of Australian research among Australian adults including data concerning both males and females is presented in Table 2.1.
Table 2.1.
*A chronological summary of body image research among Australian adults*

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Age</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worsley and Crawford (1985)</td>
<td>730</td>
<td>1985</td>
<td>More women than men reported that they were on some form of diet. 4.7% of women and 1.2% of men considered themselves to be vegetarians. Most people were dieting so for slimming or figure control. Dieters had an average 12% less daily energy intake than non-dieters.</td>
</tr>
<tr>
<td>Monteath and McCabe (1997)</td>
<td>101 (females)</td>
<td>18-55</td>
<td>On average women underestimated the size of their bodies and wanted to be smaller than their actual body size. About two fifths of women expressed moderate to strong negative feelings about their bodies. Older women were more satisfied with their bodies than younger women were.</td>
</tr>
<tr>
<td>O'Dea (1998)</td>
<td>276 (females)</td>
<td>21.3 (mean)</td>
<td>The women perceived their current body size to be bigger than their ideal body size and bigger than the ideal female body but smaller than the ideal male body. A desired body 10% slimmer than their current size was indicated. 42% wanted to be slimmer, 43% were satisfied with their current size and 15 % desired a bigger body.</td>
</tr>
<tr>
<td>O'Dea (1999b)</td>
<td>1131</td>
<td>22.4 (mean)</td>
<td>Males were more likely than females to be overweight or obese compared to females (25% vs. 9%) and females were more likely to be underweight (37% vs. 13%). 43% of overweight/obese males were satisfied with their current body size and 9% wanted to be bigger. Among underweight women, 42% wanted a slimmer body and 43% were satisfied with their current body size.</td>
</tr>
<tr>
<td>Lake, Staiger, and Glowinski (2000)</td>
<td>140 (females)</td>
<td>17-43</td>
<td>Hong Kong born women report minimal body dissatisfaction compared to Australian born women. There is no difference between Hong Kong and Australian born women in eating attitudes, but significant differences in body perceptions.</td>
</tr>
<tr>
<td>O'Dea and Abraham (2001)</td>
<td>216</td>
<td>22 (mean)</td>
<td>Males (85%) and females (87%) advised young overweight adolescents to diet to lose weight. 20% of females and 13% of males regularly skipped breakfast. Participants held misconceptions about eating disorders.</td>
</tr>
<tr>
<td>Ball and Kenardy (2002)</td>
<td>14,779 (females)</td>
<td>18-23</td>
<td>Links length of time in Australia to level of acculturation and adoption of body weight, body image and disordered eating of Australian women. Risk factors for weight and eating pathology present across range of ethnicities.</td>
</tr>
<tr>
<td>Study 1</td>
<td>Sample Size</td>
<td>Age (mean)</td>
<td>Key Findings</td>
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<td>-------------------------------------------------------------------------------</td>
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<tr>
<td>O'Dea and Abraham (2002)</td>
<td>93 (males)</td>
<td>24.0</td>
<td>One fifth worried about their weight and shape, followed rules about eating, and limited their food intake. 9-12% were unhappy with their body shape, felt fat and seriously wanted to lose weight. Exercise was important for the self-esteem of almost half of the males. 34% were distressed they could not exercise as much as they wanted, 27% followed rules about exercising, and 14% worried about the amount of exercise they were doing. 20% of the males displayed eating attitudes and behaviours characteristic of eating disorders and disordered eating.</td>
</tr>
<tr>
<td>Humphry and Ricciardelli (2004)</td>
<td>81 (females)</td>
<td>28.55</td>
<td>Low levels of satisfaction with physical appearance, high levels of parental overprotection, &amp; high levels of perceived pressure from best female friends to lose weight predicted greater eating pathology in acculturated &amp; traditional women. Cross cultural researchers have argued that acculturation with Western society &amp; the adoption of the slim ideal female body size are the primary factors that have contributed to higher levels of eating pathology among Asian women.</td>
</tr>
<tr>
<td>McLean, Paxton, and Wertheim (2009)</td>
<td>200 (females)</td>
<td>35-65</td>
<td>Importance of function and age were associated with restraint. High importance placed on appearance and high BMI were positively associated with body dissatisfaction and disordered eating variables, while self-care and cognitive reappraisal were associated with low concerns. No relationship between age and appearance importance.</td>
</tr>
<tr>
<td>Mussap (2009)</td>
<td>101 (females)</td>
<td>18-44</td>
<td>Non-Muslim women reported higher body dissatisfaction than Muslim women. Results indicative of the potential risks to body image incurred by women who adopt Western values and the benefits in retaining heritage cultural values that promote a positive self-image.</td>
</tr>
<tr>
<td>Yager and O'Dea (2009)</td>
<td>190 (males) 312 (females)</td>
<td>HPE males 20.37 &amp; females 20.18 Non HPE males 21.82 &amp; females 21.09 (mean ages)</td>
<td>Health and physical education (HPE) trainee teachers (both male and female) had poorer body image and higher levels of body dissatisfaction, dieting and disordered eating behaviours than non HPE trainee teachers. Of particular concern is the likelihood of the teachers’ inappropriate and dangerous attitudes and behaviours being intentionally or unintentionally conveyed to their school students.</td>
</tr>
<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Characteristics</td>
<td>Findings</td>
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<tr>
<td>Bailey and Ricciardelli (2010)</td>
<td>196 (females)</td>
<td>18-35</td>
<td>A higher frequency of negative comments was associated with a higher occurrence of upward comparisons; and a higher frequency of positive comments was related to more frequent downward comparisons. Upward social comparisons may be more important than negative verbal commentary in the development and maintenance of body dissatisfaction.</td>
</tr>
<tr>
<td>Yager and O'Dea (2010)</td>
<td>59 (males) 111 (females)</td>
<td>21.6 (mean age)</td>
<td>HPE trainee teachers were considered an ‘at risk’ group for poor body image and eating disorders. Intervention 2- combined self-esteem, media literacy and dissonance program using online and computer based activities. Intervention 2 females improved significantly on Eating Disorders Inventory Drive for Thinness, Eating Disorder Examination and excessive exercise. Improvements were consistent at 6 month follow-ups for females. Successful promotion of body image, reduction of body dissatisfaction and reduction of excessive exercise among trainee HPE teachers via health education curriculum.</td>
</tr>
<tr>
<td>Slevec and Tiggemann (2011)</td>
<td></td>
<td></td>
<td>Review of the literature surrounding body dissatisfaction and disordered eating in middle-aged women: found that most factors are similar to those found in younger women, including BMI, internalisation of the thin ideal, and sociocultural influences. Also factors relevant to aging including menopausal status and aging anxiety impact on body dissatisfaction and disordered eating in middle-aged women.</td>
</tr>
</tbody>
</table>
As shown in Table 2.1, the majority of the body image scholarship surrounding Australian adults, focuses on women in their twenties, rather than across the lifespan. Comparatively, there are few studies on older Australians, likely owing to the convenience of accessing college populations. Further research is required in this area in order to broaden knowledge and gain a greater understanding of the scope of body image issues in this country, for women of all ages. The majority of studies including seniors focus on functionality, body esteem and health, rather than body image constructs. Considering that Australia has an aging population (Australian Bureau of Statistics, 2010) and that body image has proven to be a persistent issue for women into midlife (McLean et al., 2009) and into old age (Roy & Payette, 2012), there is a distinct need for further research into body image across the lifespan. It is also important to conduct more research that is gender specific due to the recent surge and large numbers of males in Australia experiencing body dissatisfaction (Knoesen et al., 2009).

2.5.2 Body image among Australian adolescents.

Adolescence, and puberty, is a challenging time for young people, particularly young women, whom are at risk for low self-esteem and dissatisfaction with body shape and weight (O'Dea & Abraham, 1999b). It is known that approximately 70% of adolescent girls would like to be thinner, while around 45% of adolescent boys would like to be larger (Smolak, 2012), indicating high portions of young people are discontent with their bodies the way they are. O'Dea and Abraham (1999b) highlighted that puberty is often a more positive experience for young males, as the weight and shape changes they endure are often desired, with most males desiring to build up their bodies. Further, due to the personal nature of body image, there is frequently an ambiguity surrounding the issue and various people’s personal attitudes that pose as a barrier to addressing the issue in a way that is relevant and appropriate for everyone.

The literature on the impact of ethnicity or culture on the body image of young people is not concrete in whether such impact is positive or negative, or whether there may be some protective factor from unfavourable body image provided by ethnicity (Cinelli & O'Dea, 2009). Also O'Dea (2002) discovered that body image education programs have the potential to have negative consequences, reporting that some types of body image education may be unsuitable and potentially dangerous for adolescent females. The prevention of body image
and eating problems using educational strategies is among the most prominent goals in contemporary adolescent health education (O'Dea, 2002). The ambiguity of findings of the impact of ethnicity and education programs is suggestive of the need for clarification among minority groups.

In the recent Mission Australia report, body image ranked as a top concern for 28.4% of Aboriginal young people and for 33.3% of the non-Aboriginal respondents (Mission Australia, 2011). Echoing this, in a study of 19 rural and 28 urban Indigenous adolescents, Mellor et al. (2004) found that Indigenous adolescents placed less consequence on body size and shape, with the girls in particular reporting less dissatisfaction with their body shape, and weight compared to non-Indigenous adolescents.

Similarly, in a study of Indigenous Australian and Anglo-European adolescents, Cinelli and O'Dea (2009) found that the desire for weight loss was lower among Indigenous girls compared with their non-Indigenous peers. Interestingly, it was found that the desired body ideal of both male and female Indigenous adolescents was to be bigger and more “built up” than their current weight (Cinelli & O'Dea, 2009). Whilst there is no clear meaning of ‘build up’ in the current literature, the findings suggest that today’s generation of Indigenous young people may be more likely than others to accept and desire a certain degree of bodily ‘bigness’, muscularity or fatness (Cinelli & O'Dea, 2009).

In their study of Australian adolescent males, Stanford and McCabe (2005) reported that males desire a lean and muscular body and hence desire fat loss and an increase in muscle mass. This is similar to the findings of other authors (e.g. O'Dea, 2008; Ricciardelli et al., 2006). O’Dea (2004) expressed that young male adolescents are known to be concerned with their body size and shape and to partake in weight control and weight gain behaviours that may be detrimental to their health. Interestingly, in their study of 397 adolescent males’ weight gain practises and reasons for desired weight gain, O’Dea and Rawstorne (2001) found that one third of adolescent males were actively trying to gain weight via numerous methods including but not limited to eating more food, exercising less, eating more fatty, fried and junk foods, eating more in general and consuming protein shakes. Similarly Paxton and colleagues (1991) found that males around half of the males in their study thought that losing weight would be detrimental and that bigness is a positive feature in males (Paxton et al., 1991). The reasons cited by the boys for weight gain were to be stronger, fitter, to have a better body image and to do better at sports (O'Dea & Rawstorne, 2001). O'Dea and Abraham
(1999b) also found that pubertal males desired to build up their bodies, believing that appearance was important to their sexual appeal. Whilst it is not explicit, these reasons indicate that the desire for weight gain may be for increased muscle, as in other studies (O’Dea, 2008) and not necessarily fat gain (Paxton et al., 1991).

In terms of influences on adolescent male body image, Stanford and McCabe (2005) found messages regarding body size and shape were important. However, it was not the intention of the message provider that was of importance, rather the interpretation of the messages that influenced attitudes and behaviour. These messages were conveyed through role modelling, direct communication, teasing or otherwise (Stanford & McCabe, 2005). Adolescent girls are also known to be affected by the messages transmitted to them (Hargreaves & Tiggemann, 2004).

Not only are there gender differences between adolescent males’ and females’, but there are distinct differences between females’ of different cultures. In a study of Fijian and Australian adolescent girls, Williams and colleagues (2006) found that for Australian girls’ a focus on weight and size was a salient theme for their descriptions of their own bodies, whilst Fijian girls’ had no concept of their own weight or size in kilograms and were more likely to describe themselves in terms of functionality. For example, most of the Fijian girls checked the size of their uniform during the interview to provide an estimate of their current size and explained that not eating well might result in “feel(ing) lazy and lack of energy...” (p.283) whilst Australian girls were more concerned about the fact that gaining weight could mean the inability to “wear nice clothes” and worry about how you look (Williams et al., 2006, p. 283).

(O’Dea and Abraham (1999b), 2001)) found that postmenarcheal adolescent females had greater body dissatisfaction than premenarchial peers and the researchers postulated that this was associated with the rapid increase in height, their weight, and body fat that occurs after menarche. Further to that, it was found that postmenarcheal females were more likely to clearly articulate the meaning of dieting, to report trying to lose weight and to use diet and exercise to lose weight (Abraham & O’Dea, 2001), indicating that they were actually participating in these weight control behaviours. Further, postmenarcheal females had increased personal expectations and were dissatisfied with their weight and shape changes (O’Dea & Abraham, 1999b). This indicates that education efforts must be targeted at young
ladies prior to the weight gain associated with menarche, in order to equip females to adequately deal with, and accept their changing bodies in positive and healthy ways.

Attitudes towards eating and food are important considerations when examining body image and body satisfaction. There is a high degree of variance of attitudes towards food and significance of food and eating from culture to culture, which could in part explain why body image is different across cultures. In 1999, O’Dea found that among children and adolescents, food concerns increased with age for girls, and decreased with age among boys. Further in that study, nearly a third of participants identified concerns about food, and interestingly, the type of concern did not vary according to age or socioeconomic status (O'Dea, 1999a). The majority of participants citing concerns were older girls who were focused on weight control (O'Dea, 1999a). This is not surprising considering that older adolescent females often desire weight loss following the weight gain associated with puberty (Paxton et al., 1999). In another study, O’Dea (2003b) found that adolescents identified motivators for healthful eating included feeling “cleansed”, “refreshed” and “energised” (p.500) and that young people were looking to their parents and teachers to encourage, support and enable them to be involved in healthful eating behaviours.

It has been identified above that a frequent opinion of adolescent females’ is that they are too fat. O’Dea and Caputi (2001) came across the interesting discovery that approximately 40% of the girls perceived themselves as “too fat”, yet up to 80% were trying to lose weight. This could indicate that there are reasons other than perceived excess weight for pursuing weight loss. Further, O’Dea (2004) illuminated that body image concerns, chaotic weight loss behaviours, and eating problems pose a grave risk to the short and long term physical, psychological and social health of young people and intervention programs and more important now than ever.

A chronological summary of Australian research among adolescents is presented in Table 2.2
Table 2.2

*A chronological summary of body image research among Australian adolescents*

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Age</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biddulph, Elliott, Faldt, Fowler, and Dugdale (1984)</td>
<td>277 (females)</td>
<td>15-16</td>
<td>63% of the girls wanted to lose weight. Family and friends were the most common sources of health information, followed by print media (magazines and newspapers) and then doctors.</td>
</tr>
<tr>
<td>Paxton, Wertheim, Gibbons, Szmukler, Hillier, &amp; Petrovich (1991)</td>
<td>341 (females) 221 (males)</td>
<td>11-18</td>
<td>Girls were significantly more dissatisfied with their bodies than boys. Both sexes believed being thinner would impact on their lives, majority of girls thought impact would be positive, majority of boys thought impact would be negative. 27% of girls who fell into the normal weight range classified themselves as overweight or very overweight.</td>
</tr>
<tr>
<td>Wertheim, Paxton, Maude, Szmukler, Gibbons, &amp; Hiller (1992)</td>
<td>606 (females) 315 (males)</td>
<td>13.9 (mean females) 14.1 (mean males)</td>
<td>Extreme weight loss behaviours were used at least occasionally by a large proportion of adolescent girls. Use of weight loss behaviours in both sexes was related to a desire to be thinner. Participants who dieted more had a larger discrepancy between current and ideal body sizes, saw greater advantages in being thinner, and were less satisfied with their body characteristics. Primary predictor of weight loss behaviours in both sexes and binge eating in girls was the desire to be thinner, which included having a larger current body size.</td>
</tr>
<tr>
<td>O’Dea (1994)</td>
<td>133 (females)</td>
<td>13.5 (mean)</td>
<td>Non-disadvantaged group were more likely to eat breakfast, dinner and an evening snack, take vitamin supplements, and have better nutrition knowledge. The disadvantaged group were more likely to be obese (33% vs. 19%), 42% of the girls from both groups were dieting to lose weight. Girls with higher BMI’s had lower body image and self-esteem and were more likely to diet to lose weight.</td>
</tr>
<tr>
<td>O’Dea, Abraham, &amp; Heard (1996)</td>
<td>173 (males) 297 (females)</td>
<td>11-14</td>
<td>Females were more likely to use weight control practices. Pubescent adolescents had greater BMI’s and pubescent females were more likely to perceive themselves as overweight and to desire a lower body weight than prepubescent females.</td>
</tr>
<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Participants</td>
<td>Age (Years)</td>
</tr>
<tr>
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<td>--------------</td>
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</tr>
<tr>
<td>Nowak (1998)</td>
<td>379 (females) 412 (males)</td>
<td>12-15</td>
<td>52% of the girls and 27% of the boys wanted to lose weight. Boys who attempted weight loss reduced sweet foods and snacks and increased fruit, yoghurt and low fat milk. Girls who attempted weight loss ate breakfast, lunch, snacks, milk, bread, meat, and sweet and fatty foods much less than other girls.</td>
</tr>
<tr>
<td>O’Dea (1999a)</td>
<td>663 (both)</td>
<td>Secondary school students</td>
<td>Food concerns increased with age among girls and decreased with age among boys. Nearly one third of adolescents in this study identified concerns about food. The type of concern did not vary among age or SES group. The majority of students with concerns were older girls who were concerned about weight control.</td>
</tr>
<tr>
<td>O’Dea &amp; Abraham (1999a)</td>
<td>173 (males) 289 (females)</td>
<td>Year 7 &amp; 8 Students</td>
<td>Postmenarcheal females had the poorest opinion of their physical appearance. Overweight prepubescent students considered themselves to be less socially acceptable.</td>
</tr>
<tr>
<td>O’Dea &amp; Abraham (1999b)</td>
<td>173 (males) 297 (females)</td>
<td>Year 7 &amp; 8 Students</td>
<td>After menarche, females had increased personal expectations &amp; were dissatisfied with weight/shape changes. Young males at puberty desired to build up their bodies, believing that appearance was important to their sexual appeal. High achieving, more anxious postmenarcheal females were at greatest risk for eating disturbances.</td>
</tr>
<tr>
<td>O’Dea &amp; Abraham (2000)</td>
<td>173 (males) 297 (females)</td>
<td>11-14</td>
<td>Educational interventions can be successful at improving body image and producing long term changes in attitudes and self-image of adolescents. Positive results of intervention were still present 12 months later.</td>
</tr>
<tr>
<td>Abraham &amp; O’Dea (2001)</td>
<td>51 (females)</td>
<td>12.6 (mean; 0.6 SD)</td>
<td>Postmenarcheal females were significantly more likely than premenarcheal peers to have increased their BMI, to clearly articulate the meaning of dieting, to report trying to lose weight and to report using diet and exercise to lose weight.</td>
</tr>
<tr>
<td>McCabe &amp; Ricciardelli (2001)</td>
<td>644 (females) 622 (males)</td>
<td>12-16</td>
<td>Females were less satisfied with their bodies and more likely to adopt weight loss strategies. Males more likely to adopt strategies to increase weight and muscle tone. Parents play important role in transmitting sociocultural messages of body ideals to adolescents. Males less likely to adopt weight loss behaviours, but not less body change strategies.</td>
</tr>
<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Age Range</td>
<td>Findings</td>
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<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>O’Dea &amp; Caputi (2001)</td>
<td>380 (females) / 280 (males)</td>
<td>12-19</td>
<td>23% of normal weight females thought they were ‘too fat’, compared with 7% of normal weight males. A larger portion of normal weight females (45%) were trying to lose weight than normal weight males (10%) whilst more normal weight males were trying to gain weight (30%) compared to 6% of females. 31% of the overweight girls and 48% of the overweight boys perceived themselves to be ‘about right’. More of the overweight girls (69%) than boys (48%) thought they were ‘too fat’. About 70% of the normal weight girls thought they were ‘about right’, yet 45% were trying to lose weight. One third of males in the study were trying to gain weight.</td>
</tr>
<tr>
<td>O’Dea &amp; Rawstorne (2001)</td>
<td>397 (males)</td>
<td>13-18</td>
<td>Reasons cited for desiring weight gain were to be stronger, to be fitter, to have a better body image, and to do better at sports.</td>
</tr>
<tr>
<td>McCabe, Ricciardelli, &amp; Finemore (2002)</td>
<td>527 (males) / 598 (females)</td>
<td>13.22 (mean; males) / 13.21 (mean; females)</td>
<td>Girls were more likely than boys to adopt strategies to lose weight, whereas boys were more likely to adopt strategies to increase muscle tone (but not weight). For boys, the main predictors of body change strategies were puberty and perceived popularity among peers. For girls, the main influences were puberty and the media, although these were mainly focused on weight loss.</td>
</tr>
<tr>
<td>O’Dea (2002)</td>
<td>328 (females)</td>
<td>12-19</td>
<td>Found that educational initiatives to improve body image in adolescent girls may have negative effects.</td>
</tr>
<tr>
<td>McCabe &amp; Ricciardelli (2003)</td>
<td>Study 1: 423 (males) / 377 (females)</td>
<td>13.92 (mean, boys) / 13.69 (mean, girls). Study 2: 199 (males) / 267 (females)</td>
<td>Body change strategies were predicted by feedback from best male friend for boys, best female friend and mother for girls and sociocultural influences for both.</td>
</tr>
<tr>
<td>Hargreaves and Tiggemann (2004)</td>
<td>310 (females) / 285 (males)</td>
<td>8-12</td>
<td>Exposure to idealized commercials led to increased body dissatisfaction for girls but not for boys. Immediate impact of the media on body image is both stronger and more normative for girls than for boys, but some boys may also be affected.</td>
</tr>
<tr>
<td>Stanford &amp; McCabe (2005)</td>
<td>362 (males)</td>
<td>12-14</td>
<td>Parental messages were the strongest influence on body image and parents, the media, and to a lesser extend messages from male friends were the strongest predictors of body change strategies.</td>
</tr>
</tbody>
</table>
Several aspects of a girl’s self-concept may be adversely affected by a heavy weight status, and not just those related to physical appearance or social acceptance. The self-esteem of heavier weight girls was consistently lower than the lower weight girls.

Australian girls wanted to be thinner to look aesthetically pleasing, whilst Fijian girls were more focuses on functionality.

Sport provided adolescent males a context for discussing their body image. Attributes which males liked about their bodies were synonymous with those associated with being successful at sport.

Girls reported a more negative body image than boys. Girls reported a body image that indicated more dysfunction than did boys. Girls were more aware of the social implications of their appearance.

Children and adolescents at low SES schools were more likely to be overweight (19.0% vs. 16.8%) or obese (9.0% vs. 5.8%). Found an important relationship between child’s SES, missing breakfast and poor nutritional quality of their breakfast, and hence, their likelihood of becoming overweight or obese.

Disordered eating was high among girls, in particular girls aged 16-19 years, of whom 18% reported fasting, 3% laxative abuse, 12.6% smoking for weight control, 12.9% vomiting, 3.5% chewing but not swallowing and 5.3% used slimming pills.
### O’Dea (2008)

**Prevalence of Obesity**

Obesity more common among low SES students & those from Middle Eastern & Pacific Islander backgrounds.

The prevalence of obesity was about 20%, surprising, considering comparative prevalence among the same aged children from Anglo/Caucasian backgrounds was 5-7%.

Obese Aboriginal, Pacific Islander & Southern European girls seeing their weight as acceptable & possibly even desirable.

### McCabe, Ricciardelli, Waqa, Goundar, & Fotu (2009)

**Comparative Study of Australians, Fijians and Tongans**

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Number</th>
<th>Gender</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australians</td>
<td>534</td>
<td>270 males, 264 females</td>
<td>11-18</td>
</tr>
<tr>
<td>Fijians</td>
<td>628</td>
<td>342 males, 286 females</td>
<td>11-18</td>
</tr>
<tr>
<td>Tongans</td>
<td>598</td>
<td>296 males, 264 females</td>
<td>11-18</td>
</tr>
</tbody>
</table>

Normal weight Australians were more dissatisfied with their muscles than normal weight Tongans and Fijians, but for overweight participants, the Tongans were also more dissatisfied with their muscles than the Fijians.

In contrast to traditional preferences that favoured large, robust bodies, research has documented a shift towards thinner ideal body shapes among Pacific Islander populations.

### McCabe & Ricciardelli (2009)

**Girls Engaged in Bulimic Symptoms**

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Number</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australians</td>
<td>411</td>
<td>males</td>
</tr>
<tr>
<td>Fijians</td>
<td>436</td>
<td>females</td>
</tr>
</tbody>
</table>

Girls engaged in more bulimic symptoms than boys, particularly overweight girls.

Early maturing girls were more likely to evidence high levels of negative affect and body dissatisfaction.

Low levels of body importance consistently predicted both high levels of the use of food supplements as well as exercise dependence.

Negative affect was a strong predictor of bulimia for overweight adolescents, and body dissatisfaction, pubertal timing and negative affect all predicted bulimia for normal weight adolescents.

### Paxton, Schutz, Wertheim, & Muir (2009)

**Body Image Concerns**

Body image concerns, dietary restraint, and extreme weight loss behaviours were more similar within friendship cliques than between friendship cliques.

Friendship attitudes contributed significantly to the prediction of individual body image concern and eating behaviours.
<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Age Range</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>McCabe, Ricciardelli, &amp; Holt (2010)</td>
<td>344 (boys) 246 (girls) 11-16</td>
<td>Overweight (OW) adolescents experienced greater body dissatisfaction, engaged in more strategies to lose weight, and experienced greater sociocultural messages to lose weight. Sociocultural pressures predicted weight loss among OW, and increasing muscle bulk among normal and OW boys and girls. Body dissatisfaction predicted weight loss for OW boys, and body image importance predicted increasing muscle bulk among OW boys.</td>
<td></td>
</tr>
<tr>
<td>Mission Australia (2011)</td>
<td>45,916 11-24</td>
<td>The proportion of young people ranking body image as a top concern has risen from 26.3% in 2008 to 33.1% in 2011. Body image was a major concern for all age groups and increased with age from 30.4% of 11-14 year olds to 41.1% of young adults. Females were more likely to be concerned with body image than were males.</td>
<td></td>
</tr>
<tr>
<td>McCabe et al. (2012) *Australia and 7 other countries</td>
<td>2,489 (females) 2,152 (males) 11-18</td>
<td>Males were more satisfied with their body than females. Males generally had a lower BMI than females. Strong cultural similarities occur in body satisfaction, however cross cultural differences were found in attitudes toward larger body size.</td>
<td></td>
</tr>
<tr>
<td>Carey, Donaghue, and Broderick (2013)</td>
<td>156 (girls) Year 10 students</td>
<td>Friendship cliques in all-girls schools exhibited similar levels of body image concern and dieting behaviours. Findings support the notion that friendship groups can be an important source of influence among adolescent females in single-sex schools.</td>
<td></td>
</tr>
<tr>
<td>Fredrickson, Kremer, Swinburn, de Silva-Sanigorski, and McCabe (2013)</td>
<td>1660 (males) 1294 (females) 11-18 14.6 (mean)</td>
<td>Accuracy of weight status perception was associated with gender, BMI-z, SES, and weight and shape satisfaction. For girls, weight satisfaction was associated with perceived healthy weight and underweight.</td>
<td></td>
</tr>
<tr>
<td>Tiggemann and Slater (2013)</td>
<td>1,087 (girls) 13-15</td>
<td>Time spent on the internet was significantly related to internalization of the thin ideal, body surveillance, and drive for thinness. Facebook users scored significantly more highly on all body image concern measures than non-users.</td>
<td></td>
</tr>
</tbody>
</table>
2.5.3 Body image among Australian children.

Historically, body image research has focused on adolescents, primarily because this is the time during which body image disturbances are likely to manifest (Birbeck & Drummond, 2003). In recent times however, authors have found these issues of negative body image, obesity and body dissatisfaction to be developing in children many years prior to puberty (Birbeck & Drummond, 2003). In their study of 5-7 year old Australian girls, Birbeck and Drummond (2003) found that six years of age appears to predict perceived body image dissatisfaction, whilst five year olds may also have developed a concept of a body image ideal and preferences.

In a large, recent nationally representative study of 7889 schoolchildren in Australia, O’Dea (2008) found that obesity is more common among low socioeconomic status (SES) students and those from Middle Eastern or Pacific Islander backgrounds. Further, O’Dea (2008) reported that the prevalence of obesity among these groups was around 20 percent. The difference is notable when compared to the Anglo/Caucasian children the same age, for whom the prevalence of obesity was five to seven percent. This data is suggestive of significant cultural or ethnic differences between groups, and has implications for the possible future development of type 2 Diabetes for these groups.

In addition to the ethnic differences in obesity prevalence reported, O’Dea (2008) uncovered an absence of concern coupled with significant level of body satisfaction from obese children of Middle Eastern and Pacific Islander backgrounds. This finding is further supported by McCabe and colleagues (2009) who reported that overweight Fijians and Tongans were more satisfied with their body than Indo-Fijian or Australian adolescents. This indicates that some cultures support attitudes that are more accepting of larger body sizes. Some cultures view fatness as a sign of prosperity, fertility and success (Brown, 1991).

In another study, O’Dea and Caputi (2001) found that children aged 6-12 years of low socioeconomic status were more likely to be overweight, to skip breakfast, to perceive themselves as “too thin”, to be trying to gain weight, and less likely to receive dietary or weight control advice. This is noteworthy as the perceptions of being “too thin” and efforts to gain weight may contribute to the increasing prevalence of child overweight and obesity. Further, this is salient for Indigenous children who also fall into the low socioeconomic
group, as this overweight and lack of dietary advice may perpetuate the cycle of poor health and disadvantage.

It has been shown that overweight often precedes dieting (Reas & Grilo, 2007; Tanofsky-Kraff, Faden, Yanovski, Wilfley, & Yanovski, 2005). Further young people who experience weight concerns and emotional distress may try to compensate by controlling body shape, and in doing so place themselves at risk for eating disorders (Richards, Casper, & Larson, 1990). Because of this there is a trend toward the co-occurrence of increasing eating disorders and increasing child overweight that is of grave concern, and these two trends can be expected to continue in tandem (O'Dea, 2004). The challenge facing health and education professionals is to teach young people about healthy lifestyle and food choices without causing more body image concerns.

As with adolescents and adults, there are gender differences present with children in terms of their body attitudes and image. O’Dea and Caputi (2001) found that overweight females were more likely to consider themselves “too fat” than overweight males, and overweight males were more likely to consider their weight to be “about right” than overweight females. This could be due to the stereotypes of modern day society prescribing that females be thin and males be bigger (more muscular). Similarly, it is known that young girls are particularly vulnerable to messages about being OK as they are conscious about their body image and how they compare to their peers. Further, in the study by O’Dea and Caputi (2001) approximately half of the overweight 6-12 year old children considered their weight to be “about right” and about a third of the 12-19 year olds thought the same. This indicates that as these children get older they may become more aware of the thin ideal. The authors suggested that it’s possible that these children are somewhat protected by not having received any weight control advice and are therefore less exposed to the doctrine of thinness that promotes dissatisfaction (O’Dea & Caputi, 2001). A particularly salient finding is that body image and weight concerns were present in children as young as six years old and that the concerns were increasing with each age group, particularly females (O’Dea & Caputi, 2001).

A chronological summary of Australian body image research among children is presented in Table 2.3
Table 2.3.

*A chronological summary of body image research among Australian children*

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Age</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolland, Farnill, and Griffiths (1996)</td>
<td>139 (females) 105 (males)</td>
<td>8-12</td>
<td>39% of girls and 26% of boys wanted to be thinner than they perceived themselves to be. In the overweight quartile, 76% of girls and 56% of boys wanted to be thinner, whereas in the underweight quartile only 10% of girls and no boys wanted to be thinner.</td>
</tr>
<tr>
<td>Rolland, Farnill, and Griffiths (1997)</td>
<td>139 (females) 105 (males)</td>
<td>8-12</td>
<td>50% of girls and 33% of boys have wanted to be thinner, and 40% and 24%, respectively, have attempted to lose weight. Percentages of girls and boys scoring above the ChEAT screening threshold for anorexia risk were 14% and 8%, respectively.</td>
</tr>
<tr>
<td>Sands, Tricker, Sherman, Armatas, and Maschette (1997)</td>
<td>26 (females) 35 (males)</td>
<td>10-12</td>
<td>Females were more inclined to involved themselves with weight loss practices than males. Found: Body image views and concerns appeared before puberty and that gender differences prevailed with respect to eating/dieting, activity and body image.</td>
</tr>
<tr>
<td>O’Dea (1999a)</td>
<td>468 (both)</td>
<td>6-12</td>
<td>Food concerns increased with age among girls and decreased with age among boys. Children in this study identified concerns about food. The type of concern did not vary among age or SES group. Self-concept was a predictor of problem eating for both genders.</td>
</tr>
<tr>
<td>Thomas, Ricciardelli, &amp; Williams (2000)</td>
<td>97 (females) 105 (males)</td>
<td>8.22 (mean from grade 3) 9.27 (mean from grade 4)</td>
<td>BMI was a predictor of body dissatisfaction for both genders. With the onset of puberty, girls experience a normative increase in body fat which inevitable moves them further away from societies ideal body shape for women.</td>
</tr>
<tr>
<td>Margarey, Daniels, &amp; Boulton (2001)</td>
<td>1985 sample: 1995 sample:</td>
<td>7-15 2-18</td>
<td>Levels of overweight and obesity for both boys and girls increased from 1985 to 1995. Depending on age, 13-26% and 19-23% of Australian boys and girls, respectively, aged 2-18 years are overweight or obese, with prevalence peaking at 12-15 years in boys and 7-11 years in girls.</td>
</tr>
<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Age Range</td>
<td>Findings</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>O’Dea &amp; Caputi (2001)</td>
<td>225 (females) 241 (males) 6-12</td>
<td>Low SES children were more likely to be overweight, to skip breakfast, to consider themselves “too thin”, to be trying to gain weight and less likely to receive dietary or weight control advice. Body image and weight concerns were present in children as young as 6 years old. 14% of normal weight females thought they were “too fat”, compared with 5% of normal weight males. A larger portion of normal weight females (28%) were trying to lose weight than normal weight males (16%) whilst more normal weight males were trying to gain weight (16%) compared to 4% of females. 50% of the overweight girls and 70% of the overweight boys perceived themselves to be “about right”. More of the overweight girls (47%) than boys (25%) thought they were “too fat”.</td>
<td></td>
</tr>
<tr>
<td>Williamson &amp; Delin (2001)</td>
<td>94 (males) 101 (females) 5-10</td>
<td>Girls, irrespective of age, preferred smaller ideal than current shapes and expressed greater body dissatisfaction than did the boys. Emergence of thin ideal in girls as young as 5 years old.</td>
<td></td>
</tr>
<tr>
<td>Lowes and Tiggemann (2003)</td>
<td>75 (girls) 60 (boys) 5-8</td>
<td>6-8 year old girls rated their ideal figure as significantly thinner than their current figure. Emergence of thin ideal in girls around 6 years old. 59% of girls wanted a thinner figure, while 17% desired a larger figure and 24% were satisfied with their current figure size. For the boys, 35% desired a thinner figure, 35% desired a larger figure and 30% were satisfied with their current figure.</td>
<td></td>
</tr>
<tr>
<td>O’Dea (2003a)</td>
<td>4441</td>
<td>6-13</td>
<td>BMI was significantly higher among low-SES than middle/high-SES participants. Low SES primary school children were 1-2cm shorter, on average, than middle/high SES primary school children. SES is a factor in the development of overweight and obesity in Australian school children.</td>
</tr>
<tr>
<td>Wang, Byrne, Kenardy, &amp; Hills (2005)*</td>
<td>768</td>
<td>10-18</td>
<td>Females and older children were more likely to desire thinner figures than their perceived current figures. 28.3% of 10-14 year olds experienced body dissatisfaction. Age and gender differences in body image and eating problems were present in children and adolescents.</td>
</tr>
<tr>
<td>Marsh, Hau, Sung, &amp; Yu (2007) *Chinese children compared with Western children.</td>
<td>763</td>
<td>8-15</td>
<td>Results suggest stronger Chinese cultural values of moderation and acceptance of obesity than in Western culture.</td>
</tr>
<tr>
<td>O’Dea (2007a)</td>
<td>1243 (males) 1347 (females) 6-12</td>
<td>6.4% of males and 5.6% of females were obese. 6.2% of males and 6.8% of females consumed a nutritionally adequate breakfast.</td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Sample</td>
<td>Age Range</td>
<td>Findings</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>Gibbs, O’Connor, Waters, Booth, Walsh, Green, Bartlett, &amp; Swinburn (2008)</td>
<td>23 schools</td>
<td>5-12</td>
<td>Body image concerns in children as young as 5 years old. Recognises body image as integral part of obesity prevention.</td>
</tr>
<tr>
<td>O’Dea (2008)</td>
<td>7889</td>
<td>6-11</td>
<td>Obesity more common among low SES students &amp; those from Middle Eastern &amp; Pacific Islander backgrounds. The prevalence of obesity was about 20%, surprising, considering comparative prevalence among the same aged children from Anglo/Caucasian backgrounds was 5-7%.</td>
</tr>
<tr>
<td>Brown &amp; Slaughter (2011)</td>
<td>20 (boys) 20 (girls) children 16 (boys) 24 (girls) preadolescents</td>
<td>4-8</td>
<td>Found that the thin ideal is already present in primary school children and remains stable into adulthood, with concerning implications for body dissatisfaction and related disorders. Beginning in the early primary school years, the adult female bodies that children rate as attractive are thinner than those that they rate as normal.</td>
</tr>
<tr>
<td>(Spiel, Paxton, &amp; Yager, 2012)</td>
<td>118 (boys and girls)</td>
<td>3-5</td>
<td>Children chose larger figures to represent negative compared to positive characteristics. The figure size selected for negative characteristics was significantly greater in 5- than 3-year-olds but there was no age variation in figure size selected for positive characteristics. Children’s own perceived body size positively predicted the figure size selected for positive characteristics. Findings suggest children’s social environments are important in the development of negative and positive weight attitudes.</td>
</tr>
<tr>
<td>(Tatangelo &amp; Ricciardelli, 2013)</td>
<td>35 (boys) 33 (girls)</td>
<td>8-10</td>
<td>Fitness was an important element of body ideals for boys’ and girls’. For boys the emphasis was on sport, for girls the emphasis was on looking good. Peers both reinforced media messages and helped children critique media messages. Girl’s qualitative comments included “I think it’s important to be a little bit skinny” and “I’m sort of glad I am skinny and not too fat” (p.593).</td>
</tr>
</tbody>
</table>
2.6 Body Image Research and Health Status among Indigenous Australians

There are over 400 million Indigenous people worldwide, all known to suffer poor standards of health associated with poverty, overcrowding, malnutrition, poor hygiene and prevalent infections, which is compounded by inadequate health care (Gracey & King, 2009). Gracey and King (2009) went on to explain that some Indigenous groups, in their transition from traditional to modern lifestyles, are rapidly acquiring lifestyle diseases, such as obesity, cardiovascular disease, type 2 diabetes and physical, social and mental disorders related to drugs and alcohol misuse.

Unfortunately, the plight of Indigenous Australians in terms of health is no different, and is acknowledged and well documented (Armstrong, 2004; Carson et al., 2007). Armstrong (2004) explained that it is unusual to grow old as an Aboriginal person, babies are born at risk, and communities are wrought with poverty, domestic violence, substance abuse and crime. Further to this, communicable diseases leading to higher rates of hospitalization, and higher rates of suicide both contribute to untimely and traumatic death, which in turn perpetuate cycles of trauma and grief associated with and resultant of early negative policies and current problems (Vicary & Westerman, 2004).

While the Australian population as a whole continues to enjoy good health, the Aboriginal and Torres Strait Islander peoples of the same country suffer considerably higher rates of disease and injury (Shilton & Brown, 2004). Considering Indigenous people make up an estimated 2.4% of the Australian population, which is slightly over 500,000 people (Australian Bureau of Statistics, 2006), it is concerning that one of the wealthiest nations of the world cannot seem to close the gap on a health crisis affecting such a small portion of its’ citizens (Taylor & Guerin, 2010). In addition to the issues mentioned by Armstrong (2004) Indigenous populations in Australia face an array of health inequities compared to the general Australian population including higher rates of injury, death and disability, coupled with increased chance of living with chronic illness and a lower life expectancy (Australian Institute of Health and Welfare, 2007).
Finally, Shilton and Brown (2004) also conveyed that in addition to the higher prevalence of individual chronic health problems such as cardiovascular disease and diabetes among Aboriginal and Torres Strait Islander peoples, there are also disproportionately higher rates of co-morbidity due to multiple conditions such as coronary artery disease, peripheral vascular disease, depression and other mental health problems. Whilst these problems discussed are by no means an exhaustive review, they are indicative of the problems faced by many Aboriginal Australians that can contribute to low self-esteem and distress among the Aboriginal population (Vicary & Westerman, 2004).

Unfortunately, many cultural minorities, Indigenous Australians included, are frequently positioned as the problematic ‘other’, compared to the non-Indigenous ‘norm’, to be ‘fixed’ through a host of health and education initiatives (Macdonald, Abbott, Knez, & Nelson, 2009; Nelson et al., 2010). While the state of Indigenous health is undeniable, this pathologised position, or ‘deficit’ view has been known to limit researchers from seeing the valuable knowledge, resources and resilience of Indigenous peoples (Nelson et al., 2010). Zyngier (2003) provided a similar example in the context of education, in that viewing students as ‘at risk’ can serve to further disempower marginalised youth and go on to create a ‘double disadvantage’. Hence, while it is important to understand the position of Indigenous Australians in terms of health, it is also important to understand the place of their own knowledges, skills and beliefs in addressing these issues.

While according to the Human Development Index (HDI) measured by life expectancy, educational attainment, and income, Australia ranks as one of the ‘healthiest’ countries in the world (Cooke et al., 2007), the health of Indigenous Australian’s is significantly lagging (Armstrong, 2004). The HDI ranks Australia as fourth in the world, while Aboriginal and Torres Strait Islanders rank approximately 104th, and appallingly the gap is widening (Cooke et al., 2007). There are a host of reasons for this unjust situation, including social, political and economic reasons-as well as a lack of a formal treaty with the traditional custodians of the land (Armstrong, 2004). Similarly Carson et al. (2007) acknowledge Lowitja O’Donohue’s argument for a model of Indigenous health that takes into account complexities such as systematic racism, history and the ongoing impacts of oppression and
dispossession. Indeed it would be remiss to consider Indigenous health today without considering what brought it to this point.

In reference to Canadian Aboriginal, Australian Aboriginal and Maori Peoples Doyle details a definition of ‘Fourth World Peoples’ as

‘…those who have been aggressively colonised by more powerful cultures…(and) those who have stayed on their lands, but had their cultures, histories and identities subsumed, reshaped and enacted by the colonising powers’ (Doyle, 2011, p. 20).

Doyle (2011) went on to acknowledge the modes of colonisation that were thrust upon the Australian Aboriginal and Torres Strait Islander populations including forced removal of land, massacres and slaughters, and the deliberate introduction of diseases that are all on public record. Genat and Cripps (2011) also recognised the major detrimental and inter-generational effects of stolen land, stolen children, stolen wages and ongoing institutional racism on Indigenous populations and as contributors to Indigenous health today.

It is known that land loss and cultural dispossession meant, among many other things, that through the process of colonisation access to traditional ‘plain’ foods was reduced, resulting in a dramatically changed diet consisting of refined food of lower nutritional value that had grave health consequences then and into the future (Genat & Cripps, 2011; Hay & Carriage, 2012). Further, in conjunction with the adoption of ‘Westernized’ diets, came a reduction in physical activity. This was owing to the stark contrast of the Indigenous lifestyle prior to colonisation, that originally saw Indigenous people gathering, hunting and trapping foods that were low in energy, salt, fat and sugar, and high in fibre and carbohydrates (Gracey, 2007). Namely these changes led to Aboriginal and Torres Strait Islander peoples being known to have a higher risk for a range of disorders related to poor nutrition, such as a diet high in refined carbohydrates and saturated fats (Hay & Carriage, 2012).

The separation and destruction of many families through the ‘protection’ policies known as ‘The Stolen Generations’ carried out by the Australian Government from approximately 1910 until the early 1970’s (Australian Human Rights Commission, 1997), has had, and continues to have dramatic effects on individuals and
communities. Doyle (2011) recognised the grave health and life inequities facing Indigenous Australians including suicide rates, high rates of mental illness, dysfunctional behaviour that occurs in many communities as connected with unresolved grief spanning generations. Further she stated that this “clearly demonstrates the brutality of colonisation in Australia, the ongoing genocidal function of early Australian policies, regardless of intent” (Doyle, 2011, p. 22). Further, many Aboriginal Australians, have had, and continue to have little control over their circumstances (Ricciardelli et al., 2012), and hence are powerless to change their situation.

In a study of 836 Australian Aboriginal people, Wang and Hoy (2004) identified waist circumference, hip circumference and BMI to be significantly associated with cardiovascular risk and recommended standardised measurements and cut-offs be developed to aid in addressing these health inequities with Indigenous Australians. Similarly, a study on adiposity, body fat distribution and BMI in Australians of Aboriginal and European ancestry between 18-35 years old found that Aboriginal and European Australians have significantly different body fat distribution and fat mass for a given body weight or BMI (Piers et al., 2003). Specifically, Aboriginal women were significantly shorter and weighed less than their European counterparts (Piers et al., 2003). While BMI was similar, the Aboriginal women had a significantly greater waist circumference and waist-hip ratio, suggestive of greater abdominal fat even at this young age (Piers et al., 2003).

Piers et al. (2003) postulate that considering the relation of body composition to body weight in young healthy Aboriginal people differs significantly to that of European Australians, then the currently recommended classification of weight status, based on BMI, may be inappropriate for use in this population. More recently, Wang and colleagues also acknowledged that Australian Indigenous people have a different body shape from that of other ethnic populations (Wang et al., 2007). Similarly, the World Health Organisation (1997) recognised that “…very tall and lean Australian Aboriginals tend to have a deceptively low BMI; a healthy range for this population appears to be between 17 and 22…” (p.9).

When examining the literature surrounding the specific body image perceptions of Australian Aboriginal women the findings are ambiguous and often conflicting.
Whilst it is known that higher proportions of Indigenous Australians are more likely to be overweight than their non-Indigenous counterparts, McCabe et al. (2005) recognised there is a dearth of knowledge about the associated behaviours and attitudes. In a study conducted with 333 Aboriginal Australians adults, Turner and Graham (2005) found that the majority perceived themselves to be “just right” (71%), while 10% felt they were “too skinny” and 19% believed they were “too fat” (p.3). It is reported that the responses given were often different to the observed body weight of the participants (Turner & Graham, 2005) indicating that for Indigenous Australian people weight may have different meaning than for non-Indigenous people. This idea that Indigenous people may have different meanings attached to weight than other Australians is similar to the findings of Williams and colleagues (2006) that Indigenous Fijian girls had different concepts and perceptions of their weight and size than Australian girls. Similarly, Ricciardelli and colleagues (2012) postulated that Indigenous Australians do not place importance on their health in the same way as do non-Indigenous Australians. This is not intended to imply that Indigenous Australians place less importance on their health, rather that health can carry vastly different meanings across cultural contexts.

In another study, Cunningham and Mackerras (1998) found that 61% of the Aboriginal males and 57% of the Aboriginal females were categorised as being overweight or obese. This is interesting considering 71% of the participants in Turner and Graham’s (2005) study considered themselves to be “just right” (p.3). O’Dea (2008) provided further evidence of this reporting that obese female adolescents from Aboriginal, Middle Eastern/Arabic and Pacific Islander backgrounds were less likely than their Caucasian or Asian peers to consider themselves “too fat”. Not only did O’Dea (2008) report that one third of these obese girls see their weight as acceptable, but the results suggest that this perception of obesity may possibly even be desirable. This is in stark contrast with their Anglo/Caucasian and Asian peers, of whom nearly 100% perceived themselves to be “too fat” (O’Dea, 2008). These body weight desires may in part be explained by an understanding of historical survival. McDonald (2006) has argued that thin bodies were not valued by Indigenous people who had survived periods of feast and famine. Further to this, many Indigenous people hold the view that thinness is sexually unattractive, indicative of weakness, illness or worry, and the
ability to gain weight during ‘good’ seasons, enabled survival during the ‘bad’ seasons (McDonald, 2006).

Among adolescents, when compared with their non-Indigenous counterparts, Indigenous girls appear to be less dissatisfied with their weight (Mellor et al., 2004) and yet other studies reported they engaged in more strategies to lose weight, gain weight and increase muscles (Cinelli & O'Dea, 2009; McCabe et al., 2005). Binge eating and weight and shape concern were at least as common in Indigenous participants as in non-Indigenous participants (Hay & Carriage, 2012) and yet Aboriginal adolescents were found to be less likely to perceive they were ‘too fat’ than Anglo/Caucasian or Asian peers and larger body sizes may be viewed as acceptable (O'Dea, 2008).

These conflicting findings identify a need for greater clarification. Is there more or less weight concern and dissatisfaction? If there is less dissatisfaction and great acceptance of larger body sizes, why then are Indigenous young people engaging in more strategies for weight loss or gain? These findings are significant and provide support for the findings of Shaw et al. (2004) that ethnic groups may have reached parity in terms of eating disturbances. Similarly, Cinelli (2008) also found that whilst there were disparities in the body image perceptions of Indigenous and non-Indigenous adolescents’, the perceptions of Indigenous females appeared to be quite closely aligned with those of non-Indigenous adolescents’ perceptions.

These studies indicate that a tolerance of overweight and obesity may be present among Indigenous people, similar to that of African Americans (e.g. Parnell et al., 1996). It is for this reason that it is necessary to gain a comprehensive understanding of how Indigenous Australians perceive body weight, underweight, overweight and obesity, in order to assist health and education professionals to best approach these issues among this specific population group.

Australian research illustrates the co-occurrence of obesity and malnutrition among young Indigenous Australians, with the proportion of obese Indigenous people being greater than obese non-Indigenous people by 29% to 17% respectively (Burns & Thompson, 2006). Further to this, 28% of Indigenous children and adolescents are underweight compared with 15% of non-Indigenous children and adolescents (Mellor
et al., 2004). Regardless of these reports of cultural variations in body size and fatness, there remains insufficient information about weight perceptions and body image among Indigenous young people to make conclusive judgments about the current status of body image among young people (Mellor et al., 2004). In particular, there is little evidence suggesting that actual body weight has any impact on the body weight perceptions or health behaviours of Indigenous youths. Hence, there is little information on which to base health, nutrition and education messages.

Further, delivery of healthcare and education must be done in a culturally sensitive and appropriate manner in order to have a positive impact and to be relevant to Indigenous populations (Turner & Graham, 2005). Demaio, Drysdale, and DeCourten (2012) highlight the importance of the ‘Culturally Appropriate Health Promotion’ (CAHP) framework, as a guide for health promotion built on and shaped by the respect for understanding and utilisation of local knowledge and culture. They further state it is

not about targeting, intervening or responding. Rather, it encourages health programme planners, and policymakers to have a greater understanding, respect, a sense of empowerment and collaboration with communities, and their sociocultural environment to improve health (Demaio et al., 2012, p. 58).

It is also known that training Indigenous people to work in the health care system has proven the most effective in providing culturally sensitive and appropriate healthcare, which is also more likely to be accessed by Indigenous people in the community (Armstrong, 2004). Demaio et al. (2012) recognised that in applying the CAHP principles to Australian Aboriginal health, recognising and acknowledging the diversity of Aboriginal communities and their individual cultures, as opposed to assuming cultural homogeneity, is a fundamental aspect that should be adhered to by all. Further, Berry and colleagues highlighted that mainstream approaches to health often fail to accommodate or recognise the relationship between Aboriginal health and connectedness to land- whether traditional, or new land, remote or metropolitan (Berry et al., 2010). These are all factors that must be taken into consideration when addressing Aboriginal health.
Considering that Indigenous Australians are among the most researched peoples in the world (Fredericks, 2008), there is a paucity of specific research regarding the mental health problems closely associated with nutrition and obesity such as disordered eating and binge eating within Australia (Hay & Carriage, 2012). Similarly, the majority of the few studies in this area are confined to adolescent samples and surround body image perceptions and disturbance (e.g. Cinelli & O'Dea, 2009; McCabe et al., 2005; Mellor et al., 2004; O'Dea, 2008; Ricciardelli et al., 2004). Nelson (2012) has aptly explained this lack of, and justifiable resistance to research:

Despite, or perhaps because of, a colonial legacy of seeking to ‘know’ the Indigenous body, there is little research about how Australian Indigenous young people feel towards their bodies, their expressions of their embodied selves, and the ways in which they navigate the multiple discourses ‘about’ their bodies within society (p.59).

Nelson (2012) has undertaken research that has provided insight into the ways in which urban Indigenous young people both engaged with and resisted discourses around ‘proper’ bodily appearance, and perceptions around ideal bodies and found there was great diversity in the perceptions of the young people regarding their bodies and physical descriptions of themselves. This reinforces the need to be cognizant of within group diversity and not assume homogeneity among Aboriginal groups.

In the first known study on eating disorder features in Australian Indigenous peoples from a general population sample of older adolescents and adults, Hay and Carriage (2012) found that eating disorder features, including binge eating and weight and shape concern, were at least as common in Indigenous participants as they were in non-Indigenous participants. Whilst is it unclear whether these concerns regarding weight and shape were related to physical health and obesity literacy or the social stigma towards obesity and desire for thinness, it is evident that weight concern and eating disorder behaviours do exist in Indigenous Australian peoples (Hay & Carriage, 2012). Supporting this, Ricciardelli et al. (2012) hypothesised that considering the changes that are instigated by adoption of the ‘Westernized’ lifestyles, it could be said that a closer identification with the dominant mainstream culture is associated with a more negative body image and more unhealthy patterns of exercise and eating (p.3).
A comment by a young Aboriginal woman (17 years old) pays homage to the influence of Western society, the media in particular on young peoples’ beauty perceptions and body size ideals:

The media has already messed up this generation’s view on what is ‘beautiful’. I think that big won’t be beautiful until a very long time when the people of this time are long gone. Years ago, an Australian size 14-16 for a woman was considered healthy and attractive; now a size 14-16 is considered overweight and unattractive. I think it’s disgusting how many teenage girls consider suicide and fall into depression when really they are such beautiful people. I hate how I judge others by appearance. It was drilled into me by the media as I grew up (Mission Australia, 2012, p. 14).

The majority of the body image research with Indigenous Australians, is with male and female adolescents (Cinelli & O’Dea, 2009; Mellor et al., 2004; Mission Australia, 2012) or is gender segregated with Indigenous adults (Ricciardelli et al., 2012; Fredericks, 2005). Considering the increase in acknowledgement of body image concerns among Indigenous peoples, particularly males, future research could include both male and female Indigenous adult participants, to contribute to a greater understanding of how gender and culture intersect or diverge to influence body image and associated concepts, and how these concepts operate for Indigenous adults.

A chronological summary of body image research specific to Indigenous Australians is presented on the following page in Table 2.4.
Table 2.4.
*A summary of body image research conducted among Aboriginal and Torres Strait Islander Australians*

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Age</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mellor et al. (2004)</td>
<td>47 (19 rural and 28 urban) (male and female) *Indigenous adolescents, Victoria</td>
<td>12-16</td>
<td>Males place more consequence on muscle size and strength than girls. Rural participants placed more importance on weight than urban participants. Overall Indigenous adolescence of both sexes place less importance on their body shape than non-Indigenous adolescence and less appear to be dissatisfied with their weight. Indigenous girls in particular appear to be less dissatisfied with their weight.</td>
</tr>
<tr>
<td>Ricciardelli et al. (2004)</td>
<td>22 (males) 25 (females) *Indigenous adolescents, Victoria</td>
<td>12-16</td>
<td>Sociocultural influences were found to be associated with body image concerns and body change strategies among both Indigenous and non-Indigenous cultural groups. Indigenous girls and non-Indigenous boys were similar in terms of their lack of concerns.</td>
</tr>
<tr>
<td>McCabe et al. (2005)</td>
<td>50 (males, 25 Indigenous, 25 non-Indigenous) 50 (female, 25 Indigenous, 25 non-Indigenous) *Indigenous and non-Indigenous adolescents, Victoria</td>
<td>12-16</td>
<td>Girls were more likely to be dissatisfied with their weight and engage in strategies to lose weight. Indigenous adolescents engaged in more strategies to lose weight, increase weight, and increase muscles than non-Indigenous adolescents, despite perceiving fewer messages about losing weight.</td>
</tr>
<tr>
<td>Turner and Graham (2005)</td>
<td>333 *Aboriginal Australians</td>
<td>15-70</td>
<td>Found that the majority of participants perceived themselves to be &quot;just right&quot; (71%), while 19% believed themselves to be &quot;too fat&quot; and 10% thought they were &quot;too skinny&quot;.</td>
</tr>
<tr>
<td>O'Dea (2008)</td>
<td>7889</td>
<td>12-18</td>
<td>Obesity more common among low SES students &amp; those from Middle Eastern &amp; Pacific Islander backgrounds. The prevalence of obesity was about 20%, surprising, considering comparative prevalence among the same aged children from Anglo/Caucasian backgrounds was 5-7%. Obese Aboriginal, Pacific Islander &amp; Southern European girls seeing their weight as acceptable &amp; possibly even desirable.</td>
</tr>
<tr>
<td>Source</td>
<td>Study Size</td>
<td>Age Range</td>
<td>Findings</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cinelli and O'Dea (2009)</td>
<td>4367</td>
<td>12-16</td>
<td>Indigenous adolescents, male and female, were more likely than their non-Indigenous peers to desire and pursue weight gain. Indigenous adolescents were more likely to receive parental and familial advice about the desirability of weight gain.</td>
</tr>
<tr>
<td>State Government Victoria (2009b)</td>
<td>10,000&lt;</td>
<td>12-17</td>
<td>Data suggests that a higher proportion of young Aboriginal people aged 12-17 years had an eating disorder at 8.4%, compared to young non-Aboriginal people at 3.3%. Available data on eating disorders may be an undercount due to the nature of the illness.</td>
</tr>
<tr>
<td>Hay and Carriage (2012)</td>
<td>3034</td>
<td>&gt;15</td>
<td>Rates of objective binge eating and levels of weight and shape influence on self-evaluation were significantly higher in Indigenous compared to non-Indigenous participants (in 2005).</td>
</tr>
<tr>
<td>Nelson (2012)</td>
<td>14 (6 male, 8 female)</td>
<td>11-15</td>
<td>The young Indigenous people engaged with, were ambivalent to, contested and resisted discourses around ‘proper’ bodily appearance, the obligation to ‘work’ on their bodies, their perceptions of an ideal body, their negotiation of an authentic ‘Black’ body and the ways in which they used their bodies to perform or achieve.</td>
</tr>
<tr>
<td>Mission Australia (2012)</td>
<td>643</td>
<td>15-19</td>
<td>About 75% of all Aboriginal and Torres Strait Islander young people indicated some level of concern with body image, with responses ranging from slightly concerned (18.7%) to extremely concerned (17.0%). Body image was the 2nd top issue of concern for Aboriginal and Torres Strait Islander young people (by a narrow margin), while body image was ranked 3rd amongst non-Aboriginal and Torres Strait Islander young people.</td>
</tr>
</tbody>
</table>

While Aboriginal populations are among the most researched in the world (Fredericks, 2008), Table 2.4 reflects the lack of data specifically focusing on the body image perceptions of Aboriginal Australians. Further, all the studies that do exist, reinforce the need for further research, as much of the findings are conflicting yet affirm the existence of body image issues and body dissatisfaction among Aboriginal populations.
2.6.1 Spirituality and conflicting cultures.

When discussing any area surrounding improving health and wellbeing outcomes for Aboriginal peoples, it is imperative to recognise the magnitude of the importance of spirituality for many Aboriginal peoples (Grieves, 2009). It is also important to acknowledge the considerable regional and cultural variation among Aboriginal and Torres Strait Islander peoples and communities (Shilton & Brown, 2004). Considering this, it is acknowledged that the concepts surrounding spirituality and health may not be representative of all Indigenous Australians, but rather provide a general overview of some views and beliefs.

Grieves (2009) defines spirituality as “the basis of our existence and the way of life that informs our relationships to the natural world, human society and the universe” (p.3). Grieves (2009) draws on the notion of Indigenous Knowledges to explain a way of understanding how Indigenous people may be informed by their experiences, knowledges and beliefs about the world, in terms of being, and thus wellbeing. Indigenous Knowledges is referred to by Grieves (2009) as: “two forms of knowledge that now interact; the first is non-Western knowledges that Indigenous people held prior to and since their colonisation” (p.2) and “Western knowledges that have been used to oppress and repress” (p.2). This ‘culture clash’ and the negative effects this can have on a group of people has been expressed by many authors over time (Fleming et al., 2006; Humphry & Ricciardelli, 2004).

Grieves (2009) explains this ‘culture clash’ with respect to Aboriginal Australians who may be living predominantly within one or the other ontological systems, deemed as Aboriginal or Western, when having to deal with the existence and influence of the other but continually having to deal with a world where these ontologies collide (p.2). Further, this collision of ontologies has produced many years of immense tension for Aboriginal people as the pull to be one kind of person in one world conflicts with the pull from the other (Grieves, 2009). This notion has been echoed by young Aboriginal women in Canada who felt that their own Aboriginal culture was in conflict with the White culture within which they live or go to school (Fleming et al., 2006).
Fredericks and colleagues (2002) expression of this conflict in reference to body image is noteworthy:

We as Aboriginal women are fully aware that the adoption of western images of the body can cage us, trap us, if we allow ourselves to become focused on the western image of what is considered beautiful in the Australian context (Fredericks et al., 2002, p. 140).

Further, Fredericks (2005) has poignantly articulated the conflict Aboriginal women may feel when attempting the grapple with mainstream ideals of beauty in Australia:

There can be no doubt that there are conflicts between how mainstream society generally sees the image of the body and how Aboriginal women...see the image of the body.
There may be continual struggles between the images, concepts of health, wellness, beauty, fitness and other aspects as it is defined for us as Aboriginal Australian women by others (Fredericks, 2005, p. 2).

Body image for Aboriginal women, as for all women, is a complex and malleable perception that is influenced by a great deal of factors. Spirituality is one of these main factors for many Aboriginal women. Grieves (2009) provides an overview of the philosophical underpinnings of what it means to be a person, to be a person in relation to other people, the relationships to the wider world and the associated understanding of wellbeing in terms of Aboriginal Spirituality. She further explains that this concept of “wholism”, which Aboriginal people refer to when they speak of a wholistic view of themselves and the world around them, is poorly understood and difficult to articulate- even for those who live it. Despite this, is it fundamental to the understanding of Aboriginal personhood, and therefore to the health and wellbeing of a person (Grieves, 2009). Keleher and MacDougall (2011) elaborate on this concept, in terms of exploring Indigenous approaches to health, explaining that one cannot separate health from life, spiritual and social relations and the environment.

Fredericks and colleagues (2002) saliently write about their own body image experiences as Australian Aboriginal women and athletes. They expressed that whilst the beauty ideals in Australian society has changed over time in terms of shape and size, it has remained uniformly white, and that whilst the contemporary ideal is thin, young, energetic, fit, healthy, sexualized,
smooth-skinned, glamorous— it promotes being tanned, but not “black” (Fredericks et al., 2002). Echoing this notion, Diedrichs et al. (2011) had a participant provide an apt comment about the narrow Western beauty ideals:

…they’ve always got, like, really small bodies. They’ve always got the same sort of hair, like supermodel flowing hair. They’re just the picture of a luscious model or girl…like the current picture of beauty (p.261).

Pamela Croft’s artwork *Once We Mount Armour*, represents a woman’s body, and depicts a metal skirt said to represent her understanding that if Aboriginal women are to adopt the Western image of the body and what is considered beautiful in the Australian context, that they will become caged, trapped (Fredericks, 2005). Fredericks and colleagues (2002) further express that when most mainstream Australian eyes look at body images, they look only at the exterior of the body to determine health, beauty, youth. In contrast, Aboriginal people look at the whole person within the context of that person’s life to determine whether that person is balanced, healthy and well (Fredericks et al., 2002). Further, the authors express that it is not what you see on the outside that is important, but that what is on the interior that is important (Fredericks et al., 2002). Whilst they are referring to the message provided by Croft’s artwork, it is a powerful message that would most certainly benefit many young people who are bombarded by images in daily life depicting so called ‘health’, ‘youth’ and ‘beauty’- shown only through the exterior of a person.

Similarly, Romaine Moreton’s powerful poem *Ode to Barbie* poignantly explores an Aboriginal women’s acceptance of different ideals of beauty, after years of trying to assimilate:

I never had a barbie doll complex,
simply because
I didn’t look like her,
but importantly,
now after years of trying,
did no longer want to look like her… (Moreton, 2000, p. 21).
While this concept may or may not apply broadly to Aboriginal women, it is indicative of an understanding of the incompatibility of Western beauty ideals with many Aboriginal views of beauty. The importance of the Aboriginal view of looking at the whole person, interior and exterior is articulated by Fredericks and colleagues (2002):

> We need the interior because this is what balances us, our health and well-being. Our Aboriginality and being strong within our Aboriginality is what makes us healthy and well. It is about the whole, inside and outside, our emotional, intellectual, social, mental, spiritual, sexual, sacred and physical selves; all that we are as Aboriginal people. If this is happening in a good strong, empowered and respectful way then this is what makes us beautiful (p.140).

### 2.6.2 Physical activity among Indigenous Australians.

In Western societies, discourses surrounding health and the salience of body regulation, such as eating well and exercising are rife, and have been accepted as what is ‘right’ (Gard & Wright, 2001). While the benefits of physical activity cannot be denied (Shilton & Brown, 2004), physical activity has been viewed as a panacea- a remedy for disadvantage (Nelson et al., 2010). On the other hand, physical inactivity is a known salient risk factor for both type 2 diabetes and cardiovascular diseases, and psychosocial risk factors are being increasingly recognised as significant contributors to coronary heart disease (Shilton & Brown, 2004). Nelson and colleagues (2010) recognise that physical activity has been advocated as a remedy for some of the many issues facing Indigenous young people, but that there is very little understanding of the contemporary meanings of physical activity held by Indigenous Australians.

For many Indigenous young people, engagement in sport, leisure and physical activity has been advocated as providing an opportunity for upward socio-economic mobility as well as an antidote to some of the high risk behaviours young people often engage in (Nelson et al., 2010). It has been said that participation in sport provides a ‘level playing field’ and a platform for Indigenous young people to excel, however this implies equal opportunities to participate, which is not always the case. Shilton and Brown (2004) recognise the many psychosocial stresses facing the Aboriginal and Torres Strait Islander peoples, such as dispossession, unemployment, separation from family and culture, economic hardship and associated deprivation, and lack of
self-determination, and postulate that these risk factors are likely to be salient contributors to the chronic disease among this population group.

Shilton and Brown (2004) expressed the potential benefit of physical activity programs for Aboriginal and Torres Strait Islander peoples as they can contribute to the reduction of chronic disease, improving physical and mental health and wellbeing, and improve social factors such as community connectedness. A study with Canadian Aboriginal people echoed these benefits, showing improvements in health measures including waist circumference following a community based physical activity intervention program (Foulds, Bredin, & Warburton, 2011). Based on their results Foulds et al. (2011) also propose that community based interventions are likely to be more successful among Aboriginal populations. Nelson and colleagues (2010) provide further support for community based interventions, stressing the importance of resisting approaches that assume “homogeneity, monoculturalism and fixedness” (p.506), as well as the necessity to encourage and support Indigenous people to use their knowledge, values and culture as strengths and resources in their physical activity engagement.

In terms of the participation of Indigenous people in sport, there are mixed reports. Blair et al. (2005) reported that in a Western Australian study, Aboriginal children, compared with non-Aboriginal children, were three times less likely to have exercised in the previous week. On the other hand, the Australian Bureau of Statistics reported that in 2008, nearly three-quarters (74%) of Indigenous children aged 4-14 years were physically active for at least an hour every day in the week leading up to the data collection (Australian Bureau of Statistics, 2009). Further, greater proportions of the Indigenous children living in remote areas were found to have been physically active every day (84%) than were those living in major cities (65%) (Australian Bureau of Statistics, 2009).

Similarly, Macdonald et al. (2009) interviewed 14 Indigenous children, all of whom cited being very active, and had various motivations for participation including fun, skill development, increased confidence, to ‘keep healthy’, prevent illness and to get stronger. Further, the children saw themselves as healthy and not ‘at risk’ of ill health, despite the media and literature suggesting Indigeneity is a major risk factor for ill health (Macdonald et al., 2009). In a similar qualitative study with 14 Indigenous adolescents, Nelson (2012) found that the young people
viewed physical activity as doing ‘work’ on their bodies, and that being inactive was associated with being lazy.

2.7 Implications for Health and Education

It is reported that body image concerns, eating problems and obesity among children and adolescents are becoming increasingly targeted for preventative health education and health promotion programs (O'Dea, 2005). It could be suggested that when addressing any health education problem or planning any prevention program, it is important to be explicit and specific about what is the ‘target’ to be achieved (Laverack & Labonte, 2000) and have a clear definition of what it is that we are trying to prevent. Further, Marmot (2005) suggested that health status should be of concern to all policy makers, not solely those involved in health policy. In the case of the current research, the aim is to gain a greater understanding of the perceptions of a sample of Indigenous Australian women regarding their bodies and to understand how, if at all, this differs from the non-Indigenous Australian population.

The promotion of a healthy body image is desirable because it impacts on many aspects of adolescent health including self-image, psychological health (O'Dea, 2006), participation in physical activity (Dounchis et al., 2001), avoidance of dangerous dieting and it is part of the array of self-concept factors that promote and protect general child health status (Mann, Hosman, Schaalma, & DeVries, 2004). O’Dea (2005) also recognised building child self-esteem to be a logical approach to the prevention of body image and eating problems.

In order to bridge the gaps in health and education that occur between population groups in Australia, particularly the inequities facing Indigenous Australian peoples, gaining understanding of culture and views is necessary. Marchessault (2004) insightfully postulated that understanding how people feel about their weight is critical to the success of health intervention programs. The same could be said of education aimed at developing personal skills and knowledge. Further, Marmot (2005) recognised as a social justice issue, the need to reduce the social inequalities in health, and hence meet human needs, which is strongly applicable to the gap facing Australia’s Indigenous populations.
Developing programs is easier said than done, as Aboriginal culture and views of the world are strikingly different from Western culture (Reynolds, 2005), hence it follows that their self-perceptions are likely to be different too. Further, Brady (1993) identified that Aboriginal adolescents are seldom the subject of health research in Australia, particularly specifically looking at body image perceptions.

Olsen, Rynne, and Macdonald (2002) argue that a contemporary challenge for educators is recognising and meeting the needs of a vast range of students, including Indigenous students. The ability to achieve the inclusion of Indigenous students in school activities is further compounded by the findings of Ricciardelli et al. (2004), that for Indigenous people there may be a reluctance to discuss private issues such as body image, as they are often seen as taboo subjects, particularly among community elders. This contributes to the significant gap in the literature surrounding the Indigenous population, and it is necessary that further research is carried out in a culturally sensitive manner.

Marchessault (2004) recommended that health educators in Canada may plan their educational efforts based, in part, on the assumptions that First Nations people consider larger body shapes attractive and healthy. Understanding whether Indigenous Australians have similar perceptions regarding healthy and desirable body shapes would contribute to the body of literature informing health education in schools. Piran (2004) recognised that teachers are on the “frontline” with students and in a position of power to convey critical information, values, norms and other culturally encumbered material. This position of intensive interaction allows teachers great potential to become involved in the prevention and treatment of eating disorders and childhood obesity and should be geared towards health education and promotion (Piran, 2004). Unfortunately, it is discussed that schools are not making the most of these opportunities to address these salient issues (Yager & O'Dea, 2005), particularly since properly planned and evaluated school based health education programs can have a positive and lasting impact on body image, eating behaviours, attitudes, and the self-image of adolescents (O'Dea & Maloney, 2000). There is also great potential to address the surrounding issues of body dissatisfaction, self-esteem, and self-efficacy in a safe and health promoting environment.
Polce-Lynch and colleagues recognised self-esteem as playing a central role in the mental health of young people (Polce-Lynch, Myers, Kliewer, & Kilmartin, 2001). Extending this, positive self-image and a strong sense of self-worth is likely to help young people become more content with their bodies, and Mann and colleagues (2004) recognised self-esteem as a salient protective factor in terms of better mental health and social behaviour.

Alternatively, programs that are not planned or delivered properly have the potential to do more harm than good (O'Dea, 2002). O’Dea (2006) suggested that those who work with young people in a health promoting capacity need to recognise that heavier-weight teenage girls are vulnerable to developing body image concerns and low self-esteem and that focusing on weight may only make them feel worse about their bodies and themselves in general.

The environment in which issues such as obesity, eating disorders and unhealthy weight loss practises, are taught, can be seen as a possible “toxic” environment which has the potential to cultivate these problems (Irving & Neumark-Sztainer, 2002). Such programs, like the information giving approach, can glamorise and normalise eating disorders and disturbances, as well as introduce young people to methods of weight control that are dangerous and health harming, such as laxative abuse and starvation (O'Dea & Abraham, 2000). It has been put forth that school based programs may unintentionally create harmful effects if teachers and school staff transfer negative beliefs and attitudes to students including their own poor body image, and weight prejudices (O'Dea & Maloney, 2000).

Piran (2004) discussed teachers as being role models and the importance of examining their own past body-anchored experiences and attitudes, including “weightism” (p.4). This critical consciousness could reduce the potential for inadvertent transference of misinformation, prejudices and inappropriate advice from teacher to student. On a more positive note, the findings of O’Dea and Abraham (2000) demonstrate that educational interventions can be successful at improving body image and to produce long term changes in attitudes and self-image of young adolescents. It is necessary to examine whether these interventions would also be applicable, relevant and successful for Indigenous young people.

Cinelli and O’Dea (2009) reported that young people, particularly from Indigenous populations from around the globe, must grapple with conflicting cultural perceptions involving their own
self-image, parental coercion and peer group pressure. Walker (1993) explained how young Indigenous Australians are taught to be “Black and proud” (p.51) and that “Black is beautiful” (p.51) but that often the racism encountered in schools and wider society challenges these notions. Other authors agree these conflicting cultural messages can cause angst and confusion for young people (Humphry & Ricciardelli, 2004; Mellor et al., 2004). It is for this reason that Cinelli and O’Dea (2009) recommend before planning, designing and implementing health education programs for Indigenous youth, educators and professionals should take cultural attitudes into consideration to avoid confusing or contradicting healthy lifestyle messages, or creating unnecessary weight concerns.

Tiggemann (2005) recommended that protective strategies should be aimed at increasing the relative importance of non-appearance domains, including scholastic performance, sporting ability or pleasant personality, as these are potential sources of self-esteem and may be particularly salient for heavier weight girls. Drawing upon Tiggemann (2005), O’Dea (2005) recognised the importance of developing a positive self-image, which includes valuing a broad array of aspects of the self, other than physical appearance, as this is likely to help children value their many different characteristics along with those of others. Development of positive self-image such as this could potentially reduce children’s obsession with perfectionism, and strive for perfectionism with the belief that being perfect is necessary to be loved, valued and accepted (O’Dea, 2005).
CHAPTER 3 - METHODOLOGY

3.1 Development of the present study

The development of this research was partially guided by a previous research study that focused on Indigenous Australian adolescents and body image (Cinelli & O'Dea, 2009). Discussions were also conducted with Indigenous advisors from the University of Sydney Koori Centre as well as Aboriginal women from the local community. The 2008 honours research experience, health education background of the researcher and four main studies in particular informed the development of this research. Of particular importance was the analysis of national study data conducted by the PhD candidate (Cinelli & O'Dea, 2009) as well as those pioneering studies conducted among Indigenous adolescents in Victoria by a Deakin University research group (e.g. McCabe et al., 2005; Mellor et al., 2004; Ricciardelli et al., 2004).

The honours research of the PhD candidate focused on the body image perceptions of male and female Indigenous adolescents. This honours research was a combination of qualitative and quantitative research, which included analysis of national data and a smaller number of interviews with Indigenous adolescents (Cinelli, 2008). The interviews with the Indigenous males uncovered important implications and barriers relating to being a female researcher discussing body image, which is considered a private issue, with young males. The presence of an Indigenous male lessened the barrier, however this informed the decision to exclude males from the present study.

Similarly, the researcher approaches this study from a background in health education, and as such has the intention of providing insight into what the body image perceptions of Aboriginal and non-Aboriginal women are, in order to address this gap in the literature. It is expected that an understanding of the body image perceptions of Aboriginal women across the lifespan, and how these may differ from non-Aboriginal women would assist in the development of health education that follows the health education teaching principle “first, do no harm” (O'Dea, 2002). As with McCabe et al. (2005), it is hoped that the findings of the current study will be of benefit in providing a platform to inform the development of educational materials that can be designed to address the specific needs of the Indigenous Australian population particularly in schools.
Mellor et al. (2004) conducted their initial research study among 19 rural Indigenous adolescents from a town relatively isolated and 500km away from Melbourne. The second study by Mellor et al. (2004) was conducted among 28 urban Indigenous Australian adolescents from within Melbourne, Australia. The authors recognised that there is great diversity among Indigenous populations in Australia, and that some groups in remote areas lead very traditional lifestyles, whilst many groups reside in large cities and may have adopted many customs and practices of the mainstream society (Mellor et al., 2004). There are however, dynamic interactions between communities and many people have a tendency to move between them (Mellor et al., 2004). In their research, Mellor and colleagues (2004) chose to survey Indigenous people from both a rural and an urban location, hoping to engage both more acculturated participants and those who are less involved with mainstream society. For this reason, this current study also engaged participants from both rural and urban locations. Due to access and recognition of the often vastly different experiences of people living in remote locations, no participants in the current study were from remote communities.

Ricciardelli and colleagues (2004) researched sociocultural influences on body image concerns and body change strategies among 47 Indigenous and 47 non-Indigenous Australian adolescents and used research on African American adolescents as a point of reference for their research. They found that both Indigenous and non-Indigenous adolescents’ body change strategies were influenced by sociocultural pressures in similar ways. However, it was shown that African American girls were different to European American girls in that they were less affected by media messages and their peers, whilst being more influenced by adult role models who place importance on larger body sizes (Parnell et al., 1996; Poran, 2006; Ricciardelli et al., 2004). This shows that whilst there may be similarities between African Americans and Indigenous Australians in body size, it is important to understand that differences also occur and research must not rely too heavily on data from African American populations.

The third study, by McCabe and colleagues (2005), consisted of 50 Indigenous and 50 non-Indigenous adolescents from urban Melbourne, Victoria. The authors stated the importance of having Indigenous research assistants from the local community to assist with conducting the research, as there is a fair amount of scepticism and resistance from Indigenous people to being involved in research conducted by non-Indigenous Australians (McCabe et al., 2005).
Fredericks (2008) supported this notion, explaining how much research has been done ‘on’ or ‘about’ Aboriginal or Torres Strait Islander peoples and communities, and consequently it is understandable that Aboriginal peoples have become cautious and sceptical towards research and researchers.

Further, McCabe et al. (2005) explained that it is necessary for members of the community to have a full understanding of the purpose, the questions and the process involved in the research, and to be informed of how the findings will be used, and how they will benefit the community. The National Health and Medical Research Council (2003) states that the research should acknowledge the contributors to the research and should include recognition of the participation and assistance of Indigenous individuals, communities and organisations. For this reason, research was conducted within communities where the researcher has connections with members of the community, or the family of the researcher has connections with the community. This allowed for a transparency about the research, the purpose and allowed members of the community to ‘vouch’ for the integrity of the researcher to the potential participants who were unknown to the researcher. ‘Vouching’ has been explained by Vicary and Westerman (2004) in the context of health services, whereby Aboriginal members of the community would convey positive or negative information about a therapist to potential clients. This in turn would mean that if positive information was provided the client would be more receptive to treatment. In the present context, this meant the participants understood the context of the researcher, the family background of the researcher (which is mixed heritage), and were able to make an informed choice regarding their participation.

Another study, whilst not specifically focusing on Indigenous Australians, informed the decision to extend the research beyond youths to include women across the lifespan. Crawford and colleagues (2009) focused on a comparison of mothers and daughters in the USA and Nepal and identified some key features for consideration for this present study. Crawford et al. (2009) recognized that the scope of research available in the field of body image and dissatisfaction is quite limited due to the extensive use of college students as volunteers for research, which fails to inform how aging affects women’s perceptions of their bodies. Further, the authors acknowledged that the inclusion of two generations in two cultures allowed them to examine how Western standards of beauty and aging may influence individuals’ self perceptions of the body across age cohorts and cultures (Crawford et al., 2009).
Another study which branches away from the college aged population is that of McLean et al. (2009), an Australian study of 200 women aged 35-65. McLean and colleagues (2009) found that regardless of age, women who placed high importance on appearance experienced higher levels of body dissatisfaction and disordered eating. On the other hand, women who engaged in cognitive reappraisal through accepting the changes to appearance that occur naturally with age, experienced lower levels of body image and eating concerns (McLean et al., 2009). Correspondingly, Mellor et al. (2010) explained that for older women, self-esteem may have protective values in relation to their own appearance appraisals.

Body image and body dissatisfaction are concepts globally understood to be of concern among Western women across the lifespan. While there are a relatively small number of Australian studies emerging on the body image and body dissatisfaction of Indigenous adolescents (e.g. McCabe et al., 2005; Mellor et al., 2004; Ricciardelli et al., 2004), and even fewer on body image related topics in adults (e.g. Hay & Carriage, 2012), there are no known studies to date on the body image perceptions of Australian Aboriginal women across the lifespan. It is for these reasons that the current study includes a number of Australian Aboriginal and non-Aboriginal women of various ages and geographic locations. It is hoped that the findings will bring insight into any age or location differences in body image perceptions and related concepts that may occur within both Aboriginal and non-Aboriginal cultures.

Since no comparable studies have been located that examine generations of Australian Aboriginal women, and the possible relationship between these women and their body image and related perceptions, this study will be more exploratory and empirical than theoretical.

As identified in Section 1.3 Body Image, Body Dissatisfaction and Eating Disorders, body image and eating disorders carry quite different perspectives. While many of the contributing factors in the etiology of eating disorders and poor body image are the same, research perspectives and methodologies can differ greatly. That considered, an understanding of the methodological frameworks from within which eating disorder research is conducted, assists in understanding the research perspectives adopted for the current study.
3.2 Research Aims and Questions

3.2.1 Aims

The intention of this study was to carry out an investigation on the body image perceptions, attitudes, body satisfaction and ideals of Aboriginal and non-Aboriginal Australian women of different generations in order to gain insight into the development of body image concerns and culturally appropriate ways of addressing these issues in health education programs. This was done by building on the limited available literature and information on these topics and designing and administering a large number (N=625) of quantitative questionnaires based on numerous previous studies.

Specifically the aims of the research were to

- Determine the overall body image perceptions, attitudes, and body satisfaction of a sample of adolescent and adult Aboriginal and non-Aboriginal women.

- Determine the effect of age on the women’s positive or negative body image perceptions and body satisfaction.

- Compare the body image perceptions of Aboriginal and non-Aboriginal women to decipher any differences or similarities.

- Gain understanding about the accuracy of body image perceptions of women.

- Contribute to the limited body of knowledge focusing on the body image perceptions, influences and attitudes specifically of Aboriginal women.

- Examine the weight status of Aboriginal and non-Aboriginal women.

3.2.2 Research Questions

The primary research question was therefore:

1. What are the perceptions and attitudes towards body weight, shape, obesity and body image among Australian Aboriginal and non-Aboriginal women and girls?
The secondary research questions were:

2. Does age have an impact on the body image perceptions of women?

3. Does geographic location have an impact on the body image perceptions of women?

4. Does weight status have an impact on the body image perceptions of women?

5. What predicts the development of body image, body ideals and body satisfaction?

6. What implications do the body image perceptions of Australian Aboriginal girls and women have for the health status of Australian Aboriginal populations?

### 3.3 Quantitative Methodology

This study utilised quantitative methods conducted through the administration of the Body Image Survey for Women (Appendix E) that was designed specifically for this research. This method of research was selected for a variety of reasons. Firstly, self-completed questionnaires are an efficient and convenient way of collecting data (Denscombe, 2010; Robson, 1993). Secondly, Lee (1999) recognised that surveys provide an opportunity for respondents to provide “potentially discreditable information without disrupting the interaction or causing embarrassment or loss of face to the participants” (p.75). Similarly, for Aboriginal peoples loss of face or “shame” (Munns, 1998; Reynolds, 2012) is related to self-esteem and self-confidence, and hence it is important to ensure the anonymity of the participant, their family and community, which the questionnaire provided.

Thirdly, there are beneficial reasons for using questionnaires with validated scales such as making selection quicker, and providing the ability to calibrate findings against other research. Due to the relatively new inclusion of Aboriginal people in body image research it is unknown whether the measures used by researchers for other populations are relevant and applicable to Aboriginal groups.

In examining the possible problems arising with the use of questionnaires, Robson (1993) stated that “there is little or no check on the honesty or seriousness of responses… (they) have to be squeezed into predetermined boxes which may or may not be appropriate…” (p.243).
Following on from this Denscombe (2010) expressed that while the ‘tick box’ routine is less demanding, easy and means participants require little thought when responding, the pre-coded answers can be restricting and frustrating for some people and can deter people from answering (p.170). Robson (1993) further recommended that the questionnaires must be clear and unambiguous in their instructions, and be very carefully worded. With these ideas considered, the Body Image Survey for Women was designed in consultation with staff at the University of Sydney Koori Centre and Aboriginal members of the community to ensure clarity and appropriate wording.

Hence, despite the limitations inherent with the use of questionnaires, for the current research context, this method was considered the best approach in reaching a large number of participants across a range of settings, while also providing the anonymity necessary and appropriate with sensitive with such research topics.

3.4 Procedure

Initial ethics approval was granted in 2008 from the University of Sydney Human Research Ethics Committee (HREC) (Approval Number 11226) for the study of a number of Indigenous adolescents as an honours project. A continuation of this approval was granted on 9/3/2011 (Appendix A) as PhD research with the modification to include women, both Aboriginal and non-Aboriginal, of all ages. Further details regarding ethics are discussed in Section 3.9 Ethical Issues. In the initial planning stages of this research, consultation was conducted with various Aboriginal and non-Aboriginal members of University of Sydney staff from the Faculty of Education and Social Work and The Koori Centre. Further discussions were undertaken with Aboriginal members of the local community known to the researcher through family connections. This consultation informed the procedure of recruitment, the design and administration of the survey and conduct in collecting research.

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1 The Koori Centre is culturally safe space for Aboriginal and Torres Strait Islander students at the University of Sydney that provides facilities and support these students’ involvement in all aspects of tertiary education. “The Koori Centre aims to increase the successful participation of Indigenous Australians in undergraduate and postgraduate degrees…conduct research across a broad range of Indigenous Australian issues and build upon working ties with schools and communities” (http://sydney.edu.au/koori/index.shtml 03/06/14). The Koori Centre is currently undergoing structural changes and the information from the website is currently being updated, as such is correct and accessible on 03.06.14 but may change in future.
During the consultation phase, women were asked specifically about design of the questionnaire in terms of readability, the appropriateness and the structure of the questions, and to complete the questionnaire to understand how long it takes to complete. Further, questions were asked pertaining to the most appropriate method of recruitment for participants. Based on this consultation, specific changes were made to the questionnaire, including the addition of images, and method of recruitment was decided. The research was conducted in a number of rural and urban locations within and across NSW between July 2011 and August 2012.

The participants were recruited through an opportunity snowball sample, with participants invited to volunteer through networks of the University of Sydney Koori Centre as well as connections made through a broad network of friends and relatives of the researcher and further participants invited through chain-referral (Salganik & Heckathorn, 2004). Faugier and Sargeant (1997) informed that snowball sampling is particularly effective in locating members of populations where the focus of the study is on a sensitive issue and when researching hidden or small populations, as is the case with this research. Utilising the snowball method meant that the participants were of various ages, communities and contexts rather than just echoing the demographic of the researcher. Considering the high degree of cultural and circumstantial difference between Aboriginal groups, but also among non-Aboriginal Australians, the present research follows non-probability sampling (Denscombe, 2010). This means the participants may not be representative of the entire population, but rather the findings will serve as an indication of some women’s beliefs and a point of reference for future research.

Due to the personal and sensitive nature of the research and the importance of community involvement and making connections, where possible the researcher met with the participants on one or more occasions prior to meeting with participants for questionnaire completion. This opportunity for “yarning”, an important method of communication among Indigenous people has been suggested as “a process that requires the researcher to develop and build a relationship that is accountable to Indigenous people participating in the research” (Bessarab & Ng’andu, 2010, p. 38). This allowed the researcher and participants to develop some rapport to aid the participants in feeling more comfortable and at ease during completion of the questionnaire, as well as giving the participants more opportunities to understand the aims
of the research and the intentions of the researcher. This also provided opportunities for the participants to ask questions and share their opinions about the research and topics.

Fredericks (2008) explained that historically, a great deal of research has been carried out on Indigenous people in a way that is “invasive into Aboriginal and Torres Strait Islander people’s lives and communities, and has been undertaken without permission and without regard to Aboriginal and Torres Strait Islander peoples’ right to participate, or not to participate” (p.25). It is for this reason that the questionnaires were completed by the participant, with the researcher present. Participation was voluntary and pre-arranged so participants did not feel pressure to participate on the spot. Some women did choose to volunteer on the spot when they heard about the survey in their workplace and they were allowed to do so. This dramatically increased retention rates and reduced the inconvenience to the participants, as there was no postage or hassle required.

The questionnaire was conducted at times advised to be convenient by the participants and included places of their choosing such as homes, work places, and public cafes. The actual completion of the questionnaire took approximately 10 minutes, although in most cases the participants liked to discuss the study and the topics both with the researcher and with each other, before, during and after the questionnaire which inevitably increased the survey time. Allowing the participations this discussion time promoted a relaxed atmosphere in which to complete the survey.

Prior to completing the questionnaire, each participant was given a copy of the Participant Information Statement (Appendix B). The purpose and background information of the project and questionnaire was explained to participants and they were given an opportunity to ask questions, raise any concerns they may have or comment on the study. The voluntary and confidential nature of the study was explained and participants were informed that they may withdraw at any time without repercussions for themselves, their families or their communities. It was also explained that they could choose not to answer particular questions within the questionnaire should they wish not to. Following this information, consent was implied if the women chose to complete the questionnaire.

Assisted administration of the questionnaire was used, whereby assistance was given to all participants who required it to ensure all questions were understood in terms of meaning and to assist with any literacy issues. This increased response rates for each question, as the
participants were able to ask if a particular question was not understood, and had help reading the questions if they needed it.

3.5 Participants

The participants were Australian women of Aboriginal (N=213) and non-Aboriginal (N=412) cultural background and were from a variety of geographic (rural/urban) locations within NSW. The participants were aged between 11-90 years. Participants were selected based upon gender (female), willingness to participate, and accessibility. The participants provided their age, self-identified as Aboriginal or non-Aboriginal, and selected whether they believed their hometown was rural or urban. No remote locations were visited.

Clancy and Simpson (2001) saliently recognised the use of an umbrella term such as Aboriginal, does not take into account the many important differences within Aboriginal communities and groups. Further, they recognise that there are Aboriginal people living a range of lifestyles, including traditional, transitional, and contemporary (Clancy & Simpson, 2001). Due to the relatively small number of participants, and to the vast number of different Aboriginal groups, with different languages and cultures, found within and around Australia, the findings of this study are not expected to be generalised to all Australian Aboriginal peoples. Rather the findings may serve as an indication of some Aboriginal women’s perspectives and attitudes, from within NSW, and to present an idea of where further research might be required and helpful. During the consultation phase of the research design, the Aboriginal women suggested that many women may not have knowledge of their particular Aboriginal nation or group (e.g. Wiradjuri, Darug, Eora) which may cause concern. As such, it was suggested the questionnaire be more general and use Aboriginal and non-Aboriginal when referring to cultural background.

Similarly, using the term non-Aboriginal does not take into account the vast cultural diversity found within Australia, and as such, this study only indicates the perceptions of some non-Aboriginal women in the country. Further, while socioeconomic status of the participants was not measured, the majority of the Aboriginal and non-Aboriginal women who chose to participate were from the same workplaces, working alongside each other, and hence assumed to be in similar socioeconomic positions.
In line with protecting the identity of the participants and in maintaining the validity of the study, the locations, communities and hometowns of the participants were kept confidential and were not reported here. All of the participants were currently living in NSW, Australia.

3.6 Instruments

The questionnaire used was the Body Image Survey for Women (Appendix E). The questionnaire was developed specifically for this study using a selection of questions from the Body Image and Body Change Inventory (Ricciardelli & McCabe, 2000) and from other studies (Cinelli & O'Dea, 2009), which were then modified for the purpose of this study. Aspects of the Body Change Inventory (Ricciardelli & McCabe, 2002) were chosen for inclusion in the Body Image Survey for Women because the adolescent version of the Body Change Inventory was developed specifically for cross-cultural analysis in adolescent populations (Fuller-Tyszkiewicz et al., 2012).

The questionnaire measures socio-demographic details such as cultural background (Aboriginal = 0, non-Aboriginal = 1), age (in years), and country or city hometown (rural = 0, urban = 1) along with weight and shape perceptions, desired body weight, level of satisfaction with various body areas, desire for change and influences on body attitudes and perceptions.

In previous research with Aboriginal people, Turner and Graham (2005) found when reporting whether they perceived themselves to be “too fat”, “too skinny” or “about right”, the responses given were often different to the observed body weight of the participant, indicating that for Australian Aboriginal people weight may have different meaning than for non-Aboriginal people. It is for this reason that height (to nearest 0.1kg) and weight (to nearest 0.1cm) were measured by the researcher using a portable stadiometer and portable Soenle digital scales with a range of 0-200kg. Participants were lightly clothed without shoes and hair was moved (if necessary) for accurate measurements. Body mass index (BMI) was calculated based on measured weight and height (kg/m²) and categorised as underweight (BMI <18.5), normal weight (BMI ≥18.5 to <24.99), overweight (BMI ≥25 to <29.99) or obese (BMI ≥30) (World Health Organization, 2000) to provide objective BMI classifications.

As has been done in a number of previous studies, body image was measured using a categorical item: Do you think you are too thin (1), about right (2), or too fat (3)? (e.g. Cinelli
& O'Dea, 2009; O'Dea, 2008) and desired body weight was measured by asking, Would you like your body weight to be: a lot heavier (1); a little heavier (2); same as at present (3); a little lighter (4); a lot lighter (5) (e.g. Cinelli & O'Dea, 2009; O'Dea & Abraham, 1999b).

Body satisfaction was assessed through the use of a four point Likert scale, adapted from the Body Image Satisfaction subscale of the Body Image and Body Change Inventory (Ricciardelli & McCabe, 2000). This was measured by the question how satisfied are you with your: body weight, body shape, muscle size, hips, thighs, chest, abdominal region/stomach, size/width of shoulders, legs, and arms with the potential responses ranging from very satisfied (1), satisfied (2), dissatisfied (3) to very dissatisfied (4). In response to recommendations from The Koori Centre staff through the process of consultation, for each body satisfaction item, a human body diagram with an arrow pointing to corresponding body part was included to aid understanding. The Body Satisfaction Scale has been shown to have high levels of internal consistency with adolescents (Cronbach’s alpha >0.92), as well as demonstrating concurrent and discriminant validity (Mellor et al., 2004; Ricciardelli & McCabe, 2002). In the present study the above scale showed very good internal consistency reliability with a Cronbach’s alpha of .86.

Past and current desires and attempts to change weight were measured by asking the yes/no questions: Have you ever tried to lose weight, are you currently trying to lose weight, have you ever tried to gain weight, and are you currently trying to gain weight? (O'Dea & Caputi, 2001).

The desire and behaviour to increase muscles were measured through the questions how often do you do more exercise to increase the size of your muscles and how often do you increase your eating to increase the size of your muscles with the potential responses always (1), almost always (2), sometimes (3), and never (4). These questions were adapted from the Body Image and Body Change Inventory (Ricciardelli & McCabe, 2000) with factor loadings of .81 for changing eating to increase muscle size and .86 for using exercise to increase muscle size for adolescent females (Ricciardelli & McCabe, 2002).

Figure rating scales, such as the Stunkard Scale (Stunkard, Sorensen, & Schlusinger, 1983), have been employed in a plethora of studies globally to ascertain body figure perceptions and preferences, in terms of current and ideal figures (e.g. Fallon & Rozin, 1985; Fingeret, Gleaves, & Pearson, 2004; Forbes et al., 2012; Gardner & Brown, 2010; O'Dea, 1998; O'Dea,
They are also frequently employed to measure aspects of body disturbance, dissatisfaction and body ideals (Fingeret et al., 2004; Gardner & Brown, 2010; Hill, 2011). The ideal figures selected by women can reflect a cultural standard or collective ‘norm’ toward which women strive. Fingeret et al. (2004) explained this method involves the presentation of body silhouettes ranging from very thin (1) to very large (9) with participants being asked to select figures in response to a variety of questions. A higher score represents a greater desired body size (O'Dea, 1999b).

As was done by O'Dea (1998; 1999b) and Fallon and Rozin (1985), in this study the Stunkard Figure Rating Scale (Stunkard et al., 1983) was used to measure body size ideals, specifically asking which female figure looks most like you (current self), which female figure would you like to look like (ideal self), which female figure looks best (ideal female) and which male figure looks best (ideal male). According to Cafri, van den Berg, and Brannick (2010), the Stunkard Figure Rating Scale has good internal consistency for the self (.89) and ideal (.71) ratings for females. In the current study, the Cronbach alpha coefficient for the Stunkard Figure Rating Scale was .75.

The figural rating scale was also used to evaluate body dissatisfaction, which was measured by calculating a discrepancy score, which is the discrepancy between ratings of one’s current body size and ideal body size (current body size – ideal body size) (e.g. Fingeret et al., 2004; Gardner & Brown, 2010; Hill, 2011; O'Dea, 1998; Wade, Davidson, & O'Dea, 2003; Webb et al., 2013). A higher discrepancy score indicates greater dissatisfaction, as that suggests being further away from your ideal self.

Gardner and Brown (2010) reported the test-retest reliability of the Stunkard Figure Rating Scale (Stunkard et al., 1983) for use in adolescents for current size (C = 0.87) and ideal size (I=0.83), and the concurrent validity (CO= 0.61-0.75) and for use in adults (C= 0.81-0.92, I= 0.71-0.82, CO= 0.99, convergent validity (CV)=0.05-0.62). Researchers have recommended exercising caution when using figure rating scales, as there are a number of limitations. These include the inability to measure body size distortion, that they usually depict obvious Caucasian ethnicity, that the number of available figures can be misleading as participants usually only select from a small portion of the available figures (Gardner & Brown, 2010) and that participants may be influenced by the sequential nature of the figures and questions (Fingeret et al., 2004).
The Body Appearance Rating Scale (Van Hoorn, Kefferd, O'Dea, Richardson, & Abraham, 1999) (also known as Physical Appearance Ratings) (O'Dea & Abraham, 2000) was used to assess perception of physical appearance using a self-perception rating score from zero to ten (10 being perfect) for how participants rate their own body appearance (self-score) and their perceptions of how other people (other people score), people of the opposite sex (opposite sex score), women in your family (female family score) and men in your family (male family score) would rate them. The Body Appearance Rating instrument has been successfully validated against several scales on the Eating Disorder Inventory, including the Body Dissatisfaction and Drive for Thinness Scales (Garner, Olmstead, & Polivy, 1983) with significant (p<0.001) negative Spearman correlation coefficients of between .55 and .67. In this current study, the Body Appearance Rating shows very good internal reliability consistency with a Cronbach’s alpha of .91.

The questionnaire also asked participants the dichotomous question do you currently play any sport (Yes = 0, No = 1). The term ‘sport’ was used rather than exercise, as this was the terminology used in previously validated research (Ricciardelli & McCabe, 2000), however it is recommended that future research includes all forms of exercise or physical activity. The questionnaire also included some open ended questions regarding influences on their body image who do you think most influences your body image, what do you think most influences your body image, who helps you to feel good about your body and what helps you to feel good about your body?

It is unclear whether the previous measures used to gather data about body image, such as figure rating scales, are relevant and carry the same meaning for Aboriginal Australians as they do for Caucasian populations. In the process of designing the Body Image Survey for Women, specific items were selected for inclusion from other relevant published research studies to enable the findings of this study to be comparable to others. Similarly, BMI cut-offs were used as recommended by the World Health Organization (2000), which allows for BMI data to be compared to general population samples.

3.7 Data analysis

The data were analysed using IBM SPSS Statistics version 21.0. Descriptive data of frequencies and mean (SD) results of the body image variables are presented as tables or figures by cultural background (Aboriginal/non-Aboriginal) (Section 4.2), geographic
location (rural/urban) and age category (less than 30 years, 31-50 years, and 50 years or older) (*Section 4.3*) and weight status (normal weight/overweight or obese) (*Section 4.4*) to present an overall description of the results. The predictors of variables are also represented (*Section 4.5*).

Chi-square for independence were used to explore the relationships between the categorical data of Aboriginal and non-Aboriginal women. Variables included body image, desired body weight, body satisfaction items, past and current weight change behaviour, behaviours to increase muscle size, the Stunkard Figure Rating Scales (Stunkard et al., 1983), discrepancy scores, the Body Appearance Ratings (Van Hoorn et al., 1999) and sporting participation. Chi-square was also used to examine the group differences in prevalence of underweight, normal weight, overweight and obesity. The variables always consisted of two or more independent groups (e.g. Aboriginal/non-Aboriginal, rural/urban or age group). Preliminary checks were conducted to ensure there was no violation of the assumptions of random sampling, independent observations, or minimum cell counts. Mehta and Patel (2011) highlight the need to calculate an exact $p$ value when the data set is small, sparse, or unbalanced. Further, they recommend using Monte Carlo $p$ values when the data sets are too large for the exact $p$ values, yet too sparse or unbalanced for the asymptotic results to be reliable (Mehta & Patel, 2011). Therefore, throughout the analysis of this research, in the instances when the results were unbalanced and minimum cell counts were violated, the Monte Carlo exact method was used to obtain a $p$ value.

Independent, between-groups analysis of covariance (ANCOVA) was used to analyse whether the mean differences in the figure rating scale scores (Stunkard et al., 1983) and the Body Appearance Rating items (Van Hoorn et al., 1999) between groups (Aboriginal / non-Aboriginal, rural/urban location) were larger than would be expected by chance, after adjusting for differences associated with age as a covariate. Pallant (2011) suggests that the covariate should be a variable that is suspected to be influencing scores. As such, based on a sound understanding of theory and previous research conducted in this field, age was identified as a suitable covariate (Pallant, 2011).

Preliminary checks were conducted to ensure there were no violations of the assumptions of ANCOVA including, normality, linearity, homogeneity of variances, independence of covariate and treatment effect, and homogeneity of regression slopes (Field, 2009). In the instance of violations of the homogeneity of variance assumption in the ANCOVA’s,
according to the advice of Tabachnick and Fidell (2013), more stringent significance cut-offs were used (significance at \( p=0.025 \) for moderate violations and \( p=0.01 \) for severe violations). Similarly, while there were no major violations of the assumption of homogeneity of regression slopes with this research, Tabachnick and Fidell (2013) suggested that providing there is no reason to suspect an interaction between the independent variables and the covariates it is “…safe to proceed with ANCOVA on the basis of the robustness of the model” (p.205).

Stepwise Multiple Regressions using the enter method were performed to explore the relationship between a dependent variable and several independent variables (Pallant, 2011). This method was chosen based on consultation with a statistician within the Faculty of Education and Social Work at The University of Sydney and various texts used to ascertain the appropriateness of the test for the data set. Streiner (2013) suggested stepwise multiple regression can be used to find out “which variables explain or predict the dependent variable” (p.131). Stepwise regressions are a compromise between forward and backward entry methods, in which the equation starts out empty and independent variables are added one at a time if they meet the statistical criteria (Tabachnick & Fidell, 2013). The independent variables may also be deleted at any time if they no longer contribute significantly to the regression (Tabachnick & Fidell, 2013). In this way, researcher bias is reduced in terms of perceiving which variables would be expected to contribute, and only those that statistically meet the criteria are included.

The regression was used to examine specifically if any of the independent variables (cultural background, age, geographic location, BMI, or sporting participation) predicted the dependent variables of desired body weight, figure rating scale items (current self, ideal self, ideal female, ideal male), and Body Appearance Rating scores (self-perception, other people, opposite sex, female and male family perceptions), and if so, to what extent.

Tabachnick and Fidell (2013) recognised that in order to meet the assumption of sample size for multiple regression, the equation \( N > 50 + 8m \) should be used (\( m \) is the number of independent variables). In the case of this research, there are five independent variables, and thus the current sample goes beyond the required minimum sample of 90 (with \( N=625 \)). For all of the regression analyses, preliminary analyses were performed to ensure no violations of the assumptions of normality, linearity, homoscedasticity, and multicollinearity. The assumptions of singularity and independence of residuals were also observed and not violated.
Pallant (2011) explains ‘outliers’ to be scores that are well above or well below the other scores. Outliers can indicate errors in data and can impact results for some tests are very sensitive. As per recommendations, outliers were checked for accuracy and any outliers in age or BMI were rescored for that variable so that they were still higher than the other scores, but not too different from the remaining cluster of scores (Pallant, 2011; Tabachnick & Fidell, 2013).

The analysis of responses to the open-ended questions involved content analysis of participant perceptions based on qualitative methodology texts (Patton, 2002). Responses to the open-ended questions were transcribed into Excel. Throughout the course of this research, engaging in reflection on the data collection experiences, conversations with participants, and a sound knowledge of the literature, the researcher has developed deep knowledge and understanding of the context of this research. Dialog with the participants during the data collection and completion of the questionnaires, allowed the researcher and participants to establish shared meanings and understandings of the concepts explored. Using these understandings, the researcher was able to select appropriate tags for participant comments that reflected the overarching themes that reflected the meaning of the comments. For example, the response “not fitting into clothes anymore” was tagged with ‘clothes’ and ‘body weight’. Tags were compared to develop broader themes. Similarly tagged participant responses were then linked and sorted under the most applicable theme. The main themes were organised in order of most prominent to least prominent according to how frequently the themes occurred and were examined in light of literature to develop Section 4.3.

Creswell (2009) recommends ‘member checking’ be done to determine the accuracy of the findings through taking the specific themes or findings back to participants to discuss whether they feel that the findings/interpretation of findings are accurate. While this relates specifically to qualitative research, in the case of this research, the main findings were shown to, and discussed with an Aboriginal representative from the Koori Centre. Further, a summary of the findings was emailed to all the participants who had email contact with the researcher through the data collection phase. Due to the time lapse between data collection and the dissemination of findings, a number of email addresses were no longer valid and many participants were no longer contactable. The participants who received the main findings, had the opportunity to ask questions or provide feedback regarding the research. This process was followed to ensure no data was misrepresented or wrongfully interpreted.
Some participants did respond upon receipt of the summary of findings (n=15), and fewer provided feedback regarding the wording of the summary of findings or questioned the meaning of the findings (n=3), which enabled the researcher to make modifications for greater clarity prior to writing up the final stages of the dissertation.

3.8 Limitations

The questionnaire was completed by 625 women within and across NSW, in a number of urban and rural locations. There were fewer Aboriginal (N= 213) than non-Aboriginal women (N= 412) that completed the survey, and greater proportions of the women were from urban than rural locations. While this reflects population inequalities, this unequal distribution of collection was due to time and resource constraints, as well as access to eligible and willing participants.

This research does not take into account the great degree of within-group diversity owing to the many different Aboriginal groups, languages and cultures, which means care must be taken when interpreting results and making generalisations about the findings. Further, due to the diverse nature of Aboriginal cultures, and how they vary from group to group, it is important not to overgeneralise findings and assume they apply to all Aboriginal and Indigenous peoples. Similarly, the non-Aboriginal classification does not take into account the multicultural nature of Australia and the propensity for Australians to be of mixed heritage. Similarly, it is acknowledged that the participants could have been of both Aboriginal and non-Aboriginal heritage and the dichotomous nature of the survey did not allow participants to express this, but rather presented a forced choice between one or the other. Despite this, none of the participants expressed this to be an issue.

As mentioned in Chapter 2, it is recognised that there is great diversity among Indigenous populations in Australia, and that some groups in remote areas lead very traditional lifestyles, whilst many groups reside in large cities and may have adopted many customs and practices of the mainstream society (Mellor et al., 2004). Considering this, it is understood that some of the Aboriginal participants may be more acculturated towards Western culture, or perhaps regardless of Aboriginal ancestry may be been raised in a context where there is a great degree of significant influence from non-Aboriginal cultures. While this is complex terrain to navigate in the context of Australia, it is acknowledged that information pertaining to the participant’s stage of acculturation would add a greater degree of depth to the data and
understanding of how culture impacts on body image perceptions. As such, information pertaining to participant’s stage of acculturation is something which should be considered for future research. In the current study, the absence of this information is a recognised limitation.

Another limitation, as recognised by Ricciardelli and colleagues (2004), is that for many Indigenous people there is a reluctance to discuss private issues such as body image, as they are considered taboo topics of conversation. Ricciardelli et al. (2004) went on to explain that because of this taboo, Indigenous people may receive little feedback about their bodies and hence seek feedback from places such as dominant culture to determine what is desirable and appropriate. While this ‘taboo’ is generally the case in remote, traditional communities, discussing body image and associated concepts may still be of concern to Aboriginal women living in rural and urban locations. By using questionnaires, the necessity to speak about one’s own body image was reduced and provided anonymity. The participants who wanted to discuss the survey and themes explored were able to do so in a general sense, without revealing their own personal perceptions.

Similarly, in their research with Indigenous Australian adolescents, Mellor et al. (2004) discovered that many Indigenous young people may feel that they do not know their own traditional culture, and feel that they do not fit in with their own traditional, remote communities, nor do they fit in with the Anglo-Saxon community. This denotes that in order to find out the true perceptions of Indigenous people regarding body image, it would be essential to go to very traditional, remote communities, where there is less interaction with mainstream society (Mellor et al., 2004), and hence, less chance for acculturation. This is a barrier to this kind of research however, as like Ricciardelli et al. (2004), Mellor et al. (2004) also discovered it is not culturally appropriate to ask Indigenous people from more traditional communities questions about body image, body dissatisfaction and body importance, as these matters are considered “…highly private and personal” and that “…these topics are not discussed openly” (p.295). Similarly, time and resource constraints limit the accessibility to very remote, traditional communities.

There are limitations inherent to questionnaires as quantitative methodology. Questionnaires only allow for specific responses, which may or may not accurately represent the attitudes, opinions or perceptions of the participants, and they may be forced to choose a response that is not the absolutely correct one to match their perceptions or attitudes. Further, the use of
questionnaires can bias the findings towards the researchers, rather than the respondent’s way of seeing things (Denscombe, 2010).

Further, it is uncertain whether the measures used on White populations carry the same meaning for people of ethnic minority groups, such as Indigenous populations. For example, in a study of Fijian and Australian adolescent girls it was found that Fijian girls had no concept of their weight (in kilograms) or size (in clothes). These measures were irrelevant to them (Williams et al., 2006). Whilst during the design of the questionnaire the researcher engaged in consultation with appropriate Indigenous advisors and utilised measures that have been used for cross-cultural studies (e.g. Cinelli & O'Dea, 2009; McCabe et al., 2012; Ricciardelli & McCabe, 2002), it is not known whether these measures are specifically relevant to Aboriginal Australian women.

Considering the known connections between self-esteem and body image that have been identified in previous research (Baker & Gringart, 2009), measuring self-esteem in this study would have been beneficial. Specifically, sociocultural and political factors that impact on the lives of Aboriginal Australians such as government policy, the lasting effects of colonisation, and intergenerational grief (Doyle, 2011) to name a few, all can contribute to the development of low self-esteem, which in turn can impact on body satisfaction and body image. As such, the absence of self-esteem and factors contributing to self-esteem as a measure in this study is a recognised limitation.

3.9 Ethical Issues

As discussed, in Section 3.4 Procedure, HREC approval was granted for this study (Approval Number 11226) (Appendix A). Additionally, the author adhered to the ethical research principles outlined by the National Health and Medical Research Council (NHMRC) and the Aboriginal Health and Medical Research Council (AH&MRC) for ethical research among Aboriginal and Torres Strait Islander Australians (Aboriginal Health and Medical Research Council, 2013; National Health and Medical Research Council, 2003). This following section will outline the relevant principles and how they were observed.

The NHMRC (2003) expressed that “Before research is undertaken…the consent of participants must be obtained” (p.13) and that consent must include the provision of information and the participant having the ability to make a voluntary choice. Further to this, in accordance with the NHMRC (2003) guidelines, it was acknowledged and respected that
“a person may refuse to participate in a research project and need give no reason nor justification for that decision” (p.13). Throughout the data collection process, every participant was given a copy of the Participant Information Statement (Appendix B) for their records. The participant information statement contained the recommended information of the research objectives and an explanation of why the information is being collected (Aboriginal Health and Medical Research Council, 2013).

In addition to this document, the research was verbally explained in lay terms and participants were allowed to ask questions, both before, during and after the completion of the survey. This ensured that all participants had access to the same information, regardless of literacy level. The research was designed such that consent was clearly established by the return of the completed survey, with the understanding that should a participant not wish to participate, they would not be given, or would not undertake the survey (National Health and Medical Research Council, 2003). Consent forms were designed for all participants (Appendix C), as the initial intention of the research was to include qualitative interviews which would be recorded. However, due to time constraints, the research method changed to exclude interviews, and as such the adult consent forms (Appendix C) were not used. For participants under 18 years of age, a consent form was signed by a parent or guardian (Appendix D).

In keeping with the equality requirements of the NHMRC (2003) the research was designed “so that the selection, recruitment, exclusion and inclusion of research participants is fair” (p.15). In this way, all women were invited to participate and they were allowed to select Aboriginal or non-Aboriginal based on how they identify.

The NHMRC (2003) recommend that in demonstrating responsibility, researchers should consider the need to “demonstrate transparency in the exchange of ideas and in negotiations about the purpose, methodology, conduct, dissemination of results and potential outcomes/benefits of research” (p.17). This was done at all stages of the research, from the initial planning stages, through to completion. This came in the form of consultations and discussions, both formally with members of the University of Sydney Koori Centre and other key researchers in the field, and informally with women in the community who had ideas and suggestions regarding this research. Further, the research findings were disseminated to many women (who were still reachable) prior to thesis submission. This allowed participants to ask questions and provide feedback on the findings.
Another recommendation aligned with demonstrating responsibility was that “every research proposal must demonstrate that the research is justifiable in terms of its potential contribution of knowledge, and is based on a thorough study of current literature as well as prior observation, approved previous studies…” (National Health and Medical Research Council, 2003, p. 17). Considering the findings reported in the literature review, and that there are only few studies specifically on the body image perceptions of Aboriginal Australians (e.g. Cinelli & O'Dea, 2009; Hay & Carriage, 2012; McCabe et al., 2005; Mellor et al., 2004; Ricciardelli et al., 2004), most of which focus on adolescent perceptions, this research is justifiable in terms of potential contribution of knowledge to this specific field. The study was informed by previous projects of the researcher, other similar research and a comprehensive review of the existing body image literature.

Another key point, identified by the AH&MRC (2013) regarding the cultural sensitivity of research with Aboriginal peoples, is ensuring that questionnaires and survey forms are culturally appropriate. Mellor et al. (2004) suggested that personal issues such as body image may not be culturally appropriate to discuss with adolescents in traditional Indigenous communities. To address this issue, the research was conducted with the support and guidance of the University of Sydney Koori Centre, along with discussions with Aboriginal women on how best to conduct the research in a non-offensive and culturally sensitive manner. Questionnaires were shown to an Aboriginal advisor for approval and modified to ensure they were easy to read prior to commencement of research and no questionnaires were conducted in traditional or remote communities.

The AH&MRC (2013) also expect that “researchers should reimburse participants for any cost incurred which relates, directly or indirectly, to the research project…” (p.9) which could include “transport, gas and water…” (p.9). The study was conducted in a manner that did not incur any cost, either directly or indirectly to the participants, as the research was conducted at a time and place chosen by the participant, such as workplaces during lunchtime, public cafes or homes.

The privacy, anonymity and confidentiality of participants was, and will continue to be maintained and under no circumstances will a participants’ identity be revealed in the research. No names or personal contact information was collected in the course of the research. Further, the specific locations of the research will not be identified to maintain
anonymity. The questionnaire papers will be kept in a locked cabinet in the Chief Investigator’s office for 7 years before it is destroyed.
CHAPTER 4 - RESULTS

4.1 Results Chapter Summary

The results chapter responds to research question one what are the perceptions and attitudes towards body weight, shape, obesity and body image among Australian Aboriginal and non-Aboriginal women and girls? The body image perceptions, desired body weight, body satisfaction, weight change behaviours, behaviour to increase muscles, Stunkard Figure Rating Scale ideal figures, Body Appearance Ratings, sporting participation and weight status (BMI) of Aboriginal (N=213) and non-Aboriginal (N=412) women are presented in this chapter. Approximately 35% of the participants identified as Aboriginal, while 65% were non-Aboriginal. About 66% of the women were living in urban locations, compared with 34% living rural. Age group was – under 30 years (36%); 30-50 years (38%) and over 50 years (26%).

Section 4.2 of the results chapter presents the findings around body image, desired body weight, satisfaction, weight change behaviours, behaviour to increase muscles, Stunkard Figure Rating Scale ideal figures, Body Appearance Ratings, and sporting participation by cultural background and body weight category. Stepwise regression analyses were performed on all of the Stunkard Scale (current self, ideal self, ideal female, ideal male), the discrepancy scores and the body appearance ratings (self-score, other people score, opposite sex score, female and male family scores) to determine if any of these variables predicted the outcomes of body image items. The potential predictors were cultural background, age, sporting participation, BMI and geographic location.

Regardless of the outcome variable, the regressions showed that BMI was the most prominent predictor in every case independently of all other predictors, suggesting that BMI plays a large role in the desired body weight, body weight ideals, and body-esteem. The other predictors, cultural background, sporting participation, age, and geographic location, each had varied impacts on the outcome variables, although none were as prominent predictors as BMI. Considering this, some results are presented representing the overall findings, with some extending to present the findings according to body weight category (e.g. normal weight or overweight/obese). Considering the minimal influence of geographic location and age in the outcome variables, a separate section presenting the results by geographic location and age have been included as appendices (Appendix F).
Irrespective of age or geographic location, Aboriginal women also had larger body ‘ideals’ that their non-Aboriginal counterparts, in terms of their perceived current self, ideal self, and ideal female. While their ‘ideals’ were larger, there was a greater discrepancy between Aboriginal women’s current and ideal selves, indicative of greater body dissatisfaction. The perfect male was agreed upon by Aboriginal and non-Aboriginal women, and the desire to be thinner was evident among the majority of women regardless of cultural background. This is indicative of the universality of the Western thin ideal.

Previous research on Indigenous populations, frequently represent Indigenous health as ‘the problematic other’ (MacDonald et al., 2009) and in ‘deficit’ (Nelson et al., 2010). The intention of this research is not to problematize Aboriginal women through their perceptions, but rather to bring to light what these perceptions are and identify what implications these have in relation to health and education. As such, each component of the results focuses on the responses of Aboriginal and non-Aboriginal women. The main findings surround similarities and differences in the responses of Aboriginal and non-Aboriginal women, and what predicted these responses. Specifically, Aboriginal women were more likely to accurately perceive being too thin or too fat coupled with being more likely to be classified as underweight, overweight or obese.

The Aboriginal women perceived themselves to be bigger, had larger body ideals and were more likely to be underweight or obese than the non-Aboriginal women, although both groups desired smaller figures than their current perceived selves. Aboriginal women reported less body satisfaction, engaged in more weight change strategies, and were more likely to engage in behaviours to increase their muscles. Despite the larger body ideals held by Aboriginal women, their greater body dissatisfaction seems to be rooted in the greater discrepancy between their current and ideal self; and each of these ideals were primarily predicted by BMI.

The trend toward desiring a lower weight was apparent among the majority of participants, regardless of cultural background. Reflective of their actual weight status, Aboriginal women were more likely to report that they were; too thin or too fat, that they wanted to be a little heavier, a lot heavier or a lot lighter, and that they were very dissatisfied with many aspects of their bodies. The non-Aboriginal women expressed greater overall satisfaction than Aboriginal women on all body satisfaction items. Few women desired weight gain, although this was more common among Aboriginal women.
Results section 4.3 outlines the responses to the four open-ended survey questions who influences your body image, what influences your body image, who helps you to feel good about your body, and what helps you to feel good about your body? Primarily the women reported their partners, friends, family, the media and themselves were the main people who influenced their body image. Food, exercise, the media, clothes and health were the predominant ‘things’ that influenced the women’s body image. Responses to the first two questions pertaining to who and what influences your body image, captured both positive and negative influences.

The second two questions who and what helps you feel good about your body, captured positive aspects of what makes the women feel good about their bodies. The responses were mostly similar to those above, and the themes of social comparison, and external feedback such as compliments were evident.

Section 4.3 contains cross references to Section 4.2 where the open ended responses of participants may provide support for, or possible elaboration of the quantitative results presented.
4.2 Results by cultural background and body weight category

Table 4.1

Description of Aboriginal and non-Aboriginal participants by age group and geographic location

<table>
<thead>
<tr>
<th>Age group</th>
<th>Aboriginal women (N=213)</th>
<th>Non-Aboriginal women (N=412)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban (n= 129)</td>
<td>Rural (n= 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban (n = 284)</td>
<td>Rural (n= 128)</td>
<td></td>
</tr>
<tr>
<td>Less than 30 years</td>
<td>40.3 (52)</td>
<td>31.0 (26)</td>
<td>2.21</td>
</tr>
<tr>
<td>31-50</td>
<td>39.5 (51)</td>
<td>47.6 (40)</td>
<td>0.35</td>
</tr>
<tr>
<td>50 years or greater</td>
<td>20.2 (26)</td>
<td>21.4 (18)</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Table 4.1 above displays the age and geographic location of the Aboriginal and non-Aboriginal participants in the study. 4x3 chi-square tests indicated there was no significant difference in the proportion of women in each age group based on rural or urban location (Less than 30 years χ²= 2.21, df=1, p=0.137; 31-50 years χ²=0.35, df=1, p=0.554; 50 years or greater χ²= 0.06, df= 1, p=0.304).
Figure 4.1

*Distribution of Body Mass Index (BMI) categories of Aboriginal and non-Aboriginal women*

<table>
<thead>
<tr>
<th>Category</th>
<th>Aboriginal Women (N=173)</th>
<th>Non-Aboriginal Women (N=389)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>3.9</td>
<td>2.8</td>
</tr>
<tr>
<td>Normal Weight</td>
<td>34.4</td>
<td>54.5</td>
</tr>
<tr>
<td>Overweight</td>
<td>27.2</td>
<td>28.0</td>
</tr>
<tr>
<td>Obese</td>
<td>34.4</td>
<td>14.7</td>
</tr>
</tbody>
</table>

Note. Chi-square analyses for cultural background and weight category = 33.79***, df=3, p=0.000, underweight= BMI<18.5, normal weight= BMI 18.5<24.99, overweight = BMI 25<29.99, obese= BMI >30 (World Health Organization, 2000).

Figure 4.1 above shows that Aboriginal women were significantly more likely than non-Aboriginal women to be classified as obese, whilst non-Aboriginal women were much more likely to be in the normal weight category. The proportions of women in the underweight and overweight category were similar.

An ANCOVA controlling for age as a covariate was performed to explore differences in the distribution of BMI between Aboriginal and non-Aboriginal women. The independent variable was cultural background (Aboriginal/non-Aboriginal) and the dependent variable was BMI. After controlling for age, the mean BMI of Aboriginal women ($M=28.49$, $SD=7.77$) was significantly greater than that of non-Aboriginal women ($M=24.82$, $SD=4.89$) ($F(1, 567) = 29.45, p=0.000$).

In summary, Aboriginal women were much less likely to be of a normal weight, and much more likely to be obese than were non-Aboriginal women.
Table 4.2

*Body image of Aboriginal and non-Aboriginal women*

<table>
<thead>
<tr>
<th>Body Image</th>
<th>Aboriginal women (N=213)</th>
<th></th>
<th>Non-Aboriginal women (N=411)</th>
<th></th>
<th>(\chi^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too thin</td>
<td>5.2 (11)</td>
<td>1.2 (5)</td>
<td>28.56***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>About right</td>
<td>37.6 (80)</td>
<td>58.2 (239)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too fat</td>
<td>57.3 (122)</td>
<td>40.6 (167)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* ***p<0.001

Table 4.2 shows that Aboriginal women were more likely to perceive themselves to be either *too thin* (4% more) or *too fat* (16.7% more) compared to non-Aboriginal women. 20.6% more non-Aboriginal women reported perceiving they were *about right*. A 2x3 chi-square analysis showed a statistically significant difference \(\chi^2 = 28.56, df = 2, p = 0.000\).
Table 4.3

Body image among normal weight and overweight/obese Aboriginal and non-Aboriginal women

<table>
<thead>
<tr>
<th>Body Image</th>
<th>Aboriginal women</th>
<th>Non-Aboriginal women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N=173)</td>
<td>(N=377)</td>
</tr>
<tr>
<td>Normal weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too thin</td>
<td>8.1 (5)</td>
<td>0.9 (2)</td>
</tr>
<tr>
<td>About right</td>
<td>64.5 (40)</td>
<td>85.3 (180)</td>
</tr>
<tr>
<td>Too fat</td>
<td>27.4 (17)</td>
<td>13.7 (29)</td>
</tr>
<tr>
<td>Overweight/obese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too thin</td>
<td>0.9 (1)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>About right</td>
<td>24.3 (27)</td>
<td>24.7 (41)</td>
</tr>
<tr>
<td>Too fat</td>
<td>74.3 (83)</td>
<td>75.3 (125)</td>
</tr>
</tbody>
</table>

\(\chi^2\) results:
- Too thin: \(\chi^2 = 17.35, df = 2, p = 0.000\)
- Too fat: \(\chi^2 = 1.50, df = 2, p = 0.633\)

Table 4.3 illustrates that the normal weight Aboriginal women were significantly more likely to perceive they were too thin or too fat than were their normal weight non-Aboriginal counterparts. Among the overweight/obese participants, regardless of cultural background, very low proportions perceived themselves to be too thin, and nearly three quarters reported themselves to be too fat. 2x3 chi-square analyses showed no significant difference between the overweight/obese women’s body image perceptions. (\(\chi^2 = 1.50, df = 2, p = 0.633\)).
Table 4.4

*Desired body weight of Aboriginal and non-Aboriginal women*

<table>
<thead>
<tr>
<th>Desired body weight</th>
<th>Aboriginal women</th>
<th>Non-Aboriginal women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N=213)</td>
<td>(N=412)</td>
</tr>
<tr>
<td>A lot heavier</td>
<td>0.9 (2)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>A little heavier</td>
<td>6.1 (13)</td>
<td>2.7 (11)</td>
</tr>
<tr>
<td>Same as at present</td>
<td>15.0 (32)</td>
<td>15.0 (62)</td>
</tr>
<tr>
<td>A little lighter</td>
<td>47.9 (102)</td>
<td>62.6 (258)</td>
</tr>
<tr>
<td>A lot lighter</td>
<td>30.0 (64)</td>
<td>19.7 (81)</td>
</tr>
</tbody>
</table>

*Note.* ***\(p<0.001\).*

Table 4.4 shows that Aboriginal women were more likely to desire a heavier body weight than non-Aboriginal women. Whilst large portions of both groups expressed the desire to be *a little lighter*, more non-Aboriginal women reported this, and conversely more Aboriginal women expressed a desire to be *a lot lighter*. 2x5 chi-square analysis show the difference between the groups was statistically significant (\(\chi^2 = 20.00, df = 4, p = 0.000\)).
Table 4.5

*Desired body weight of Aboriginal and non-Aboriginal women by normal weight and overweight/obese weight category*

<table>
<thead>
<tr>
<th>Desired body weight</th>
<th>Aboriginal women (N=173)</th>
<th>Non-Aboriginal women (N=378)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n (n=62)</td>
<td>%</td>
</tr>
<tr>
<td><strong>Normal weight</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A lot heavier</td>
<td>1.6</td>
<td>(1)</td>
<td>0.0</td>
</tr>
<tr>
<td>A little heavier</td>
<td>11.3</td>
<td>(7)</td>
<td>2.8</td>
</tr>
<tr>
<td>Same as at present</td>
<td>24.2</td>
<td>(15)</td>
<td>24.5</td>
</tr>
<tr>
<td>A little lighter</td>
<td>56.5</td>
<td>(35)</td>
<td>68.9</td>
</tr>
<tr>
<td>A lot lighter</td>
<td>6.5</td>
<td>(4)</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Overweight/obese</strong></td>
<td></td>
<td>(n=111)</td>
<td></td>
</tr>
<tr>
<td>A lot heavier</td>
<td>0.9</td>
<td>(1)</td>
<td>0.0</td>
</tr>
<tr>
<td>A little heavier</td>
<td>0.9</td>
<td>(1)</td>
<td>0.0</td>
</tr>
<tr>
<td>Same as at present</td>
<td>6.3</td>
<td>(7)</td>
<td>2.4</td>
</tr>
<tr>
<td>A little lighter</td>
<td>46.8</td>
<td>(52)</td>
<td>59.0</td>
</tr>
<tr>
<td>A lot lighter</td>
<td>45.0</td>
<td>(50)</td>
<td>38.6</td>
</tr>
</tbody>
</table>

*Note: *p< 0.05

Table 4.5 shows that a larger proportion of the normal weight Aboriginal women reported a desired body weight that is *a lot heavier, a little heavier or a lot lighter*, and they were less likely to report desired body weight that is *a little lighter* than their non-Aboriginal counterparts. 2x5 chi-square for independence showed statistical significance (χ² = 12.56, df = 4, p = 0.012) in the difference between normal weight Aboriginal and non-Aboriginal women’s responses for this item.

None of the overweight/obese non-Aboriginal women selected *a lot heavier or a little heavier* as their desired weight, while there were two Aboriginal women in this category who selected these. Almost 100% of the non-Aboriginal women wanted to be either *a little lighter or a lot lighter*, compared with nearly 92% of the Aboriginal women for the same. The difference in proportions reached statistical significance for the overweight/obese women (χ² = 8.04, df = 4, p = 0.050).
Figure 4.2

Comparison of desired body weight among Aboriginal and non-Aboriginal women

Note. $\chi^2 = 7.81^*, \text{df}=2, \text{p}=0.020$

Figure 4.2 displays the difference in desired weight among Aboriginal and non-Aboriginal women. A 2x3 chi-square analysis was performed on the collapsed variables of heavier, same as at present and lighter and revealed a significant difference between Aboriginal and non-Aboriginal women’s desired weight. Both Aboriginal and non-Aboriginal participants predominantly expressed a preference to be lighter and 4.6% more Aboriginal women indicated that they wanted to be heavier. 4.4% more non-Aboriginal women than Aboriginal women expressed a preference to be lighter.
Figure 4.3

Comparison of desired body weight among Aboriginal and non-Aboriginal women in the normal weight body mass index (BMI) category

Note. Chi-square analyses for normal weight, cultural background and desired weight category (collapsed categories *a little lighter/a lot lighter* = *lighter*, *same as at present*, *a little heavier/a lot heavier* = *heavier*) = 10.30**, df=2, p=0.008

Figure 4.3 illustrates that the normal weight non-Aboriginal women were more likely to select *lighter* and less likely to select *heavier* as their desired body weight than were the normal weight Aboriginal women. Regardless of cultural background, less than one in four women in the normal weight category were content for their weight to remain the *same as at present*. The majority of both Aboriginal and non-Aboriginal women in the normal weight category selected *lighter* as their desired body weight. The difference in responses of Aboriginal and non-Aboriginal women reached statistical significance.
Figure 4.4

Comparison of desired body weight among Aboriginal and non-Aboriginal women in the overweight/obese body mass index (BMI) category

Note. Chi-square analyses for overweight/obese, cultural background and desired weight category (collapsed categories a little lighter/a lot lighter = lighter, same as at present, a little heavier/a lot heavier = heavier) = 5.76*, df=2, p=0.045

Figure 4.4 illustrates that the overweight/obese non-Aboriginal women were more likely to select lighter and less likely to select same as at present or heavier as their desired body weight than were their Aboriginal peers. Regardless of cultural background, the majority of women in the overweight/obese weight category selected lighter as their desired body weight. The difference in responses of Aboriginal and non-Aboriginal women reached statistical significance.
Table 4.6

*Correlations of the potential predictors of desired body weight*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting Participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desired body weight</td>
<td>-0.010</td>
<td>0.075*</td>
<td>0.057</td>
<td>0.132**</td>
<td>0.532***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>0.089*</td>
<td>-0.064</td>
<td>0.019</td>
<td>-0.211***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>0.048</td>
<td>0.303***</td>
<td>0.294***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.029</td>
<td>0.122**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.231***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* *p*<0.05, **p*<0.01, ***p*<0.001, desired body weight = 1-5, a score of 1 indicating a lot heavier and 5 indicating a lot lighter.

The correlations of the variables are presented above in Table 4.6 and show that BMI correlated significantly with all items, whilst geographic location did not correlate significantly with any item except BMI. The final prediction model on the following page (Table 4.31) contained three of the five predictors and was reached in three steps, with geographic location and sporting participation removed.
Table 4.7

Summary of stepwise multiple regression analysis for variables predicting desired body weight among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>.59</td>
<td>.532***</td>
<td>[0.06, 0.08]</td>
<td>.28</td>
<td>15.23***</td>
</tr>
<tr>
<td>Cultural Background</td>
<td>.12</td>
<td>-.010</td>
<td>[0.08, 0.32]</td>
<td>.01</td>
<td>3.34**</td>
</tr>
<tr>
<td>Age</td>
<td>-.11</td>
<td>.075*</td>
<td>[-0.01, -0.00]</td>
<td>.01</td>
<td>-2.87**</td>
</tr>
</tbody>
</table>

Note. The dependent variable was desired body weight. CI = confidence interval, sr² = semi-partial correlation. R² = 0.31, R² adjusted = 0.30, F (3, 539) = 78.84***. *P<0.05, **P<0.01, ***P<0.001

Table 4.7 displays the results of a stepwise multiple regression conducted to evaluate the predictors of desired body weight. Cultural background, geographic location, age in years (continuous variable), BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted desired body weight. The standardised regression coefficients (β) of the predictors together with their correlations with desired body weight, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.7.

The model was statistically significant and accounted for approximately 30% of the variance in desired body weight (F (3, 539) = 78.84, p<0.001). Desired body weight was primarily predicted by BMI (β=0.59, p=0.000), indicating that as BMI increased, women were more likely to desire to be lighter. Age was also a significant predictor (β=-0.11, p=0.004), in that increased age correlated with the desire to be a lot lighter. Cultural background (β=0.12, p=0.001) was a significant predictor indicating that Aboriginal women were more likely to desire to be heavier than non-Aboriginal women. BMI was by far the strongest predictor of desired body weight, uniquely contributing approximately 28% of the variance, while cultural background and age both contributed just over 1% each.
Table 4.8  
Comparison of body satisfaction among Aboriginal and non-Aboriginal women

<table>
<thead>
<tr>
<th>Body Satisfaction Item</th>
<th>Aboriginal women (N=201)</th>
<th>Non-Aboriginal women (N=412)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Satisfied</td>
<td>Satisfied</td>
<td>Dissatisfied</td>
</tr>
<tr>
<td>Weight</td>
<td>3.0 (6)</td>
<td>34.3 (69)</td>
<td>45.3 (91)</td>
</tr>
<tr>
<td>Shape</td>
<td>3.5 (7)</td>
<td>41.2 (82)</td>
<td>41.7 (83)</td>
</tr>
<tr>
<td>Muscle Size</td>
<td>4.0 (8)</td>
<td>39.0 (78)</td>
<td>46.0 (92)</td>
</tr>
<tr>
<td>Hips</td>
<td>5.1 (10)</td>
<td>48.7 (96)</td>
<td>36.0 (71)</td>
</tr>
<tr>
<td>Thighs</td>
<td>5.1 (10)</td>
<td>34.8 (69)</td>
<td>46.0 (91)</td>
</tr>
<tr>
<td>Chest</td>
<td>10.1 (20)</td>
<td>57.6 (114)</td>
<td>23.2 (46)</td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>0.5 (1)</td>
<td>20.6 (41)</td>
<td>47.2 (94)</td>
</tr>
<tr>
<td>Size/width of Shoulders</td>
<td>8.5 (17)</td>
<td>70.9 (141)</td>
<td>16.6 (33)</td>
</tr>
<tr>
<td>Legs</td>
<td>13.1 (26)</td>
<td>50.8 (101)</td>
<td>26.1 (52)</td>
</tr>
<tr>
<td>Arms</td>
<td>9.0 (18)</td>
<td>50.5 (101)</td>
<td>33.0 (66)</td>
</tr>
</tbody>
</table>

Note. *p<0.05, **p<0.01, ***p<0.001.
Table 4.8 shows a comparison of the body satisfaction scores of Aboriginal and non-Aboriginal women. A 2x4 chi-square test was performed on each body satisfaction item and the results indicated differences, specifically with weight, shape, muscle size, chest, abdominal muscles/stomach, and size/width of shoulders.

Regardless of cultural background, low proportions of women reported being very satisfied (<14%) with any of the body satisfaction items. Fewer Aboriginal women reported being satisfied (combined satisfied and very satisfied) with their weight ($\chi^2 = 13.77$, df=3, $p=0.003$), shape ($\chi^2 = 11.65$, df=3, $p=0.009$) or muscle size ($\chi^2 = 16.06$, df=3, $p=0.001$) than did their non-Aboriginal counterparts. The scores of Aboriginal and non-Aboriginal women on the items satisfaction with hips ($\chi^2 = 4.10$, df=3, $p=0.251$) and thighs ($\chi^2 = 0.49$, df=3, $p=0.921$) did not differ.

Large proportions (67-71%) of women expressed satisfaction with their chest ($\chi^2 = 8.20$, df=3, $p=0.042$), while fewer (20-28%) expressed satisfaction with their abdominal muscles/stomach ($\chi^2 = 15.79$, df=3, $p=0.001$). Nearly 80% of the Aboriginal women, and 90% of the non-Aboriginal women were either satisfied or very satisfied with the size/width of their shoulders ($\chi^2 = 13.73$, df=3, $p=0.003$). The scores of Aboriginal and non-Aboriginal women on items of satisfaction with legs ($\chi^2 = 4.23$, df=3, $p=0.238$) and arms ($\chi^2 = 1.39$, df=3, $p=0.708$) did not differ.
**Figure 4.5**

*Comparison of the proportions of Aboriginal and non-Aboriginal women who were satisfied with specific body parts*

Note. 2x2 chi-square analyses were performed on collapsed categories of *satisfied* and *dissatisfied*, * p<0.05, ** p<0.01, *** p<0.001. Only the *satisfied* results are displayed in the figure above.

Figure 4.5 above displays the collapsed body satisfaction (collapsed variables of *satisfied* and *very satisfied*) of Aboriginal and non-Aboriginal women for each of the body satisfaction items. The data show that for all of the body satisfaction items, there was a trend for greater satisfaction among the non-Aboriginal women, and hence, greater dissatisfaction among Aboriginal women. This difference reached statistical significance on satisfaction with weight ($\chi^2=5.62$, df=1, $p=0.018$), muscle size ($\chi^2=5.69$, df=1, $p=0.017$) and size/width of shoulders ($\chi^2=11.35$, df=1, $p=0.001$). While some analyses were near statistical significance, none of the remaining items reached statistical difference (satisfaction with shape $\chi^2=2.89$, df=1, $p=0.089$; hips $\chi^2=2.35$, df=1, $p=0.125$; thighs $\chi^2=0.20$, df=1, $p=0.652$; chest $\chi^2=0.54$, df=1, $p=0.461$; abdominal muscles/stomach $\chi^2=3.52$, df=1, $p=0.061$; legs $\chi^2=0.01$, df=1, $p=0.915$; arms $\chi^2=0.59$, df=1, $p=0.444$).
Table 4.9

Comparison of body satisfaction among Aboriginal and non-Aboriginal women in the normal weight body mass index (BMI) category

<table>
<thead>
<tr>
<th>Body Satisfaction Item</th>
<th>Aboriginal women (N=57)</th>
<th>Non-Aboriginal women (N=212)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>8.9 (5)</td>
<td>53.6 (30)</td>
<td>35.7 (20)</td>
</tr>
<tr>
<td>Shape</td>
<td>8.9 (5)</td>
<td>53.6 (30)</td>
<td>35.7 (20)</td>
</tr>
<tr>
<td>Muscle Size</td>
<td>7.1 (4)</td>
<td>51.8 (29)</td>
<td>35.7 (20)</td>
</tr>
<tr>
<td>Hips</td>
<td>7.4 (4)</td>
<td>59.3 (32)</td>
<td>31.5 (17)</td>
</tr>
<tr>
<td>Thighs</td>
<td>7.3 (4)</td>
<td>41.8 (23)</td>
<td>45.5 (25)</td>
</tr>
<tr>
<td>Chest</td>
<td>7.4 (4)</td>
<td>59.3 (32)</td>
<td>24.1 (13)</td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>1.8 (1)</td>
<td>34.5 (19)</td>
<td>45.5 (25)</td>
</tr>
<tr>
<td>Size/width of shoulders</td>
<td>18.2 (10)</td>
<td>78.2 (43)</td>
<td>3.6 (2)</td>
</tr>
<tr>
<td>Legs</td>
<td>18.2 (10)</td>
<td>60.0 (33)</td>
<td>18.2 (10)</td>
</tr>
<tr>
<td>Arms</td>
<td>12.3 (7)</td>
<td>70.2 (40)</td>
<td>15.8 (9)</td>
</tr>
</tbody>
</table>

*Note.* *p* < 0.05
Table 4.9 displays a trend toward satisfaction among both Aboriginal and non-Aboriginal women in the normal weight category for all the body satisfaction items where a minimum of 50% was either satisfied or very satisfied on every item except for satisfaction with thighs and hips.

The scores of Aboriginal and non-Aboriginal women in this weight category were similar on all items (satisfaction with weight $\chi^2=2.65$, df=3, $p=0.444$; shape $\chi^2=2.65$, df=3, $p=0.437$; hips $\chi^2=1.97$, df=3, $p=0.604$; thighs $\chi^2=0.18$, df=3, $p=0.992$; chest $\chi^2=5.69$, df=3, $p=0.125$; abdominal muscles/stomach $\chi^2=5.94$, df=3, $p=0.113$; size/width of shoulders $\chi^2=1.93$, df=3, $p=0.596$; legs $\chi^2=2.57$, df=3, $p=0.472$; arms $\chi^2=0.92$, df=3, $p=0.833$) except for satisfaction with muscle size ($\chi^2=11.75$, df=3, $p=0.013$) which was statistically significant.
Figure 4.6

Comparison of the proportion of Aboriginal and non-Aboriginal women in the normal weight body mass index (BMI) category who were satisfied with specific body parts

Note. 2x2 chi-square analyses performed on body satisfaction variables (collapsed categories of satisfied/very satisfied = satisfied and dissatisfied/very dissatisfied = dissatisfied). Only the satisfied results are displayed.

Figure 4.6 illustrates that the normal weight non-Aboriginal women were more likely than normal weight Aboriginal women to report satisfaction on all items except the final three—satisfaction with shoulders, legs and arms. 2x2 chi-square analyses revealed that the overall satisfaction of Aboriginal and non-Aboriginal women in the normal weight category was not statistically different on any item (weight $\chi^2 = 0.78$, df=1, $p=0.296$; shape $\chi^2 = 0.07$, df=1, $p=0.787$; muscle size $\chi^2 = 0.23$, df=1, $p=0.635$; hips $\chi^2 = 1.09$, df=1, $p=0.296$; thighs $\chi^2 = 0.00$, df=1, $p=1.000$; chest $\chi^2 = 0.68$, df=1, $p=0.411$; abdominal muscles/stomach $\chi^2 = 0.28$, df=1, $p=0.598$; size/width of shoulders $\chi^2 = 1.07$, df=1, $p=0.301$; legs $\chi^2 = 0.16$, df=1, $p=0.688$; arms $\chi^2 = 0.57$, df=1, $p=0.451$. 

![Graph showing comparison of weight satisfaction between Aboriginal and non-Aboriginal women]
Table 4.10

Comparison of body satisfaction among Aboriginal and non-Aboriginal women in the overweight/obese body mass index (BMI) category

<table>
<thead>
<tr>
<th>Body satisfaction item</th>
<th>Aboriginal women (N=105)</th>
<th>Non-Aboriginal women (N=166)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Satisfied</td>
<td>Satisfied</td>
<td>Dissatisfied</td>
</tr>
<tr>
<td>Weight</td>
<td>0.0 (0)</td>
<td>22.6 (24)</td>
<td>51.9 (55)</td>
</tr>
<tr>
<td>Shape</td>
<td>0.0 (0)</td>
<td>32.7 (34)</td>
<td>50.0 (52)</td>
</tr>
<tr>
<td>Muscle Size</td>
<td>1.9 (2)</td>
<td>29.5 (31)</td>
<td>55.2 (58)</td>
</tr>
<tr>
<td>Hips</td>
<td>4.8 (5)</td>
<td>40.4 (42)</td>
<td>43.3 (45)</td>
</tr>
<tr>
<td>Thighs</td>
<td>4.8 (5)</td>
<td>31.7 (33)</td>
<td>47.1 (49)</td>
</tr>
<tr>
<td>Chest</td>
<td>13.3 (14)</td>
<td>58.1 (61)</td>
<td>20.0 (21)</td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>0.0 (0)</td>
<td>8.6 (9)</td>
<td>50.5 (53)</td>
</tr>
<tr>
<td>Size/width of shoulders</td>
<td>4.8 (5)</td>
<td>68.6 (72)</td>
<td>22.9 (24)</td>
</tr>
<tr>
<td>Legs</td>
<td>9.5 (10)</td>
<td>45.7 (48)</td>
<td>34.3 (36)</td>
</tr>
<tr>
<td>Arms</td>
<td>7.7 (8)</td>
<td>40.4 (42)</td>
<td>42.3 (44)</td>
</tr>
</tbody>
</table>

Note. *p<0.05
Table 4.10 displays an overall trend toward dissatisfaction among both Aboriginal and non-Aboriginal women in the overweight/obese weight category for all the body satisfaction items where a minimum of 50% was either dissatisfied or very dissatisfied on most items excluding satisfaction with chest, shoulders and legs.

The proportion of responses of Aboriginal and non-Aboriginal women in this weight category were similar on all items (satisfaction with weight $\chi^2= 4.59$, df=3, $p=0.106$; shape $\chi^2= 2.08$, df=3, $p=0.595$; muscle size $\chi^2= 5.21$, df=3, $p=0.159$; hips $\chi^2= 2.05$, df=3, $p=0.580$; thighs $\chi^2= 3.66$, df=3, $p=0.303$; chest $\chi^2= 4.43$, df=3, $p=0.219$; abdominal muscles/stomach $\chi^2= 1.54$, df=2, $p=0.547$; legs $\chi^2= 2.39$, df=3, $p=0.482$; arms $\chi^2= 7.56$, df=3, $p=0.054$) except for satisfaction with size/width of shoulders ($\chi^2= 9.40$, df=3, $p=0.021$) which was statistically significant.
Figure 4.7

Comparison of the proportion of Aboriginal and non-Aboriginal women in the overweight/obese body mass index (BMI) category who were satisfied with specific body parts

Note. 2x2 chi-square analyses performed on body satisfaction variables (collapsed categories of satisfied/very satisfied = satisfied and dissatisfied/very dissatisfied = dissatisfied). Only the satisfied results are displayed.

Figure 4.7 illustrates that regardless of cultural background, the overweight/obese women were unlikely to report satisfaction with their weight or their abdominal muscles/stomach. The women were most likely to express satisfaction with their chest or with their shoulders. 2x2 chi-square analyses were performed on all items and revealed a statistically significant difference for the satisfaction with size/width of shoulders item ($\chi^2=7.61, \text{df}=1, p=0.006$), while none of the other items reached statistical difference (weight $\chi^2=0.41, \text{df}=1, p=0.522$; shape $\chi^2=0.20, \text{df}=1, p=0.654$; muscle size $\chi^2=3.174, \text{df}=1, p=0.075$; hips $\chi^2=0.13, \text{df}=1, p=0.718$; thighs $\chi^2=0.42, \text{df}=1, p=0.517$; chest $\chi^2=0.00, \text{df}=1, p=0.976$; abdominal muscles/stomach $\chi^2=0.16, \text{df}=1, p=0.689$; legs $\chi^2=0.00, \text{df}=1, p=1.000$; arms $\chi^2=0.04, \text{df}=1, p=0.844$).
Table 4.11

A comparison of past and current weight change behaviours among Aboriginal and non-Aboriginal women

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women</th>
<th>Non-Aboriginal women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N=212)</td>
<td>(N=409)</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td>% n</td>
<td>% n</td>
<td>% n</td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td>83.0 (176)</td>
<td>17.0 (36)</td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>57.7 (123)</td>
<td>42.3 (90)</td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td>18.3 (39)</td>
<td>81.7 (174)</td>
</tr>
<tr>
<td>Currently trying to gain weight</td>
<td>6.6 (14)</td>
<td>93.4 (199)</td>
</tr>
</tbody>
</table>

Note. ** p<0.01.

Table 4.11 displays the weight change behaviours of Aboriginal and non-Aboriginal women in the past (“have you ever tried to lose/gain weight?”) and present (“are you currently trying to gain/lose weight?”). 2x2 chi-square analysis was performed on the data and results indicated that similar proportions of women had previously “tried to lose weight” ($\chi^2$=1.53, df=1, p=0.217), and also reported “currently trying to lose weight” ($\chi^2$=0.18, df=1, p=0.671). There was a pattern of more weight gain behaviour among the Aboriginal women both in the past ($\chi^2$=3.12, df=1, p=0.077) and present, and this difference was statistically significant among those “currently trying to gain weight” ($\chi^2$=7.49, df=1, p=0.006).
Table 4.12

*A comparison of past and current weight change behaviours among Aboriginal and non-Aboriginal women by body mass index (BMI) category*

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N=62)</th>
<th>Non-Aboriginal women (N=211)</th>
<th>%</th>
<th>n</th>
<th>%</th>
<th>n</th>
<th>%</th>
<th>n</th>
<th>%</th>
<th>n</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal weight</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td>73.8 (45)</td>
<td>26.2 (16)</td>
<td>80.1</td>
<td>(169)</td>
<td>19.9</td>
<td>(42)</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>45.2 (28)</td>
<td>54.8 (34)</td>
<td>42.2</td>
<td>(89)</td>
<td>57.8</td>
<td>(122)</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td>29.0 (18)</td>
<td>71.0 (44)</td>
<td>17.5</td>
<td>(37)</td>
<td>82.5</td>
<td>(174)</td>
<td>3.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently trying to gain weight</td>
<td>11.1 (7)</td>
<td>88.7 (55)</td>
<td>2.4</td>
<td>(5)</td>
<td>97.6</td>
<td>(206)</td>
<td>7.08**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Overweight/obese</strong></td>
<td></td>
<td></td>
<td>91.9</td>
<td>(102)</td>
<td>8.1</td>
<td>(9)</td>
<td>97.0</td>
<td>(160)</td>
<td>3.0</td>
<td>(5)</td>
<td>2.58</td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td>66.7 (74)</td>
<td>33.3 (37)</td>
<td>75.8</td>
<td>(125)</td>
<td>24.2</td>
<td>(40)</td>
<td>2.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>10.8 (12)</td>
<td>89.2 (99)</td>
<td>4.2</td>
<td>(7)</td>
<td>95.8</td>
<td>(158)</td>
<td>3.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td>0.9 (1)</td>
<td>99.1 (110)</td>
<td>0.0</td>
<td>(0)</td>
<td>100.0</td>
<td>(165)</td>
<td>0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* **p< 0.01

Table 4.12 displays that among the normal weight women cultural background had little impact as the majority of women had tried to lose weight and just over 40% reported currently trying to lose weight. Aboriginal women in both BMI categories were more likely to report either currently or previously attempting weight gain and the difference was significant among the normal weight women currently trying to gain weight ($\chi^2= 7.08$, df=1, p=0.008). Regardless of cultural background, women in the overweight/obese category were more likely than the women in the normal weight category to report either previously or
currently attempting weight loss. 2x2 chi-square analyses were performed on all items, and revealed no significant difference in the scores (Normal weight: “ever tried to lose weight” $\chi^2= 0.78$, df=1, p=0.376; “currently trying to lose weight” $\chi^2= 0.07$, df=1, p=0.786; “ever tried to gain weight” $\chi^2= 3.26$, df=1, p=0.071. Overweight/obese: “ever tried to lose weight” $\chi^2= 2.58$, df=1, p=0.376; “currently trying to lose weight” $\chi^2= 2.29$, df=1, p=0.130; “currently trying to gain weight” $\chi^2= 0.04$, df=1, p=0.842; “ever tried to gain weight” $\chi^2= 3.50$, df=1, p=0.061).

In summary, the table shows that regardless of weight category or cultural background, the women were much more likely to try to lose weight than to try to gain weight and that Aboriginal women were more likely to attempt weight gain than were non-Aboriginal women.
Comparison of the proportion of Aboriginal and non-Aboriginal women who reported currently using exercise to increase the size of their muscles

Note. Chi-square analyses for cultural background and increasing exercise for increased muscles = 2.55, df = 3, p=0.466.

Figure 4.8 displays the reporting by Aboriginal and non-Aboriginal women about their use of exercise for increased muscles. 2x4 chi-square analyses showed no significant difference in the frequency of women using exercise to increase the size of their muscles.
Figure 4.9

Comparison of the proportion of Aboriginal and non-Aboriginal women in the normal weight body mass index (BMI) category who reported increasing their exercise to increase the size of their muscles

Note. Chi-square analyses for cultural background, weight category and increasing exercise for increased muscles = 1.17, df=3, p=0.741

Figure 4.9 shows that similar portions of normal weight Aboriginal and normal weight non-Aboriginal women report engaging in increased exercise for increased muscles, whilst around half reported sometimes doing this. 2x4 chi-square analyses revealed no significant difference in the scores.
Figure 4.10

Comparison of the proportion of Aboriginal and non-Aboriginal women in the overweight/obese body mass index (BMI) category who reported increasing their exercise to increase the size of their muscles

Note. Chi-square analyses for cultural background, weight category and increasing exercise for increased muscles = 8.54*, df=3, p=0.045

Figure 4.10 illustrates that in the overweight/obese weight category, few women reported always or almost always increasing their exercise to increase the size of their muscles, although Aboriginal women were more likely to report sometimes doing this. 2x4 chi-square analyses revealed this difference was significant.
Figure 4.11

Comparison of the proportion of Aboriginal and non-Aboriginal women who reported currently increasing their eating to increase the size of their muscles

Note. Chi-square analyses for cultural background and increasing eating for increased muscles = 33.74***, df = 3, p=0.000.

Figure 4.11 shows the proportion of Aboriginal and non-Aboriginal women who increase their eating to increase the size of their muscles. The data show more Aboriginal women increase their eating to increase the size of their muscles, although the majority of all women reported never increasing their eating for this purpose. 2x4 chi-square analyses revealed a significant difference with more Aboriginal than non-Aboriginal women reporting eating to increase their muscle size.
Figure 4.12

Comparison of the proportion of Aboriginal and non-Aboriginal women in the normal weight body mass index (BMI) category who reported increasing their eating to increase the size of their muscles

![Bar chart showing the comparison between Aboriginal and non-Aboriginal women in the normal weight BMI category.](chart.png)

Note. Chi-square analyses for cultural background, weight category and increasing eating for increased muscles

= 11.78**, df=3, p=0.010

Figure 4.12 indicates that in the normal weight category, Aboriginal women were more likely than non-Aboriginal women to report increasing their eating to increase the size of their muscles. Chi-square analyses revealed a significant difference in the scores of Aboriginal and non-Aboriginal women in the normal weight BMI category on this item.
Figure 4.13

_Comparison of the proportion of Aboriginal and non-Aboriginal women in the overweight/obese body mass index (BMI) category who reported increasing their eating to increase the size of their muscles_

![Bar chart comparing Aboriginal and non-Aboriginal women in the overweight/obese BMI category who reported increasing their eating for increased muscles.](chart.png)

*Note.* Chi-square analyses for cultural background, weight category and increasing eating for increased muscles = 18.41***, df=3, p=0.000

Figure 4.13 shows that in the overweight/obese weight category, non-Aboriginal women were less likely than Aboriginal women to report increasing their eating for increased muscles, with 96.4% reporting _never_ and none reporting _almost always_ or _always_. 2x4 chi-square analyses indicated a highly significant difference in the scores of Aboriginal and non-Aboriginal women in the overweight/obese BMI category in the frequency they reported increasing their eating to increase the size of their muscles.
The following analyses explore the mean (SD) differences in body image scores and the discrepancy between ideal and current-self scores in order to examine the general distribution of continuous data and any potential trends.

Table 4.13

A summary of the mean (SD) Stunkard body size perception ratings of Aboriginal and non-Aboriginal women

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N=208)</th>
<th>Non-Aboriginal women (N=411)</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Current self</td>
<td>4.60</td>
<td>1.82</td>
<td>4.19</td>
</tr>
<tr>
<td>Ideal self</td>
<td>2.96</td>
<td>1.09</td>
<td>2.79</td>
</tr>
<tr>
<td>Ideal female</td>
<td>2.82</td>
<td>1.03</td>
<td>2.61</td>
</tr>
<tr>
<td>Ideal male</td>
<td>3.58</td>
<td>0.92</td>
<td>3.54</td>
</tr>
<tr>
<td>Discrepancy score</td>
<td>1.62</td>
<td>1.51</td>
<td>1.41</td>
</tr>
</tbody>
</table>

Note. $^a$ Significant at p<0.01 due to violation of homogeneity of variance assumption (Tabachnick & Fidell, 2013). Discrepancy score = current self – ideal self, ** p<0.01, *** p<0.001.

The mean (SD) scores of Aboriginal and non-Aboriginal women were analysed using a one-way analysis of covariance (ANCOVA) controlling for age as a covariate. The independent variable was cultural background (Aboriginal/non-Aboriginal) and the dependent variable was the item from the Stunkard Scale. The scores of Aboriginal women were consistently greater than those of non-Aboriginal women for all items. After adjusting for age, there was a significant difference in the Aboriginal and non-Aboriginal women’s’ scores for current self (F (1, 617) =12.87, p = 0.000), ideal self (F (1, 614) = 7.82, p=0.005) and ideal female (F (1, 605) = 10.90, p=0.001), but not for ideal male (F (1, 608) = 0.33, p=0.568). Aboriginal women had a larger mean discrepancy score than did non-Aboriginal women indicating a greater degree of body dissatisfaction overall (F (1, 613) = 4.07, p=0.044). In summary, the Aboriginal women consistently reported bigger ideal figures for females than their non-Aboriginal counterparts.
<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N=173)</th>
<th>Non-Aboriginal women (N=378)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Normal weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current self</td>
<td>3.15</td>
<td>1.24</td>
<td>3.38</td>
</tr>
<tr>
<td>Ideal Self</td>
<td>2.31</td>
<td>0.79</td>
<td>2.39</td>
</tr>
<tr>
<td>Ideal female</td>
<td>2.41</td>
<td>0.85</td>
<td>2.38</td>
</tr>
<tr>
<td>Ideal male</td>
<td>3.37</td>
<td>0.74</td>
<td>3.46</td>
</tr>
<tr>
<td>Discrepancy score</td>
<td>0.84</td>
<td>1.24</td>
<td>1.00</td>
</tr>
<tr>
<td>Overweight/obese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current self</td>
<td>5.52</td>
<td>1.49</td>
<td>5.30</td>
</tr>
<tr>
<td>Ideal Self</td>
<td>3.36</td>
<td>1.09</td>
<td>3.30</td>
</tr>
<tr>
<td>Ideal female</td>
<td>3.07</td>
<td>1.07</td>
<td>2.89</td>
</tr>
<tr>
<td>Ideal male</td>
<td>3.76</td>
<td>0.68</td>
<td>3.69</td>
</tr>
<tr>
<td>Discrepancy score</td>
<td>2.13</td>
<td>1.29</td>
<td>2.02</td>
</tr>
</tbody>
</table>
Table 4.14 indicates that the scores of Aboriginal and non-Aboriginal women in the normal weight BMI category were similar for all figure rating scale items. Among the overweight/obese women, Aboriginal women had higher mean scores than the non-Aboriginal women, although the difference was not statistically significant. Regardless of cultural background, the women in the overweight/obese weight category had higher mean scores for current self, ideal figures and discrepancy score compared to their normal weight counterparts.

A one-way analysis of covariance (ANCOVA) controlling for age as a covariate was conducted to compare the scores of Aboriginal and non-Aboriginal women in the normal weight BMI category on the four items of the Stunkard Figure Rating Scale perceived current self, ideal self, ideal female and ideal male as well as the discrepancy score. The discrepancy score was calculated to indicate the degree of body dissatisfaction (current self – ideal self). The independent variable was cultural background (Aboriginal/non-Aboriginal); the dependent variable was the item from the Stunkard Scale.

After adjusting for age, no significant difference in the Aboriginal and non-Aboriginal women’s scores in the normal weight BMI category was found for any of the items (current self F (1, 269) = 1.83, p=0.178; ideal self F (1, 267) = 0.00, p=0.994; ideal female F (1, 264) = 0.65, p=0.420; or ideal male F (1, 266) = 0.65, p=0.423). Non-Aboriginal women had a higher mean discrepancy score, indicative of greater body dissatisfaction overall, although this did not reach statistical significance (F (1, 267) = 2.37, p=0.125).

In the overweight/obese BMI category, after adjusting for age, no significant difference in the Aboriginal and non-Aboriginal women’s scores was found for any of the items in this weight category (current self F (1, 273) = 2.26, p=0.134; ideal self F (1, 272) = 0.56, p=0.457; ideal female F (1, 267) = 2.72, p=0.100; or ideal male F (1, 268) = 0.28, p=0.595). The Aboriginal women had a higher mean discrepancy score in this BMI category, although this was not found to be significant (F (1, 271) = 0.58, p=0.448).
Figure 4.14

Comparison of the distribution of the Stunkard ‘current self’ Figure Rating Scale of Aboriginal and non-Aboriginal women in the normal weight body mass index (BMI) category

Note. $X^2 = 12.36^*$, df = 5, p=0.028, perceived current self = figures 1-9, 1 being emaciated, 9 being obese.

Figure 4.14 shows that among the normal weight women, regardless of cultural background, the women were most likely to select a figure between one and five as representative of their current self. A chi-square for independence (2x6 tables) was performed to examine the impact of cultural background on current self-scores of the women in the normal weight BMI category. Aboriginal women were more likely to select the lower (1-3) and higher (5 and 7) figures, and less likely to select Figure 4 than were non-Aboriginal women. This difference was statistically significant. The mean BMI of women in this weight category selecting each figure is represented by the line graph and shows that mean the mean BMI of Aboriginal and non-Aboriginal women selecting each figure was similar.
Figure 4.15

Comparison of the distribution of the Stunkard ‘current self’ Figure Rating Scale of Aboriginal and non-Aboriginal women in the overweight/obese body mass index (BMI) category

Note. $\chi^2 = 15.99^*$, df = 7, p=0.015, perceived current self = figures 1-9, 1 being emaciated, 9 being obese.

Figure 4.15 illustrates that Figures 4-6 were the most commonly selected current-self figures among both Aboriginal and non-Aboriginal women in the overweight/obese weight category. A chi-square (2x8 tables) revealed a significant difference between Aboriginal and non-Aboriginal women’s current-self figure in the overweight/obese BMI category. The mean BMI of women in this weight category selecting each figure is represented by the line graph. The mean BMI for Aboriginal women for Figure 2 and Figure 9 that deviate from the upward trend in mean BMI must be interpreted with caution as they represent the BMI of only one participant respectively.
Table 4.15

*Correlations of the potential predictors of perceived ‘current self’*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current self</td>
<td>-.123**</td>
<td>.224***</td>
<td>.175***</td>
<td>.159***</td>
<td>.720***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.085*</td>
<td>-.072*</td>
<td>.021</td>
<td>-.217***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.047</td>
<td>.306***</td>
<td>.294***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.032</td>
<td>.121**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.230***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* *p*<0.05, **p*<0.01, ***p*<0.001, perceived current self = figures 1-9, 1 being emaciated, 9 being obese.

The correlations of the variables are presented above in Table 4.15 and show that all correlations were statistically significant except for those between geographic location and age; geographic location and sporting participation and; sporting participation and cultural background. The final prediction model on the following page (Table 4.16) contained two of the five predictors and was reached in two steps, with cultural background, age and sporting participation removed.
Table 4.16

Summary of stepwise multiple regression analysis for variables predicting perceived ‘current self’ among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>.71</td>
<td>.720***</td>
<td>[0.16, 0.19]</td>
<td>.52</td>
<td>23.68***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>.09</td>
<td>.175***</td>
<td>[0.11, 0.51]</td>
<td>.01</td>
<td>2.98**</td>
</tr>
</tbody>
</table>

Note. The dependent variable was ‘perceived current self’. CI = confidence interval, sr² = semi-partial correlation. R² = 0.53, R² adjusted = 0.53, F (2, 535) = 297.74***. *p< 0.05, **p<0.01, ***p<0.001

Table 4.16 displays the results of a stepwise multiple regression conducted to evaluate the predictors of perceived current-self figure on the Stunkard Rating Scale. Perceived current self is derived from the question “which figure looks most like you?” Cultural background, geographic location, age in years, BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted perceived current self. The standardised regression coefficients (β) of the predictors together with their correlations with perceived current self, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.16.

The model was statistically significant and accounted for approximately 53% of the variance in perceived current self (F (2, 535) = 297.74, p<0.001). Current self was primarily predicted by BMI (β=0.71, p=0.000), indicating that as BMI increased, women were more likely to perceive themselves as bigger. Geographic location living was also a significant predictor (β=0.09, p=0.003), in that rural living correlated with the perceived larger body size. BMI was by far the strongest predictor of current self, uniquely contributing approximately 52% of the variance, while geographic location living contributed approximately 1%.
Table 4.17

Correlations of the potential predictors of perceived ‘ideal self’

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal self</td>
<td>-.110**</td>
<td>.268***</td>
<td>.108**</td>
<td>.129**</td>
<td>.542***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.085*</td>
<td>-.064</td>
<td>.020</td>
<td>-.223***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.049</td>
<td>.306***</td>
<td>.295***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.029</td>
<td>.125**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.236***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. *p<0.05, **p<0.01, ***p<0.001, Ideal self = figures 1-9, 1 being emaciated, 9 being obese.

The correlations of the variables are presented above in Table 4.17 and show that the majority of the correlations were statistically significant, excluding those between geographic location and age; geographic location and sporting participation and; sporting participation and cultural background. The final prediction model on the following page (Table 4.18) contained two of the five predictors and was reached in two steps, with cultural background, geographic location, and sporting participation removed.
Table 4.18

Summary of stepwise multiple regression analysis for variables predicting ‘ideal self’ among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>.51</td>
<td>.542***</td>
<td>[0.07, 0.10]</td>
<td>0.29</td>
<td>13.44***</td>
</tr>
<tr>
<td>Age</td>
<td>.12</td>
<td>.268***</td>
<td>[0.00, 0.01]</td>
<td>0.01</td>
<td>3.12**</td>
</tr>
</tbody>
</table>

Note. The dependent variable was ideal self. CI = confidence interval, sr² = semi-partial correlation. R² = 0.31, R² adjusted = 0.30, F (2, 532) = 117.80***. *p<0.05, **p<0.01, ***p<0.001

Table 4.18 displays the results of a stepwise multiple regression conducted to evaluate the predictors of ideal self-selections on the Stunkard Rating Scale. Ideal self is derived from the question “which female figure would you like to look like?” Cultural background, geographic location, age in years, BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted ideal self. The standardised regression coefficients (β) of the predictors together with their correlations with ideal self, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.35.

The model was statistically significant and accounted for approximately 30% of the variance in ideal-self scores (F (2, 532) = 117.80, p<0.001). Ideal-self scores were primarily predicted by BMI (β=0.51, p=0.000), indicating that as BMI increased, women’s ideal self also increased. Age was also a significant predictor (β=0.12, p=0.002), in that as age increased, so too did the ideal-self score. There was also a strong positive correlation between age and BMI. BMI was by far the strongest predictor of ideal self, uniquely contributing approximately 29% of the variance, while age contributed approximately 1%.
Table 4.19

*Correlations of the potential predictors of the ‘ideal female’*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal female</td>
<td>-.126**</td>
<td>.177***</td>
<td>.133**</td>
<td>.063</td>
<td>.391***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.098*</td>
<td>-.069</td>
<td>.031</td>
<td>-.218***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.041</td>
<td>.305***</td>
<td>.289***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.031</td>
<td>.137**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.233***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. *p<0.05, **p<0.01, ***p<0.001, ideal female = figures 1-9, 1 being emaciated, 9 being obese.

The correlations of the variables are presented in Table 4.19. For geographic location, only the correlation with ideal female was significant, and for sporting participation, only the correlation with age was significant. All other correlations were significant. The final prediction model (Table 4.20) contained two of the five predictors and was reached in two steps, with cultural background, age, and sporting participation removed.
Table 4.20

Summary of stepwise multiple regression analysis for variables predicting ‘ideal female’ among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>.38</td>
<td>.391***</td>
<td>[0.05, 0.07]</td>
<td>0.15</td>
<td>9.409***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>.08</td>
<td>.133**</td>
<td>[0.00, 0.31]</td>
<td>0.01</td>
<td>1.990*</td>
</tr>
</tbody>
</table>

Note. The dependent variable was ideal female. CI = confidence interval, sr² = semi-partial correlation. R² = 0.16, R² adjusted = 0.16, F (3, 524) = 49.76***. *p < 0.05, **p < 0.01, ***p < 0.001

Table 4.20 displays the results of a stepwise multiple regression performed to evaluate the predictors of ideal female selections on the Stunkard Rating Scale. Ideal female is derived from the question “which female figure looks best?” Cultural background, geographic location, age, BMI, and sporting participation were entered into the stepwise regression analyses to examine which variables predicted ideal female. The standardised regression coefficients (β) of the predictors together with their correlations with ideal female, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.20.

The model was statistically significant and accounted for approximately 16% of the variance in ideal female scores (F (2, 524) = 49.76, p < 0.001). Ideal female scores were primarily predicted by BMI (β = 0.38, p = 0.000), indicating that as BMI increased, women’s ideal female also increased. Geographic location was also a significant predictor (β = 0.08, p = 0.047), in that rural women held larger ideals for females. BMI was by far the strongest predictor of ideal female, uniquely contributing approximately 15% of the variance in scores, while geographic location contributed approximately 1%.
The correlations of the variables are presented in Table 4.21. As shown, BMI correlated significantly with all variables, cultural background correlated significantly with age, and age correlated significantly with sporting participation. The final prediction model on the following page (Table 4.22) contained only two of the five predictors and was reached in two steps, with cultural background, geographic location, and sporting participation removed.
Table 4.22

Summary of stepwise multiple regression analysis for variables predicting ‘ideal male’ among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>.28</td>
<td>.241***</td>
<td>[0.03, 0.05]</td>
<td>0.06</td>
<td>6.088***</td>
</tr>
<tr>
<td>Age</td>
<td>-.09</td>
<td>-.020</td>
<td>[-0.01, 0.00]</td>
<td>0.01</td>
<td>-2.139*</td>
</tr>
</tbody>
</table>

*Note. The dependent variable was ideal male. CI = confidence interval, sr² = semi-partial correlation. R² = 0.07, R² adjusted = 0.06, F (2, 527) = 18.64***. *p< 0.05, **p<0.01, ***p<0.001

Table 4.22 displays the results of a stepwise multiple regression performed to evaluate the predictors of ideal male selections on the Stunkard Rating Scale. Ideal male is derived from the question “which male figure looks best?” Cultural background, geographic location, age in years, BMI, and sporting participation were entered into the stepwise regression analyses to examine which variables predicted ideal male. The standardised regression coefficients (β) of the predictors together with their correlations with ideal male, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.22.

The model was statistically significant and accounted for approximately 7% of the variance in ideal male scores (F (2, 527) = 18.64, p<0.001). Ideal male scores were predicted by BMI (β=0.28, p=0.000) accounting for 6% of the variance indicating that as BMI increased, women’s ideal male figure also increased. Age also accounted for 1% of the variance in ideal male scores (β=-0.09, p=0.033) indicating that as age increased, so too did ideal male scores. These are relatively small proportions and indicate that the ideals females hold for males are fairly independent of culture, place, sporting participation or age, and are similar for the majority of women.
The correlations of the variables are presented above in Table 4.23. As shown, BMI correlated significantly with all variables, and the discrepancy score correlated significantly with all the variables except for cultural background. The final prediction model on the following page (Table 4.24) contained three of the five predictors and was reached in three steps, with geographic location and sporting participation removed.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrepancy score</td>
<td>-.055</td>
<td>.084*</td>
<td>.133**</td>
<td>.099*</td>
<td>.552***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.085*</td>
<td>-.066</td>
<td>.023</td>
<td>-.220***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.049</td>
<td>.306***</td>
<td>.296***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.030</td>
<td>.127**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.235***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note: *p<0.05, **p<0.01, ***p<0.001, discrepancy score = current self – ideal self.*
Table 4.24

Summary of stepwise multiple regression analysis for variables predicting discrepancy score among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>.60</td>
<td>.552***</td>
<td>[0.11, 0.14]</td>
<td>0.30</td>
<td>15.432***</td>
</tr>
<tr>
<td>Age</td>
<td>-.10</td>
<td>.084*</td>
<td>[-0.01, -0.00]</td>
<td>0.01</td>
<td>-2.634**</td>
</tr>
<tr>
<td>Cultural background</td>
<td>.09</td>
<td>-.055</td>
<td>[0.03, 0.43]</td>
<td>0.01</td>
<td>2.287*</td>
</tr>
</tbody>
</table>

Note. The dependent variable was the discrepancy score. CI = confidence interval, sr² = semi-partial correlation. R² = 0.32, R² adjusted = 0.31, F (3, 530) = 82.25***. *p< 0.05, **p<0.01, ***p<0.001

Table 4.24 above displays the results of a stepwise multiple regression performed to evaluate the predictors of the discrepancy score (derived from subtracting the ideal self score from the current self score on the figure rating scale). The discrepancy score is used to represent body dissatisfaction. Cultural background, geographic location, age in years, BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted the discrepancy scores. The standardised regression coefficients (β) of the predictors together with their correlations with the discrepancy scores, their squared semi-partial correlations, confidence intervals and t-values are shown above in Table 4.24.

The model was statistically significant and accounted for approximately 32% of the variance in discrepancy scores (F (3, 530) = 82.25, p<0.001). The discrepancy scores were predicted by BMI (β=0.60, p=0.000), indicating that as BMI increased, so too did the discrepancy between the ideal self and the current self, and hence represents body dissatisfaction. Age (β= -0.10, p=0.009) was a significant predictor indicating that with an increase in age there was an increase in discrepancy score. Similarly, cultural background was also a significant predictor (β= 0.09, p=0.023), in that Aboriginal women had larger discrepancy scores. BMI was by far the strongest predictor of discrepancy scores, uniquely contributing approximately 30% of the variance in scores, while age and cultural background contributed approximately 1% each.
The following analyses explore the differences in the Body Appearance Ratings of Aboriginal and non-Aboriginal women to assess perception of physical appearance using a self-perception rating score from zero to ten (10 being perfect). This explores how participants rate their own body appearance (self score) and their perceptions of how other people, people of the opposite sex (opposite sex score), women in your family (female family score) and men in your family (male family score) would rate them.

Table 4.25

A comparison of the mean (SD) Body Appearance Ratings of Aboriginal and non-Aboriginal women

<table>
<thead>
<tr>
<th>Body Appearance Rating item</th>
<th>Aboriginal women (N=208)</th>
<th>Mean</th>
<th>SD</th>
<th>Non-Aboriginal women (N=409)</th>
<th>Mean</th>
<th>SD</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td></td>
<td>5.81</td>
<td>1.87</td>
<td>6.09</td>
<td>1.44</td>
<td></td>
<td>4.94*</td>
</tr>
<tr>
<td>Other people</td>
<td></td>
<td>5.84</td>
<td>2.06</td>
<td>6.10</td>
<td>1.54</td>
<td></td>
<td>4.04*</td>
</tr>
<tr>
<td>Opposite sex</td>
<td></td>
<td>5.71</td>
<td>2.27</td>
<td>5.83</td>
<td>1.76</td>
<td></td>
<td>0.85</td>
</tr>
<tr>
<td>Female family</td>
<td></td>
<td>6.85</td>
<td>2.19</td>
<td>6.78</td>
<td>1.79</td>
<td></td>
<td>0.74</td>
</tr>
<tr>
<td>Male family</td>
<td></td>
<td>6.61</td>
<td>2.22</td>
<td>6.70</td>
<td>1.78</td>
<td></td>
<td>1.61</td>
</tr>
</tbody>
</table>

Note. *p< 0.05.

Table 4.25 shows mean (SD) scores of the Aboriginal and non-Aboriginal women for the Body Appearance Ratings. One-way analysis of covariance (ANCOVA) controlling for age as a covariate was conducted to compare the scores of Aboriginal and non-Aboriginal women on the five Body Appearance Rating items (self, other people, opposite sex, female family and male family). The independent variable was cultural background (Aboriginal/non-Aboriginal); the dependent variable was the item from the Body Appearance Rating scale. After controlling for age, the scores of Aboriginal and non-Aboriginal women were similar for their perceptions about how the opposite sex (F (1, 597) = 0.85, p= 0.358), women in their family (F (1, 607) = 0.74, p= 0.786) and men in their family think they look (F (1, 597) = 1.61, p= 0.282). The mean responses of Aboriginal women were significantly lower than those of non-Aboriginal women for their self score (“how you think you look”) (F (1, 615) = 4.94, p= 0.027) and other people score (“how you think other people think you look”) (F (1, 601) = 4.04, p= 0.045).
### Table 4.26

*A comparison of the mean (SD) Body Appearance Ratings of Aboriginal and non-Aboriginal women by BMI category*

| Body Appearance Rating Item | Aboriginal women (N=173) | | Non-Aboriginal women (N=378) | | F-value |
|-----------------------------|---------------------------|--|-----------------------------||--|-------------------|
|                             | Mean          | SD  | Mean          | SD  |                |
| Normal weight               |              |    |              |    |                |
| Self                        | 6.53          | 1.63| 6.53          | 1.17| 0.00           |
| Other people                | 6.67          | 1.85| 6.47          | 1.23| 1.02           |
| Opposite sex                | 6.48          | 2.15| 6.37          | 1.42| 0.33           |
| Female family               | 7.86          | 1.75| 7.28          | 1.57| 3.30           |
| Male family                 | 7.86          | 1.86| 7.13          | 1.54| 7.03**         |
| Overweight/obese            |              |    |              |    |                |
| Self                        | 5.59          | 1.76| 5.55          | 1.56| 0.02           |
| Other people                | 5.44          | 1.82| 5.64          | 1.76| 0.93           |
| Opposite sex                | 5.30          | 2.08| 5.15          | 1.87| 0.25           |
| Female family               | 6.50          | 1.81| 6.14          | 1.85| 1.81           |
| Male family                 | 6.17          | 1.77| 6.19          | 1.88| 0.11           |

*Note: **p<0.01*
Table 4.26 shows mean (SD) scores of the Aboriginal and non-Aboriginal women for the body appearance ratings by BMI category. One-way analysis of covariance (ANCOVA) controlling for age as a covariate was conducted to compare the scores of Aboriginal and non-Aboriginal women in the normal weight BMI category on the five body appearance rating items (self, other people, opposite sex, women in your family and men in your family). The independent variable was cultural background (Aboriginal/non-Aboriginal) and the dependent variable was the item from the Body Appearance Rating.

After controlling for age, the scores of Aboriginal and non-Aboriginal women in the normal weight BMI category were similar for all items (Self $F (1, 269) = 0.00$, $p= 0.986$; Other people $F (1, 262) = 1.02$, $p= 0.314$; Opposite sex $F (1, 260) = 0.33$, $p= 0.567$; and Female family $F (1, 267) = 3.30$, $p= 0.071$), except for the perception of male relatives (male family $F (1, 261) = 7.03$, $p= 0.009$), where Aboriginal women had significantly higher mean ratings than non-Aboriginal women.

Among the women in the overweight/obese weight category, after adjusting for age, there was no significant difference in the Aboriginal and non-Aboriginal women’s scores for Self ($F (1, 272) = 0.02$, $p= 0.904$), other people ($F (1, 266) = 0.93$, $p=0.335$), Opposite sex ($F (1, 266) = 0.25$, $p=0.615$), Female family ($F (1, 267) = 1.81$, $p=0.180$) or Male family ($F (1, 264) = 0.11$, $p=0.745$).

Comparing the results of the women in the normal weight and overweight/obese BMI categories, it can be seen that regardless of cultural background, women in the overweight/obese weight category had lower mean scores on all items than their normal weight counterparts. Further, regardless of cultural background or BMI category, there is a trend toward higher scores regarding male and female family perceptions.

Among the overweight/obese women, after adjusting for age the scores of the Aboriginal and non-Aboriginal women were similar and did not each statistically significant difference on any of the items.
Table 4.27

*Correlations of the potential predictors of ‘self’ scores*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self score</td>
<td>.053</td>
<td>-.085**</td>
<td>-.132**</td>
<td>-.164***</td>
<td>-.323***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.082*</td>
<td>-.069</td>
<td>.023</td>
<td>-.223***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.052</td>
<td>.303***</td>
<td>.284***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.035</td>
<td>.125**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.231***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* *p<0.05, **p<0.01, ***p<0.001, self-score = 0-10 (10 being perfect).

The correlations of the variables are presented above in Table 4.27 and show that the majority of the correlations were statistically significant except for those between cultural background and geographic location, sporting participation and physical self-perception, and geographic location with sporting participation and age. The prediction model (Table 4.28) contained three of the five predictors and was reached in three steps, with cultural background and age removed.
Table 4.28

Summary of stepwise multiple regression analysis for variables predicting 'self' score among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>-.29</td>
<td>-.323***</td>
<td>[-0.09, -0.05]</td>
<td>0.11</td>
<td>-6.92***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-.09</td>
<td>-.132**</td>
<td>[-0.57, -0.04]</td>
<td>0.01</td>
<td>-2.25*</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>.09</td>
<td>-.164***</td>
<td>[-0.57, -0.04]</td>
<td>0.01</td>
<td>2.25*</td>
</tr>
</tbody>
</table>

Note. The dependent variable was self score. CI = confidence interval, sr² = semi-partial correlation. R² = 0.12, R² adjusted = 0.12, F (3, 534) = 24.60***. *p< 0.05, **p<0.01, ***p<0.001

Table 4.28 displays the results of a stepwise multiple regression conducted to evaluate the predictors of self scores. The self-score is derived from the questionnaire rating item (out of ten) “how you think you look?” Cultural background, geographic location, age in years, BMI, and sporting participation were entered into the stepwise regression analyses to examine which variables predicted self score. The standardised regression coefficients (β) of the predictors together with their correlations with self score, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.28.

The model was statistically significant and accounted for approximately 12% of the variance in self scores (F (3, 534) = 24.60, p<0.001). Self scores were primarily predicted by BMI (β=.29, p=0.000), indicating that as BMI increased, women were more likely to have a lower self score out of ten. Geographic location was also a significant predictor (β=-.09, p=0.025), in that rural living correlated with lower self scores. Sporting participation (β=0.09, p=0.025) was also a significant predictor and indicated that women who participated in sport were more likely to have higher self scores. BMI was the strongest predictor of self scores, uniquely contributing approximately 11% of the variance, while geographic location and sporting participation contributed approximately 1% each.
Table 4.29

*Correlations of the potential predictors of ‘other people’ scores*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other people score</td>
<td>.029</td>
<td>-.102*</td>
<td>-.096*</td>
<td>-.207***</td>
<td>-.369***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.094*</td>
<td>-.070</td>
<td>.035</td>
<td>-.232***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.042</td>
<td>.310***</td>
<td>.292***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.039</td>
<td>.139**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.232***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* *p*<0.05, **p*<0.01, ***p*<0.001, other people score = 0-10 (10 being perfect).

The correlations of the variables are presented above in Table 4.29 and shows that all of the correlations with BMI were significant and all the correlations with the dependent variable other people score, except cultural background were significant. The prediction model on the following page (Table 4.30) contained two of the five predictors and was reached in two steps, with cultural background, age and location removed.
Table 4.30

Summary of stepwise multiple regression analysis for variables predicting ‘other people’ scores among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>-.34</td>
<td>-.369***</td>
<td>[-0.12, -0.07]</td>
<td>0.14</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.198***</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-.13</td>
<td>-.207***</td>
<td>[-0.73, -0.16]</td>
<td>0.02</td>
<td>-3.077**</td>
</tr>
</tbody>
</table>

Note. The dependent variable was other people scores. CI = confidence interval, sr² = semi-partial correlation. R² = 0.15, R² adjusted = 0.15, F (2, 540) = 46.73***. *p< 0.05, **p<0.01, ***p<0.001

Table 4.30 displays the results of a stepwise multiple regression performed to evaluate the predictors of perception of other people. The other people score is derived from the questionnaire rating item (out of ten) “how you think other people think you look?” Cultural background, geographic location, age, BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted other people score. The standardised regression coefficients (β) of the predictors together with their correlations with other people score, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.30.

The model was statistically significant and accounted for approximately 16% of the variance in other people scores (F (2, 522) = 46.73, p<0.001). Other people scores were primarily predicted by BMI (β= -.34, p=0.000), indicating that as BMI increased, women were more likely to perceive that other people would rate them lower out of ten. Sporting participation was also a significant predictor (β= -.13, p=0.002), in that those who participated in sport had higher perceptions of how others would think they look. BMI was the strongest predictor of other people scores, uniquely contributing approximately 14% of the variance, while sporting participation contributed approximately 2%.
Table 4.31

_Correlations of the potential predictors of ‘opposite sex’ scores_

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opposite sex score</td>
<td>.015</td>
<td>-.078*</td>
<td>-.086*</td>
<td>-.190***</td>
<td>-.363***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.084*</td>
<td>-.068</td>
<td>.032</td>
<td>-.231***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.044</td>
<td>.311***</td>
<td>.296***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.045</td>
<td>.131**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.240***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* *p*<0.05, **p*<0.01, ***p*<0.001, opposite sex score = 0-10 (10 being perfect).

The correlations of the variables are presented above in Table 4.31. As shown, BMI correlated significantly with all variables, and opposite sex score correlated significantly with location, sporting participation and BMI. The prediction model on the following page (Table 4.32) contained two of the five predictors and was reached in three steps, with cultural background, age and location removed.
Table 4.32

*Summary of stepwise multiple regression analysis for variables predicting ‘opposite sex’ perception among Aboriginal and non-Aboriginal Australian women*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>-.34</td>
<td>-.363***</td>
<td>[-0.13, -0.08]</td>
<td>0.13</td>
<td>-</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-.11</td>
<td>-.190***</td>
<td>[-0.75, -0.11]</td>
<td>0.01</td>
<td>-2.604**</td>
</tr>
</tbody>
</table>

*Note.* The dependent variable was opposite sex score. CI = confidence interval, sr² = semi-partial correlation. $R^2 = 0.14$, $R^2$ adjusted = 0.14, $F (2, 519) = 43.25***$. *p< 0.05, **p<0.01, ***p<0.001

Table 4.32 displays the results of a stepwise multiple regression performed to evaluate the predictors of perception of the opposite sex. The opposite sex score is derived from the questionnaire rating item (out of ten) “how you think people of the opposite sex think you look?” Cultural background, geographic location, age, BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted opposite sex score. The standardised regression coefficients ($\beta$) of the predictors together with their correlations with opposite sex score, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.32.

The model was statistically significant and accounted for approximately 14% of the variance in opposite sex scores ($F (2, 519) = 43.25, p<0.001$). Opposite sex score was primarily predicted by BMI ($\beta= -.34, p=0.000$), indicating that as BMI increased, women were more likely to perceive that the opposite sex would ascribe them a lower rating. Sporting participation was also a significant predictor ($\beta= -.11, p=0.009$), in that those who participated in sport had higher perceptions of how the opposite sex would think they look. BMI was the strongest predictor of opposite sex score, uniquely contributing approximately 13% of the variance, while sporting participation contributed approximately 1%.
Table 4.33

**Correlations of the potential predictors of ‘female family’ scores**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female family score</td>
<td>-.075*</td>
<td>-.271***</td>
<td>-.116**</td>
<td>-.234***</td>
<td>-.375***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>.094*</td>
<td>-.069</td>
<td>.032</td>
<td>-.227***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>.041</td>
<td>.305***</td>
<td>.286***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.035</td>
<td>.137**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.233***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. *p<0.05, **p<0.01, ***p<0.001, female family score= 0-10 (10 being perfect).*

Table 4.33 displays the correlations of the variables and shows that BMI correlated significantly with all variables, as did female family score. The prediction model on the following page (Table 4.34) contained four of the five predictors and was reached in four steps with cultural background removed.
Table 4.34
Summary of stepwise multiple regression analysis for variables predicting ‘female family’ score among Aboriginal and non-Aboriginal Australian women

<table>
<thead>
<tr>
<th>Model 4</th>
<th></th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson r</th>
<th>95% CI</th>
<th>sr²</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>.34</td>
<td>-.375***</td>
<td>[-0.13, -0.08]</td>
<td>0.14</td>
<td>-</td>
<td>8.041***</td>
</tr>
<tr>
<td>Age</td>
<td>.13</td>
<td>-.271***</td>
<td>[-0.03, -0.01]</td>
<td>0.03</td>
<td>-</td>
<td>-2.957**</td>
</tr>
<tr>
<td>Cultural background</td>
<td>.14</td>
<td>-.075*</td>
<td>[-0.86, -0.23]</td>
<td>0.02</td>
<td>-</td>
<td>-3.376**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>.11</td>
<td>-.234***</td>
<td>[-0.73, -0.11]</td>
<td>0.01</td>
<td>-</td>
<td>-2.676**</td>
</tr>
</tbody>
</table>

Note: The dependent variable was female family score. CI = confidence interval, sr² = semi-partial correlation. R² = 0.20, R² adjusted = 0.19, F (4, 526) = 32.82***. *p< 0.05, **p<0.01, ***p<0.001

Table 4.34 displays the results of a stepwise multiple regression performed to evaluate the predictors of perception of female family members. Female family score is derived from the questionnaire rating item (out of ten) “how you think the women in your family think you look?” Cultural background, geographic location, age in years, BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted female family scores. The standardised regression coefficients (β) of the predictors together with their correlations with female family score, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.34.

The model was statistically significant and accounted for approximately 20% of the variance in female family scores (F (4, 526) = 32.82, p<0.001). Female family scores were primarily predicted by BMI (β= -.34, p=0.000), indicating that as BMI increased, women were more likely to perceive that the women in their family would ascribe them a lower rating. Age was a significant predictor (β= -.13, p=0.003), in that in that with increasing age scores decreased. Cultural background (β= -.14, p=0.001) and sporting participation (β= -.13, p=0.003) were also significant predictors, in that those who participated in sport had higher perceptions of how their female relatives would think they look, and Aboriginal women were more likely to have both higher or lower scores. Overall BMI was the strongest predictor of female family scores, uniquely contributing approximately 14% of the variance, while age, cultural background, and sporting participation contributed approximately 3%, 2% and 1% respectively.
Table 4.35

_Correlations of the potential predictors of ‘male family’ scores_

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cultural background</th>
<th>Age</th>
<th>Geographic location</th>
<th>Sporting participation</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male family score</td>
<td>-0.029</td>
<td>-0.203***</td>
<td>-0.113**</td>
<td>-0.279***</td>
<td>-0.351***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-</td>
<td>0.094*</td>
<td>-0.067</td>
<td>0.023</td>
<td>-0.225***</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>-</td>
<td>0.056</td>
<td>0.309***</td>
<td>0.297***</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.049</td>
<td>0.139**</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.240***</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* *p*<0.05, **p*<0.01, ***p*<0.001, male family score = 0-10 (10 being perfect).

Table 4.35 displays the correlations of the variables and shows that BMI correlated significantly with all variables, and male family scores correlated significantly with age, location, sporting participation and BMI. The prediction model on the following page (Table 4.36) contained three of the five predictors and was reached in three steps with cultural background removed.
### Table 4.36

**Summary of stepwise multiple regression analysis for variables predicting 'male family' score among Aboriginal and non-Aboriginal Australian women**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardised coefficient Beta (β)</th>
<th>Pearson $r$</th>
<th>95% CI</th>
<th>$sr^2$</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>-.33</td>
<td>-.351***</td>
<td>[-0.13, -0.07]</td>
<td>0.12</td>
<td>-7.673***</td>
</tr>
<tr>
<td>Sporting participation</td>
<td>-.20</td>
<td>-.279***</td>
<td>[-1.01, -0.46]</td>
<td>0.04</td>
<td>-4.811***</td>
</tr>
<tr>
<td>Cultural background</td>
<td>-.10</td>
<td>-.029</td>
<td>[-0.72, -0.07]</td>
<td>0.01</td>
<td>-2.377*</td>
</tr>
</tbody>
</table>

*Note.* The dependent variable was male family score. CI = confidence interval, $sr^2$ = semi-partial correlation. $R^2 = 0.17$, $R^2$ adjusted = 0.17, $F (3, 517) = 35.99***$. *p< 0.05, **p<0.01, ***p<0.001

Table 4.36 displays the results of a stepwise multiple regression performed to evaluate the predictors of perception of the male family members. The male family score is derived from the questionnaire rating item (out of ten) “how you think the men in your family think you look?” Cultural background, geographic location, age, BMI, and sporting participation were entered into the stepwise regression analysis to examine which variables predicted male family score. The standardised regression coefficients ($\beta$) of the predictors together with their correlations with male family score, their squared semi-partial correlations, confidence intervals and t-values are shown in Table 4.36.

The model was statistically significant and accounted for approximately 17% of the variance in male family scores ($F (3, 517) = 35.99$, $p<0.001$). Male family scores were primarily predicted by BMI ($\beta= -.33$, $p=0.000$), indicating that as BMI increased, women were more likely to perceive that the men in their family would ascribe them a lower rating. Sporting participation was a significant predictor ($\beta= -.20$, $p=0.000$), in that those who participated in sport had higher perceptions of how their male relatives would think they look. Cultural background ($\beta= -.10$, $p=0.018$) was also a significant predictor in that Aboriginal women were more likely to score either highly or very low. Overall BMI was the strongest predictor of male family score, uniquely contributing approximately 12% of the variance, while sporting participation contributed approximately 4%, followed by 1% from cultural background.
Table 4.37

*Comparison of the proportion of Aboriginal and non-Aboriginal women who currently play sport*

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N=197)</th>
<th>Non-Aboriginal women (N=393)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plays sport “yes”</td>
<td>37.6 (74)</td>
<td>35.1 (138)</td>
<td>0.24</td>
</tr>
<tr>
<td>Does not play sport “no”</td>
<td>62.4 (123)</td>
<td>64.9 (155)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* 2x2 chi-square = 0.24, df = 1, p = 0.622.

Table 4.37 displays the proportions of Aboriginal and non-Aboriginal women who reported playing sport. 2x2 chi-square analyses showed no significant difference in the proportion of women who reported playing sport.
Table 4.38

*Comparison of the proportion of Aboriginal and non-Aboriginal women who currently play sport by body mass index (BMI) category*

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N=165)</th>
<th>Non-Aboriginal women (N=361)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Normal weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plays sport “yes”</td>
<td>55.9</td>
<td>(33)</td>
<td>41.0</td>
</tr>
<tr>
<td>Does not play</td>
<td>44.1</td>
<td>(26)</td>
<td>59.0</td>
</tr>
<tr>
<td>sport “no”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight/obese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plays sport “yes”</td>
<td>24.5</td>
<td>(26)</td>
<td>26.9</td>
</tr>
<tr>
<td>Does not play</td>
<td>75.5</td>
<td>(80)</td>
<td>73.1</td>
</tr>
<tr>
<td>sport “no”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.38 shows that in the normal weight category, greater portions of Aboriginal women indicated they currently played sport. 2x2 chi-square analyses indicated that the difference in the proportion of Aboriginal and non-Aboriginal women in this weight category who reported playing sport was near but did not reach statistical significance (\( \chi^2 = 3.57, df = 1, p = 0.059 \)).

Nearly three-quarters of the women in the overweight/obese weight category, regardless of cultural background, did not play sport. 2x2 chi-square analyses revealed the proportion of women who reported playing sport was similar (\( \chi^2 = 0.08, df = 1, p = 0.771 \)).
4.3 Responses to open-ended questions

4.3.1 Rationale for open-ended responses

This section (4.3.1) provides a rationale for the open-ended questions, an overview of the main findings and an explanation of how these findings have been grouped into themes. The questionnaire included four open-ended questions; *who influences your body image*, *what influences your body image*, *who helps you to feel good about your body*, and *what helps you to feel good about your body*? These questions were included in the study to provide an opportunity for participants to elaborate on the factors they perceive to influence their body image and their feelings towards their body, in a way that is not possible with the dichotomous, Likert-style and rating-scale questions.

Similar to existing research on body image, this research has been informed by Sociocultural Theory. As outlined in Chapter 1, this perspective contends that the attitudes people hold toward their body are the result of their environment, in terms of social, cultural, and historical influences, often conveyed in the mass media (Buote et al., 2011; Tiggemann, 2002). Using this perspective the open-ended questions were structured to capture the primary sources of influence that exist in the participant’s environment, that may include both people (the ‘who’) and other environmental ‘things’ (the ‘what’). These questions were also intended to afford the participants the opportunity to expand upon their understanding of body image, to include feelings toward the physical body. Hence questions were included pertaining to body image and feeling good about their body.

The responses to the open-ended questions revealed two types of influence: positive and negative influences. The responses predominantly supported previous research surrounding the prominent people (the ‘who’) and the prominent things (the ‘what’) that are known to influence women’s attitudes and feelings towards their bodies. Responses were grouped into main themes to reflect these including parents and family, partners, peers and friends, the media, the self and other intrinsic factors, food and healthy eating, physical activity, clothes, and other contributing factors. Some women reported that ‘nothing’ or ‘no one’ influenced them while the majority stated that their feelings toward their body and body image were influenced by a number of both internal and external factors.
While the explicit mentions of body weight were relatively minimal, body weight was a pervasive source of influence for many women as implied through a large proportion of the comments that are positioned within and throughout the main themes. For example “Fitting into smaller clothes” (47, Aboriginal, urban) and “When I can fit and look nice in clothes-without seeing rolls” (34, Aboriginal, rural) presents a desire for thinness and an awareness of the impact body weight has on their perceptions, situated within comments in the theme of clothes. Further examples of weight-related comments are evident among the theme of food or healthy eating, such as “food, what passes the lips goes straight to the hips” (44, non-Aboriginal, rural) and “diet, eating too much and gaining weight” (16, non-Aboriginal, urban). This continual acknowledgement of influence from body weight strongly supports the findings in section one of the results, where BMI was consistently found to be the strongest predictor of desired body weight, body figure ideals, and body-esteem ratings.

There is also a recurring theme of being ‘healthy’ and ‘well’ and having a ‘healthy body’ that is emphasised in comments situated within the main themes. For instance, “Not being sick, I need my body to function well” (56, non-Aboriginal, urban) and “Doing exercise, being able to exercise, glad that my body is healthy” (52, non-Aboriginal, urban) are both responses that align with the theme of physical activity and functionality, but present this emphasis on health and wellness. Considering the prevalence of the weight-related comments, and comments surrounding being ‘healthy’ and ‘well’ and having a ‘healthy body’, these are presented throughout this results section under the main themes of identified above, rather than under individual headings.

As discussed in Chapter 1, there are a number of models that have been used to examine body image research. While this research utilises the overarching Sociocultural Theory (Kalin et al., 2004), there are a number of other relevant models and theories that lie within components of Sociocultural Theory, such as The Tripartite Influence Model (Tiggemann, 2011) and Social Comparison Theory (Thompson et al., 1999) that are used to understand the current findings. Hence, in this section, the responses to the open-ended questions will be presented according to the main themes that emerged with specific reference to these models where relevant. Where connections emerge between the open-ended responses and the quantitative closed-ended responses, cross references are made to the quantitative results presented in Section 4.2 of the results chapter.
4.3.2 The Tripartite Influence Model: Parents, peers and the media

Some of the main themes that emerged in responses to the open-ended questions align with the principles of the *Tripartite Influence Model* (Tiggemann, 2011), in that participant responses prominently featured parents (and family), peers and the mass media as primary sources of influence on body image and feelings towards their bodies. Partners also featured heavily in the responses of the women, and as partners could be considered a subset of family (in that partners frequently live as part of the family unit), partners will be examined as a subsection under 4.3.1.1 Parents and Family.

Carlson-Jones (2011) aptly expressed that “humans are fundamentally social-relational beings who strive for attachments and acceptance by others, primarily through relationships with parents and peers. These relationships are considered the core social connections that influence body image” (p.110). Similarly, family and friends have consistently been recognised as salient factors in the development of positive or negative body image, through pressure or support (e.g. Ata et al., 2007), and hence it is unsurprising that parents and peers emerged in the current findings as primary sources of influence.

While traditionally the *Tripartite Influence Model* examines influences on adolescents’ body image, the following findings suggest this model, if extended to include partners and offspring, may be relevant when examining body image among women of all ages. The main responses of participants, including partners, are aligned with the *Tripartite Influence Model* are outlined below.

4.3.2.1 PARENTS and FAMILY

Responses to both *who influences your body image* and *who helps you to feel good about your body* captured the perceived influence of parents and family members among participants, regardless of age, geographic location or cultural background. While 100 participants explicitly mentioned ‘family’ in their response to the question *who helps you to feel good about your body*, many others mentioned specific family members like ‘mum’, ‘dad’, ‘son’, ‘daughter’, ‘children’, ‘grandchildren’, ‘sister’, and ‘brother’, revealing family to be a large contributor to women feeling positive about their bodies. Being loved by family, regardless of body weight or shape was evident in the responses “*tell me they love me*
regardless of how I look” (53, non-Aboriginal, urban), “family- love me the way I am” (22, non-Aboriginal, urban) and “family, accept me for me” (39, Aboriginal, rural).

The influence from mothers (and sometimes fathers) was both positive and negative. Carlson-Jones (2011) discussed that parents present expectations and beliefs about appearance and that they act as models, critics and advocates in the development of body image. Comments about mothers (or parents) supported these suggestions from Carlson-Jones (2011) and frequently cited modelling “…she would always diet/talk about her figure” (25, non-Aboriginal, urban); critique “my mum usually tells me that I need to lose weight” (25, Aboriginal, urban) and advocating “…encourages fitness, exercise and healthy eating” (20, non-Aboriginal, urban). Beliefs about appearance frequently represented unconditional support “mum and dad, they always say I’m great” (47, Aboriginal, rural).

Specifically references to perceived support from mothers were particularly evident among the younger participants in their teens or twenties (with fewer mentioned among the older participants):

“My mum- because she helps me to be who I want to be” (13, non-Aboriginal, urban)

“Mum, always tells me not to worry what others think” (14, Aboriginal, rural)

“My mum, she helps me eat well and always encourages me and gives me the right clothes for my shape” (15, non-Aboriginal, urban)

“Mum... always telling me that I have a good body for my age and height” (16, non-Aboriginal, urban)

“My mum, encouraging me and by telling me I look good” (17, non-Aboriginal, rural)

“Mum because she's always giving me motivation to do my best” (20, non-Aboriginal, rural)

“My mum has always encouraged me to be 'healthy' not fat/skinny” (26, non-Aboriginal, rural).
Building upon the literature surrounding familial (specifically parental) influence (e.g. McCabe & Ricciardelli, 2003), children and grandchildren emerged as a significant contributor to the participant’s positive feelings toward their bodies. This contrasts with much of the existing literature that focuses on the parents influencing the children’s body image, rather than the other way around. The emergence of children and grandchildren as potential sources of influence also provides another layer to the Tripartite Influence Model, suggesting as women get older the familial influence continues, albeit from a greater variety of family members. This continued with the theme of support and of the acceptance of or indifference from family toward their body shapes. Some comments highlight this:

“My children, they always say they love me no matter how I look” (30, non-Aboriginal, urban)

“My children help me to love my differently shaped tummy” (39, non-Aboriginal, urban)

“My kids appreciate me for me” (40, Aboriginal, rural)

“Grandchildren- not care about shape of body” (53, Aboriginal, urban)

“My grandchildren ‘cos they say "looking good nanny.”” (53, Aboriginal, urban)

“My grandchildren- they love me the way I am” (54, Aboriginal, rural)

“My children tell me it's lovely to cuddle me and that feels good” (63, Aboriginal, urban)

“My grandchildren and foster children like me cuddly” (65, non-Aboriginal, rural).

The participants reported that being loved and accepted as they are, regardless of body weight or shape, makes them feel good about their bodies, irrespective of the specific people they mentioned that made them feel that way.

These comments depict general feelings of support from family, and provide some possible explanation for the higher mean scores for the questions ‘please rate out of 10 how you think the women in your family think you look’ and ‘please rate out of 10 how you think the men in
your family think you look’ (see Table 4.25 and Table 4.26). Both the quantitative results and the responses to these open-ended questions support previous suggestions that parents and family are an important source of influence on body image and feelings towards one’s body, and that while for some the influence is via perceived pressure, for the majority the influence is positive and is couched in perceived support.

**Partners:**

‘Partners’, be they listed as partners, husbands, boyfriends, fiancé’s, or ‘the opposite sex’, were reported in responses to the open-ended questions as a prominent source of influence on the participants body image and feelings towards their bodies. Specifically, partners (under their various labels) were mentioned in over one-third of the responses to the question *who helps you to feel good about your body?* The participants’ comments about partners featured gendered language which suggests that the majority of the partners were male.

As discussed in the literature review (Section 2.2.2), women tend to have understandings about male preferences for female figures and women often perceive pressure from males to ‘be’ a certain way (Jones et al., 2007; Poran, 2006). In responses to all the open-ended questions, many women acknowledged the “male gaze” (Calogero, 2004) and how partners and husbands had the potential to negatively influence their body image and feelings towards their bodies. The pressure from partners to look or maintain a certain weight clearly emerged in some participant responses, for instance; “*husband- says if I put on weight it's grounds for divorce*” (51, Aboriginal, urban) and “*a boyfriend at the time told me I needed to lose weight- that was the WORST!*” (29, non-Aboriginal, urban). These comments exemplify that the women perceive this “male gaze” in terms of their partner’s expectations for them to achieve or maintaining a certain weight.

The participant responses also reflected that partners frequently had positive influences on the women and made them feel good about their bodies through their encouragement and acceptance of the women ‘how they are’ or for ‘who they are’. Many comments were similar and articulated the positive feelings the participants expressed getting from their partners. These were evident across all age groups (from teens into the seventies), urban and rural locations, and regardless of cultural background. For instance:
“My boyfriend because he likes me the way I am” (18, non-Aboriginal, urban)

“My boyfriend tells me I’m pretty all the time” (20, non-Aboriginal, rural)

“...he always compliments me on my body and tells me I’m perfect” (23, non-Aboriginal, urban)

“Fiancé tells me I'm perfect all the time” (25, Aboriginal, urban)

“My partner- builds my confidence because he likes me for me” (28, Aboriginal, urban)

“My partner builds my self-image by telling me he loves me the way I am” (33, Aboriginal, rural)

“My husband- he never criticizes my body- only offers support and compliments” (40, non-Aboriginal, urban)

“My husband- he loves me no matter how I look, and he has made me lazy!” (49, Aboriginal, Rural)

“My partner who frequently tells me I'm beautiful” (55, non-Aboriginal, rural)

“My husband- he encourages me with compliments” (73, non-Aboriginal, urban).

Some participants specifically mentioned weight or size, or reassurances about current weight. For instance some expressed their partner “...reassures me I’m not overweight” (33, Aboriginal, rural), “...makes me feel good when I’m feeling bad about my weight” (32, Aboriginal, rural), “...being so supportive of my shape and size” (20, non-Aboriginal, rural), and “...does not seem to notice my ever expanding middle. He loves the curves” (52, non-Aboriginal, rural).
4.3.2.2 PEERS and FRIENDS

‘Peers’ and ‘friends’ combined were also mentioned in over one-third of responses to the question *who helps you to feel good about your body?* Many respondents merely mentioned ‘friends’ or ‘peers’ while others elaborated regarding compliments from, social comparisons with, and support from friends/peers. Conversely, friends and peers were also frequently recognised as potentially negative influencers, in responses to *who influences your body image?* The participants seemed to distinguish between others influencing their feelings through their own social comparisons (Kalin et al., 2004), or others influencing their body image or how they feel towards their bodies because of their actions (e.g. compliments or comments from a friend/peers).

**Social comparisons:**

The responses of participants provide support for the prevalence of social comparisons among women outlined in the literature review (e.g. Tiggemann & Polivy, 2010). Comments often explicitly referred to social comparison and how this was perceived to be unavoidable: “I compare myself to other people and how they look” (22, non-Aboriginal, urban), “this is unavoidable as I compare myself to them” (50, non-Aboriginal, urban), and “I am constantly judging and comparing to everyone” (23, non-Aboriginal, urban).

It is possible to explain these responses through application of the Social Comparison Theory, whereby social comparisons were evidently ‘upward’ where others are judged more favourably than the self, resulting in unfavourable outcomes for body image, or ‘downward’ where others are judged less favourably than the self with positive outcomes on body image (Bailey & Ricciardelli, 2010). For instance, upward social comparisons were evident when the participants reported that their friends’ appearance, size and fitness influenced their body image as the “majority are skinny and beautiful” (23, Aboriginal, rural), “they are all so beautiful and I feel so ugly compared to them” (26, Aboriginal, rural), and that “seeing beautiful women intimidates me” (26, Aboriginal, rural).

These upward social comparisons are an important component of Sociocultural Theory. As women compare and ‘measure themselves’ against others and fail to measure up to the ‘thin ideal’, Sociocultural Theory implies that the majority of women would experience
dissatisfaction (Tiggemann, 2011). While the quantitative questions included body satisfaction items that did reveal high levels of dissatisfaction with factors such as weight and shape, these findings suggest appearance and beauty are other elements used for comparison, causing dissatisfaction and worthy of future examination.

Despite *Sociocultural Theory* suggesting these upward social comparisons are known to contribute to dissatisfaction, Tiggemann (2011) explains there is a caveat in the form of a number of biological and psychological factors that can serve to moderate one’s degree of vulnerability to dissatisfaction. These include high self-esteem, high media literacy (discussed in Section 1.3) and strong support networks. Downward social comparisons could be considered a contributor to these moderating factors, as downward social comparisons have been linked with higher body satisfaction, positive mood (van den Berg & Thompson, 2007), and positive body image (Lew, Mann, Myers, Taylor, & Bower, 2007).

In the current findings, downward social comparisons provided evidence for how peers/friends could make the women feel good about themselves, contributing to positive body image, without any specific action. While some responses centred on overall appearance such as “the fact that I don’t look as bad as some” (56, Aboriginal, rural), the majority of these appraisals predominantly meant comparing themselves favourably to other women they perceived were bigger than them, providing evidence of value placed on being thin (or thinner than others). These weight-related downward social comparisons were encapsulated in the statements: “my girlfriends. Most of them are bigger than me” (49, non-Aboriginal, rural), “women I think are more overweight than myself: ‘at least I'm not that fat’ goes through my head” (29, non-Aboriginal, rural). Further, merely “comparing myself to bigger women” (27, Aboriginal, urban), and “seeing fatter people” (32, non-Aboriginal, urban) was reported to make women feel good about their bodies. This provides an interpretation of the value placed on thinness, how this operates in social networks, and how social comparison can potentially mediate the development of dissatisfaction.
Compliments and comments:

While social comparisons have been found to be more important than verbal commentary in impacting on body image in women (Bailey & Ricciardelli, 2010), the prevalence of reference to the compliments and comments of others in the responses to all four open-ended questions suggest that verbal commentary also plays a significant role in the development of body image and associated attitudes. Specifically, compliments or positive comments were cited by about 10% of the respondents in response to the question *what makes you feel good about your body?* This external feedback provided reassurance for some women or a ‘boost’ of positivity of feelings towards their bodies:

“*When people compliment me because it makes me feel more confident and better about myself*” (13, non-Aboriginal, urban)

“My friends as we don't complain about poor features but highlight each other's best ones” (20, non-Aboriginal, urban)

“My friends, they tell me honestly if I look good” (24, non-Aboriginal, urban)

“Compliments... just gives you a little boost that someone else thinks you’re attractive” (25, non-Aboriginal, urban)

“Friends if they compliment me” (29, non-Aboriginal, rural)

“People letting me know I’m ok” (46, Aboriginal, urban)

Other comments related to looking good, looking good relative to age or peers, and being or looking thinner. For instance;

“When people tell me I look good/ lovely/ sexy” (54, Aboriginal, rural)

“When people say you look good” (27, non-Aboriginal, urban)

“When people tell me I look good for my age” (49, non-Aboriginal, rural)

“Friends- they understand and have the same issues” (56, non-Aboriginal, urban)
As discussed in the literature review, these positive comments may serve as a double-edged sword, because whilst they may promote a more positive body image, they could also serve as a motivator for further self-improvement (Nowell & Ricciardelli, 2008). This could be particularly applicable to the weight related comments such as: “Friends regularly comment on my body if I have been exercising a lot” (24, non-Aboriginal, urban), “Friends who tell me I look skinny” (14, Aboriginal, rural), “When people notice you've lost weight” (32, non-Aboriginal, rural), and “Compliments from people telling me I look thin” (24, non-Aboriginal, urban).

Despite the emerging themes surrounding the influence of peers and friends, some comments indicated a resistance to the influence of others indicative of self-protection and resilience. For instance, some women reported being ambivalent to the influence of others suggesting that they “...don't worry about what other people think as long as I am happy” (25, Aboriginal, urban), “...don’t listen to what others think even if they say positive things” (26, Aboriginal, urban), “don’t care what others think” (14, Aboriginal, rural) and “it's me that has to feel comfortable” (47, Aboriginal, urban).

4.3.2.3 The MEDIA

While the presence of ‘the media’ in the participant responses to the open-ended questions was less prominent than family and peers, it was still an important and noteworthy theme owing to the recognised strength of influence. The media, magazines and celebrities were all acknowledged to constitute “pressure from society” (27, Aboriginal, urban) and that the “Media, magazines, powerful influences in society” (51, non-Aboriginal, rural) were influencing factors in body image for the participants.

Others recognised the pervasiveness of the media ideals suggesting that the “media- it's everywhere” (35, Aboriginal, rural), that “... it's in your face” (38, Aboriginal, rural), and it’s “…always constantly there at you” (22, non-Aboriginal, urban). The comments from women in both rural and urban locations that the media is an influencing factor “everywhere” could in part explain why geographic location was not found to predict desired body weight (see Table 4.7). Acknowledgement of the media being “everywhere” by Aboriginal women,
provides evidence of the pervasiveness of the ideals presented, and provides support for literature suggesting that cultural background is not necessarily a ‘protective’ factor when it comes to body image (e.g. Aruguete et al., 2004; Bordo, 2013; Forbes et al., 2012).

The responses to the open-ended questions regarding what influences body image and feelings towards their bodies, revealed a high level of critical media literacy among the participants. The participants acknowledged that the media depicts narrow and ‘ideal’ representations of women, evident in responses such as “Media- expected idea of body from magazines, TV” (18, Aboriginal, urban), the “Media, always showing 'perfect' sized celebrities” (26, non-Aboriginal, rural), “… everywhere I look I see beautiful, skinny women” (23, Aboriginal, rural), “…always showing femininity to be related to breasts” (28, Aboriginal, urban) and that women are “bombarded with unrealistic images of celebs post pregnancy” (42, non-Aboriginal, urban).

The marketing and sexualisation of women in Western society and how this impacts on the presentation of narrow ideals was also recognised by participants, highlighted in these responses: “Marketing of women, expectation that a slim female is a successful female in life and career. Men’s comments e.g. "big boobs" visual effect seems valued in western society (46, non-Aboriginal, urban) and “society, comes down to the simple 'sex sells', if you're sexy, you're automatically successful” (24, non-Aboriginal, urban).

Other participants articulated how comparisons with these ideal representations in the media impacted their feelings:

“Television, seeing smaller women on TV makes me want to work on improving my body” (28, non-Aboriginal, rural)

“The media- because it is always there wherever you look and sometimes you compare yourself if you are feeling less secure in yourself” (50, non-Aboriginal, rural)

“…advertising, these depict women who I want to look like” (50, non-Aboriginal, urban).
All of the above comments, using words such as ‘skinny’, ‘big boobs’, ‘smaller women’, ‘slim’, ‘sexy’, ‘successful’, ‘perfect-sized’, and ‘beautiful’ indicate that the participants are acutely aware of the ‘ideals’ presented in the mass media around how a women should ‘look’ and ‘be’. Further while this level of critical media literacy that has been suggested to potentially act as a moderating factor in determining one’s vulnerability to dissatisfaction (Tiggemann, 2011), the comments above linking comparison, feeling less secure and wanting to ‘improve’ their bodies based on the media, suggest that these narrow ‘ideals’ represented in the media have been internalised.

The results presented in Section 4.2 (see Table 4.13 and Table 4.14) demonstrate that the mean ‘ideal female’ was smaller than the mean ‘current self’ figures, provide further support for internalisation of the thin ideal or preference for thinness. Tiggemann (2011) uses Sociocultural Theory to explain how dissatisfaction results from internalisation of the media-represented ‘ideals’ when one fails to meet these ideals in a way that can be applied across these current findings.

Rejecting the ‘thin ideal’:

While it is known that internalisation of the thin ideal contributes to poor body image (Slevec & Tiggemann, 2011), the responses of some women to the open-ended questions suggested that rejecting the “thin ideal”, in accordance with media literacy, helped to make them feel good about their bodies. Respondents mentioned “realising it’s all about being healthy/ fit, not skinny” (42, non-Aboriginal, urban), “being realistic and good confidence” (25, non-Aboriginal, urban) and “knowing everyone doesn't have the stick thin body” (20, non-Aboriginal, urban). This media literacy was also evident as participants recognised that what is presented in the media does not necessarily represent reality. Comments stated “...unfortunately we are photo-shopped all the time” (24, Aboriginal, rural) and “super models in magazines, you look at photo-shopped images and think that maybe one day you could look like that” (33, Aboriginal, rural).

Following this, respondents reported appreciating diversity in the media in the form of “real images of voluptuous women” (41, Aboriginal, urban), “realistic images in magazines” (24, Aboriginal, rural), “curvy celebrities” (25, non-Aboriginal, urban), “Ideal woman is curvy so
influenced to be curvy” (20, non-Aboriginal, urban), and “women with curves in media” (27, Aboriginal, urban). This represented placing value on realistic and more curvaceous bodies.

Beyond rejecting the ‘thin ideal’ some Aboriginal participants suggested the narrow ‘ideal’ representations meant they were not influenced by the media because they could not relate to these representations. For example “not influenced by magazines, TV-doesn't reflect me culturally” (56, Aboriginal, urban) and “…Anglo images not like my body” (53, Aboriginal, urban). That the culturally narrow images presented in Australian media do not readily represent Aboriginal women has also been recognised in other research whereby Aboriginal participants identified with African-American culture and role models from Indigenous Australian communities (Flaxman, Skattebol, Bedford, & Valentine, 2012). As evidence of this, mixed-heritage African-American singer “Beyoncé” (e.g. 23, Aboriginal, urban) was mentioned by a small number of participants in this study, along with “healthy Black athletes” (39, Aboriginal, urban) as influential figures.

4.3.3 Food / Healthy Eating

It has been reported that eating ‘healthy’ foods carry the perceived benefits of improvements to cognition and physical performance, fitness, endurance, psychological benefits, feeling good physically and the production of energy (O’Dea, 2003b).

When specifically referring to what makes them feel good about their bodies, over one in five respondents suggested that eating well helped them to feel good about their body, making this the third most frequently cited theme. Responses frequently cited were ‘eating well’, ‘eating healthy’, ‘eating right’, ‘eating fruit’, ‘eating veges’, ‘eating less’, or a ‘balanced diet’. Few participants elaborated beyond these statements; however some were more specific with reference to eating a gluten free diet and or limiting alcohol intake.

Regarding dieting, responses included both “not restricting foods” (32, non-Aboriginal, urban) and “eating less” (42, Aboriginal, rural). Further comments included “eating healthy food... leads me to feel good about my body” (16, non-Aboriginal, urban), “eating healthy. When I eat healthy I feel better about myself” (28, non-Aboriginal, rural) and “eating well, not junk” (66, Aboriginal, rural). Healthful eating related comments were prevalent among
participants from both rural and urban locations, among Aboriginal and non-Aboriginal women and in all age groups.

In a similar manner, the participants recognised the impact of consumption of ‘food’ could have a negative impact how they felt about their bodies and on their body image. Some participants were specific in citing the relationship between what they eat and how they feel both physically and mentally. For instance: “don't feel well if eating junk foods” (49, non-Aboriginal, urban), and “poor eating habits- when I eat poorly I can clearly see and exaggerate the flaws on my body” (32, non-Aboriginal, rural). Women also mentioned food choices that were within and beyond their control: “choices aren't the best” (15, non-Aboriginal, urban), “my eating habits, being on the go all the time, I don’t always have time to exercise or eat right” (25, Aboriginal, urban), and “I eat a lot (have no self-control!)” (21, non-Aboriginal, rural). While there are many possible determinants of food choice, such as biological, economic, social, psychological and physical, few participants elaborated on the drivers of their decisions.

Some women made comments that drew a connection between their consumption and weight or shape, for instance “food, what passes the lips goes straight to the hips” (44, non-Aboriginal, rural) and “diet, eating too much and gaining weight” (16, non-Aboriginal, urban).

For many women, diet and exercise went hand-in-hand, and responses often cited both diet and exercise related themes. For example,

“Health, eating well and exercising increase my self-confidence” (37, Aboriginal, urban).

“How much rubbish I eat compared to how much exercise I can do” (48, non-Aboriginal, rural)

“...your eating and exercise regime” (55, non-Aboriginal, rural).
4.3.4 Physical Activity

Being physically active featured strongly in the participant responses to the open-ended questions *what influences your body image* and *what helps you feel good about your body?* Despite the finding that sporting participation only predicts 1% of the variance in how the women rated themselves (see Table 4.28), over 40% of the participants recognised that being physically active, whether through ‘sport’, ‘exercise’, ‘the gym’, ‘being active’ or other listed activities, helps them to feel good about their bodies. Consistent with the findings of the multiple regressions reported in Section 4.2 of the results, cultural background, geographic location and age all appeared to play little role in whether or not physical activity impacted on body image or how the women felt about their bodies.

While few of the respondents elaborated on their suggestion that physical activity (in whatever form) makes them feel good about their body, some articulated that “exercise makes me feel better” (44, Aboriginal, urban), and “…makes me feel strong and thereby project a strong image” (56, non-Aboriginal, urban). Participant comments implied understanding of some of the physiological and psychological benefits of participant in physical activity, such as improved mood, weight management, muscle tone, and cardiovascular health, which are similar to the perceived benefits cited in other research (e.g. O’Dea, 2003b).

‘Having time’ to exercise and the routine or regularity of exercise when they were able to be consistent was frequently expressed as influential on body image and feelings towards their bodies, for instance:

“Going for a walk every day for a few weeks, hard to find time for that” (23, Aboriginal, rural)

“Fitness regime, how often/what intensity I exercise” (26, non-Aboriginal, urban)

“Exercise- running and weight training, it makes me feel strong and fit, I like the way my body feels after exercising consistently” (34, non-Aboriginal, rural)

“Health awareness that I don’t exercise enough” (38, non-Aboriginal, rural)
“Regular exercise, it's a relaxing good feeling to be tired after exercise” (44, non-Aboriginal, urban).

“...how much exercise... at the time” (50, non-Aboriginal, urban)

“I try to walk a little each day, at least some exercise...” (76, non-Aboriginal, urban).

These references to ‘regime’ and what women feel they ‘should’ be doing, also reflect what Shilling (2003) termed ‘the body project’- that we have normalised the practice of body management. This notion suggests there are practices we all engage in, or more importantly should be engaging in, which function as a continuous process that has become a part of our everyday lives.

Other participants suggested that they felt exercise made them feel as though they were contributing positively to their body, health and image. Specifically the respondents expressed that exercise helps them to feel good about their bodies because “...I'm doing something to improve image” (36, Aboriginal, rural), “doing exercise [helps me feels good about my body] cos I feel like I’m trying to improve it” (24, non-Aboriginal, urban), and that “playing sport and exercising because I know I am doing something constructive and it's positive” (50, non-Aboriginal, urban). These comments also reflect a perceived sense of responsibility, and that doing what they should be doing (‘something constructive’ and ‘trying to improve’), as mentioned above, contributes to positive feelings toward the body.

Several participants expressed satisfaction at seeing the physical results of their exercise efforts, such as “exercise makes me feel the best because it makes me closer to the body I want” (23, non-Aboriginal, urban), “exercise, seeing better muscle tone” (26, non-Aboriginal, rural), “regular exercise- particularly weight bearing exercise which results in toned muscles” (52, non-Aboriginal, urban), and “maintain older body shape” (79, non-Aboriginal, urban). These comments depict a sense of achievement derived from physical activity participation that has previously been found in children, adolescents (O’Dea, 2003b) and adults (e.g. Allender, Cowburn, & Foster, 2006) alike.

Like previous research, exercise was also mentioned by several participants as useful for ‘maintaining weight’ or ‘controlling weight’ (e.g. Allender et al., 2006), exemplified by
comments such as “A good workout then getting on the scales to see that I've lost weight” (19, non-Aboriginal, urban) and “exercise certainly adds a positive mood and makes me feel healthy, but being slim and fit makes me feel good about my body on an ongoing basis” (53, non-Aboriginal, rural). These comments illustrate the recurring desire for lower body weight, and the preference for thinness that has been evident in many of the comments under each theme.

Mirroring the literature around the importance placed on functionality as an element of body attitudes in older women (Baker & Gringart, 2009), several participants highlighted and appreciated the link between exercise and functionality and physical ability. Some comments exemplified this:

“…how easily I do physical tasks” (47, Aboriginal, urban)

“Being able to play sport, run and be active” (49, non-Aboriginal, urban)

“Doing exercise, being able to exercise, glad that my body is healthy” (52, non-Aboriginal, urban)

“When I do hard physical work and can do it easily” (55, non-Aboriginal, rural)

“Not being sick, I need my body to function well” (56, non-Aboriginal, urban)

“Being physically capable of doing something” (59, Aboriginal, urban)

This focus on functionality, also related to being ‘well’ and the absence of illness for some participants. For example: “I had colon cancer at 35 and I feel great that I’m still around and have a body” (59, non-Aboriginal, urban) and “not being sick, I need my body to function well” (56, non-Aboriginal, urban).

4.3.5 Clothes

Responses to the open-ended questions also revealed clothing to be a main source of influence on body image and how the participants felt about their bodies. “Fitting into clothes” (47, Aboriginal, urban), “not fitting into clothes” (24, non-Aboriginal, rural), “feeling comfortable in clothes” (49, Aboriginal, urban), “not fitting into clothes anymore”
(27, non-Aboriginal, urban) are all examples of how clothing and the way the body fits in clothing influenced the participant’s body image and whether or not they feel good about their bodies. More than one in four respondents mentioned ‘clothes’ or ‘outfits’ in some way made them feel good about their bodies. There were clear links between body weight and shape and how this weight or shape impacted the way clothes fit or the type of clothes that were able to be worn. Some responses capture this, for instance; “clothes I like but can't fit” (25, Aboriginal, urban), and “the mirror and tightness of clothes” (47, Aboriginal, urban).

Further, many responses focused on clothes size, clothes fitting, and specifically fitting into clothes ‘again’ following weight loss. For instance;

“When nice clothes fit, small sizes” (28, Aboriginal, urban)

“When clothes you bought when thinner fit you again” (32, non-Aboriginal, rural)

“I am size 8, when I am at the shops and try size 8 clothes and they fit that helps a lot” (38, non-Aboriginal, urban)

“Fitting into smaller clothes” (47, Aboriginal, urban)

“Having lost just that bit makes clothes feel wider” (48, non-Aboriginal, urban)

“I look great in tailored clothes. Being size 18 is considered extra-large and oversize, it’s difficult to find nice clothes” (49, non-Aboriginal, urban)

“When I’ve lost weight and can fit back into my size 14 or 12 jeans” (49, Aboriginal, rural)

“Fitting back into my normal size 12 clothes after being a 14 for a while” (53, non-Aboriginal, rural).

These comments present a sample of responses across three decades of life, but similar comments were prevalent in women of all sizes, across age groups and in both rural and urban locations. This is indicative of the pervasiveness and internalisation of the thin ideal, in that many of the women seem to have adopted a preference for thinness (or being thinner than their current self). The responses to the open-ended questions suggest that a sense of
having achieved this ideal, or progressing towards thinness, regardless of other factors, appears to make women feel good about their bodies. This provides support for the findings presented in Section 4.2 of the results, that the majority of the women desired weight loss (see Tables 4.4 - 4.5, and Figures 4.2 - 4.4), and that the majority of women, regardless of actual body weight, showed preferences for an ‘ideal self’ that is smaller than their ‘current self’ (see Tables 4.13 – 4.14).

Elaborating on some of the themes surrounding ‘mirrors’ and ‘not seeing parts of the body’ highlighted in the next Section 4.3.5, many of the responses also followed a theme of ‘hiding’ parts of their bodies, or fat on their bodies, and accentuating the ‘good’ parts through wearing ‘flattering’ clothes. These comments articulate this well:

“If I am wearing a certain piece of clothing that hides a part of my body that I don't like but defines the parts that I do like, makes me feel better about my body” (16, non-Aboriginal, urban)

“Clothes that hug in the right places” (24, non-Aboriginal, urban)

“Clothes that fit properly and flatter my good parts” (28, Aboriginal, urban)

“When I can fit and look nice in clothes- without seeing rolls” (34, Aboriginal, rural)

“Flattering clothing, clothing that shows curves without bumps” (43, non-Aboriginal, rural)

“Being nicely dressed so my tummy is not too noticeable” (57, non-Aboriginal, rural).

These responses were also evident among women of all ages, regardless of cultural background or geographic location. Clothes or outfits that are ‘slimming, ‘make you look thinner’, ‘optimise shape’, and make your ‘body look good’ were also frequently mentioned by respondents. These comments provide further evidence of internalisation of the thin ideal, in that clothes that create the illusion of ‘thinness’ through reducing the appearance of weight on the body by being ‘flattering’, promotes positive feelings towards their body.

Many of the participants cited clothing as something that influences their body image, and beyond how clothes felt or fitted, many comments surrounded presentation in clothes and
how they looked. For instance, “clothes, how I see myself in clothes, mirror” (44, Aboriginal, urban), “clothing-when I try new clothes and don't look as good as I thought” (32, Aboriginal, urban), the “way I dress” (78, Aboriginal, urban), “fitting into clothes that compliment you” (53, Aboriginal, urban), and “…clothes being fat clothes, reflection- don’t like it” (56, Aboriginal, rural).

While the comments themed around clothes do little to explain why clothing is such an influential factor in determining body image and how the women feel about their bodies, Section 4.3.2.3 clearly presents that the participants perceive and feel pressure from the media to present a certain image. Viewing these findings with Sociocultural Theory and The Tripartite Influence Model (Thompson et al, 1999; Tiggemann, 2011), it could be suggested that clothes are understood to be a vehicle through which women feel they can work toward achieving the ‘ideals’ presented by the ‘powerful and pervasive’ sociocultural influence that is the media. In work that could also be applicable here, Shilling (2003) discusses ‘body management’ practices, and suggests that people’s bodily appearances and performances are guided by social constraints. This means that women’s choice of clothing could be considered a form of body management that takes in response to wider social cues, be they in the media or their wider environment. Hence, wearing clothing that ascribe to these wider social cues incites positive feelings, while deviating from the messages presented incites negative feelings.

### 4.3.6 The Self and other intrinsic factors

While Sociocultural Theory does encompass the person, the person’s immediate environment, and the larger culture within which the person develops (Gray, 2003), within much of the literature the focus tends to be on factors external to the individual. Regardless, numerous participants iterated the importance of their own self-perceptions in both influencing their own body image and how they feel about their bodies.

Self-criticism featured heavily in the responses about who influences your body image and many women acknowledged that they’re their own harshest critics. Comments included; “I make judgements when I look in the mirror” (42, non-Aboriginal, rural), “I am more critical than anyone else” (37, Aboriginal, rural), “it is what I ‘think’ I see” (52, Aboriginal, rural) and that “my own perception is more critical than others” (37, non-Aboriginal, urban).
Given the aforementioned feelings of support from family, this acknowledgement of self-criticism may provide some explanation for the lower mean ‘self-scores’ evidenced among participants compared with the ‘female family’ and ‘male family’ scores reported in Tables 4.25 – 4.26.

This process of self-criticism has been discussed by Shilling (2003), who suggests the body is viewed as a ‘process’- part of the ‘body project’. Shilling (2003) suggests we naturalise the process of having to obtain a newer; better body and that is should be something we continue to work towards. This process of self-criticism incorporates many body-checking and body-avoidance mechanisms, which includes the avoidance of tight fitting clothing or making attempts to avoid seeing oneself in mirrors (Reas, Grilo, Masheb, & Wilson, 2005; Shafran, Fairburn, Robinson, & Lask, 2004). The current findings showed ‘mirrors’ were mentioned in a number of responses. Responses suggested that seeing their reflection could have a positive impact if they liked what they saw, but also that not looking in the mirror (and / or being in the dark) seemed to have a positive impact to avoid seeing what they didn’t like. For example; “when I look in the mirror and see what I look like” (47, non-Aboriginal, rural), “…being able to be comfortable looking in a full length mirror” (66, non-Aboriginal, urban), and on the contrary “no mirrors, turning the lights out” (39, non-Aboriginal, urban), and “not looking in the mirror” (39, Aboriginal, urban).

Participants also expressed they (themselves) had a potentially positive influence on their attitudes toward their bodies. About 15% of the women responded with ‘me’ or ‘myself’ to the question who helps you to feel good about your body? Many of the women did not elaborate on that response, but some suggested they engage in self-talk such as “myself- if I tell myself I have nice body” (28, Aboriginal, urban), “I make myself feel good about my body” (40, Aboriginal, rural) and having a “good frame of mind” (43, Aboriginal, urban). Others expressed:

“Myself- healthy attitude and perception of surroundings” (37, non-Aboriginal, urban)

“I have learnt to be positive about myself and motivate to make changes” (43, Aboriginal, urban)
“Myself- only one to please” (44, Aboriginal, rural).

Other intrinsic factors, such as self-attitudes, featured in responses to the open-ended questions. These included “self-confidence or lack of” (76, non-Aboriginal, urban), “internal feelings” (30, non-Aboriginal, urban), “self-respect” (77, non-Aboriginal, urban) and “self-image” (55, non-Aboriginal, urban). Participants also mentioned factors such as “perception from within” (51, non-Aboriginal, urban), having a “positive attitude about myself...” (31, Aboriginal, rural), “feeling positive and grateful” (47, non-Aboriginal, rural), “focus on health rather than size/shape” (39, Aboriginal, urban), “being healthy, happy and content” (40, non-Aboriginal, urban), and having a “happy spirit” (53, non-Aboriginal, urban) as positively influencing how they feel about their bodies. This demonstrates the effect positive self-management can have on beliefs about the body and self (Vocks, Wächter, Wucherer, & Kosfelder, 2008).

Maintaining a “psychological balance” (47, non-Aboriginal, rural) was also expressed as important, supported by other similar responses including: “how I feel psychologically” (46, Aboriginal, rural), “how I feel inside, my emotional state” (39, non-Aboriginal, rural), “positivity- has improved with age, not worrying about negativity” (36, Aboriginal, rural) and “my mood- happy = slimmer, sad= fat” (52, Aboriginal, rural). Some respondents elaborated on these themes of positive thinking, self-talk, realism, confidence, self-esteem, self-perceptions and spirituality:

“I have good self-esteem so being positive makes me happy with my body image” (21, non-Aboriginal, urban)

“The fact that I'm not anorexic and I don't worry about what other people think as long as I am happy” (25, Aboriginal, urban)

“I tell myself every day that I am skinny” (30, Aboriginal, urban)

“Knowing that any weight or body size does not define who I am” (41, Aboriginal, urban)

“Not to focus on body image, love yourself as you are” (51, Aboriginal, rural).
Participants also articulated that they recognised ‘reality’ and how this impacted on their body image: “myself, knowing what is achievable” (39, non-Aboriginal, urban) and “personal concepts of normal” (25, non-Aboriginal, urban). This provides further indication of the aforementioned critical media literacy among the participants, in that they articulated an understanding of ‘normal’ and ‘reality’ and that these may differ from the expectations they are confronted with.

Beyond that, a small proportion of respondents suggested that ‘no one’ made them feel good about their body. Some participants articulated an ambivalence towards others perceptions towards them evidenced by the comments: “…not worried about what others think” (58, non-Aboriginal, urban) and “no one- it wouldn't matter who or how many people said I look good it doesn't register with me” (34, non-Aboriginal, urban).

### 4.3.7 Other contributing factors

While responses surrounding the ‘who’ that influences body image and feelings towards your body were predominantly reflected in the main themes presented throughout Section 4.3.2 of the results, there was a greater degree of diversity in responses regarding the ‘what’ that is understood to be a source of influence for the women. While most of the responses could be categorised into the main themes presented, there were some other responses that occurred enough to warrant a mention.

Specifically comments surrounding sex, culture, and ‘nothing’ are presented here. ‘Sex’, without elaboration, was mentioned by a number of women, aged in their teens, twenties, forties, and fifties, as helping them to feel good about their bodies. Considering the known links between positive self-image and sexual activity (Graham, Sanders, Milhausen, & McBride, 2004), it is unsurprising that sex was mentioned by some participants as making them feel good about their bodies. However, Graham et al (2004) also found that sex was only considered positive if the participants had a positive self-image, for instance if they had lost weight, whereas if they were not already feeling good about themselves, it could have the opposite effect.

Interestingly, there was no mention of culture or cultural background when responding about what helps them to feel good about their bodies. One Aboriginal participant mentioned “my
colour I am proud of it” (55, Aboriginal, urban), and while several other women mentioned skin colour, that was understood to relate to aesthetic complexion rather than culture, in the form of being tanned or having a sun tan. The lack of references to culture in the open-ended responses, could suggest that for many of the women in the current study culture does not play a big part in determining how they feel about their bodies, or does not play as big a part as the themes discussed.

Beyond those mentioned in the main themes, in regards to who influenced the participants’ body image and feelings towards their bodies, a small number of participants also mentioned athletes, sports coaches or trainers, and the doctor (or health professionals). Those few participants who mentioned athletes, and sports coaches or trainers did not elaborate, although some comments mentioning doctors presented with the theme of body-weight and weight loss. For example, “my doctor- says I'm losing weight” (26, Aboriginal, rural), “my doctor, when I lose weight after going to a diabetes awareness cause” (61, non-Aboriginal, urban), and “my doctor who says I need to lose weight” (64, non-Aboriginal, urban).

While some women reported that “nothing” influenced their body image, that it “does not worry me” (45, Aboriginal, rural) or that they “don’t buy into body image hype” (45, Aboriginal, rural), the majority of participants expressed that something influenced their body image. Aside from the predominant responses above, the participants also expressed that photos, genetics, health or medical conditions, and ‘appearance work’ (hair or nails) influenced their body image. Considering that ‘appearance work’ is gaining increasing research attention and is known to improve women’s self-esteem and self-perceptions (Nash et al., 2006), the lack of attention it received in these responses is noteworthy.

4.3.8 Summary of Responses to open-ended questions

The responses to the open-ended questions provided an opportunity for the participants to express what influenced their body image, using their own ‘voice’, in their own words, in a way that was not possible in the other parts of the questionnaire. These responses provided a broader understanding of the way body image is experienced and understood by the participants, and further provided some insight into the factors that influenced the responses of the participants in terms of their attitudes and perceptions towards body image, weight, shape, body ideals and body appearance ratings. The inclusion of these questions in the
The questionnaire prompted a great deal of discussion between the participants and the researcher during the data collection, which also contributed to the researcher’s understanding of the meaning behind the responses provided to the open-ended questions and confirmed the participants had understood the intention of the questions.

The quantitative results of the questionnaire (outlined in Section 4.2) represent the body image perceptions, body satisfaction, body image ideals, body change strategies and body appearance ratings of the participants. In a way, many of the responses showed “negative” findings, in that many women were dissatisfied with their bodies, with their weight, shape, and muscles. They were found to actively pursue change and had a large discrepancy between their ‘current’ and ‘ideal’ selves. The open-ended questions provided an opportunity for the participants to in a way explain what influenced those responses, but also to respond positively to the questions who and what helps you to feel good about your body? The findings revealed that the main sources of influence, including the ‘people’ and the ‘things’ were potentially positive and / or potentially negative sources of influence. These included family such as parents and children, peers, and partners as well as healthy eating, physical activity, clothing and the media.

As discussed in Section 1.3, Cash (2004) explained that body image is “…one’s body-related self-perceptions and self-attitudes, including thoughts, beliefs, feelings and behaviours” (p.1). Ultimately, while the responses to the open-ended questions outlined predominantly external factors (the ‘who’ and the ‘what) that the participant’s perceived to influence their body image, it was often the way these ‘people’ and ‘things’ were perceived, understood, and the meaning ascribed to these by the participants that in turn influenced their body image. This is applicable, for instance, to the suggestion that the media influenced the participant’s body image. It could be reasoned that the media does not have a negative impact on body image, per se, but rather the participants recognising or understanding that they fail to measure up to the ‘ideal’ presented in the media that contributed to their body image.

The main themes that emerged as influencing factors in the responses to the open-ended questions, ultimately provided support for Sociocultural Theory in that the participants perceptions and attitudes were influenced by themselves, their environment, and the culture in which they exist (Gray, 2003). Similarly, the findings reiterated the ‘normative’ nature of
discontent and body surveillance, and that these are experienced by many women regardless of age, culture or location.
CHAPTER 5 - DISCUSSION

This chapter will explore the main findings of the study, related to the aims and situate this within both Australian and international literature. The aim of the study was to investigate the perceptions of body image, weight, shape, obesity and body satisfaction of Aboriginal and non-Aboriginal Australian women across the lifespan. The study also sought to identify any differences in the body image perceptions of Aboriginal and non-Aboriginal women by geographic location or age and whether their perceptions were accurate related to their actual body weight. Considering the limited existing body of Australian literature surrounding the body image perceptions of adult Aboriginal women this study also explored whether the Western body weight ideals were similar among Aboriginal women. The findings confirm that body dissatisfaction is prevalent among both Aboriginal and non-Aboriginal women of all ages.

Section 5.1 will summarise the main findings and as such address research questions one-five. The final research question will be addressed in Section 5.2 Implications for the development of relevant and culturally appropriate health promotion. The strengths and limitations of the study are identified and explained in Section 5.3; and Section 5.4 includes concluding thoughts.

5.1 Addressing the research questions.

This study confirmed the widely asserted notion that non-Aboriginal Australian women are dissatisfied with their bodies, desire to be thinner than they currently are, and that fatness carries negative connotations and is associated with lower body esteem. The Aboriginal Australian women reported similar body dissatisfaction but also reported larger body ideals than the non-Aboriginal women. Both Aboriginal and non-Aboriginal women living in rural locations had larger body ideals than the women living in urban locations, and regardless of cultural background, age, and geographic location, the ideal male figure was the same for all women. The women also expressed that their body image and the way they felt about their bodies was influenced numerous factors in their environments, including ‘people’ such as family members, partners, and peers, and ‘things’ such as the media, food, clothes, and exercise. The findings support previous research that body image and associated factors are
influenced by sociocultural factors in Westernised society, and hence cultural immersion in a modern Western society gives rise to body dissatisfaction and the adoption of mainstream beauty ideals. This also suggests that proximity to large cities appears to produce a stronger immersive effect in Western culture and that while rural and urban living tend to have different cultures, but both contribute to body dissatisfaction. In this way, the findings respond to the third research question purporting that geographic location does have an impact on the body image perceptions of women, as has been found in other studies including participants from rural and urban locations globally (Swami et al., 2010).

The findings also contributed to answering the primary research question what are the perceptions and attitudes towards body weight, shape, obesity and body image among Aboriginal and non-Aboriginal women and girls? The current study found that few women were content with their current body weight and these findings were consistent among both the Aboriginal and non-Aboriginal women and signify the universal creation of body dissatisfaction in Westernised countries. The Aboriginal women were however more likely to report extremes of body image indicating that they were more likely to perceive themselves to be too thin or too fat compared to their non-Aboriginal counterparts. Only 38% of the Aboriginal women in the current study thought they were about right, which was 20% less than their non-Aboriginal counterparts in this study at 58%. It is interesting to note that while nearly 60% of the Aboriginal women thought they were too fat, 78% expressed desires to be either a ‘little’ or a ‘lot’ lighter. That means that a portion of Aboriginal women don’t perceive themselves to be too fat, they still want to be lighter regardless. An even more pronounced difference was present among the non-Aboriginal women, of whom 41% perceived they were too fat whilst more than double that number (83%) wanted their weight to be lighter. This means that while 59% of the non-Aboriginal women did not perceive they were too fat, two thirds of them wanted to be lighter anyway.

Similarly, while there were differences in the desires for their body weight to be ‘a little’ or ‘a lot’ lighter among the Aboriginal and non-Aboriginal women, overall approximately 80% of all women, regardless of age, cultural background or body weight wanted to be lighter. Despite this, there was a clear distinction between Aboriginal and non-Aboriginal women in that the desire to be lighter was not as strong for Aboriginal women. While the proportion of women who did not perceive themselves to be too fat yet still wanted to be lighter was larger
among the non-Aboriginal women, the findings provide evidence that the desire to be thinner, regardless of perception of actual body weight, is prevalent among both Aboriginal and non-Aboriginal women. These preferences for ‘lightness’ and anti-fat attitudes were also represented in the responses to the open-ended questions, whereby participants consistently expressed preferences for thinness and unfavourable attitudes towards being bigger. These attitudes were expressed in relation to clothes and how they fit, what and how much food was consumed, how they compared with others (both favourably and unfavourably), how much physical activity they engaged in, and they were reinforced through the media and relationships with others.

Interestingly, previous weight loss attempts were as common among the Aboriginal women as it was among the non-Aboriginal women with more than 80% of all the participants reporting previous attempts to lose weight. The proportion of non-Aboriginal women who reported previously attempting to lose weight was fairly stable in every age category at around 87%, while the proportion of Aboriginal women who admitted they had attempted to lose weight rose from 77% in the youngest age group to 89% in the oldest age group. Responding to the second research question, beyond body image perceptions, the findings show that age has an impact on weight loss desires of Aboriginal women.

The high proportion of non-Aboriginal women in the current study desiring their weight to be lighter or exhibiting anti-fat attitudes, is also in accordance with a plethora of international studies reporting on the prevalence of the desire for thinness among Western women (e.g. Allaz, Bernstein, Rouget, Archinard, & Morabia, 1998; Warren, Holland, Billings, & Parker, 2012; Yaemsiri, Slining, & Agarwal, 2011). Similarly, this focus on obtaining a thin body was found among female adolescents across eight countries indicating this drive for thinness has infiltrated many cultures (McCabe et al., 2012). This proposes the question, why do such high proportions of women, both Aboriginal and non-Aboriginal, who do not perceive themselves to be too fat still want to be lighter? Moreover, when controlling for actual weight category, it was found that high proportions of normal weight women desired to be lighter.

Examining this desire to be lighter through a sociocultural lens suggests that the sociocultural pressures known to influence body image and body weight perceptions, such as the media, one’s family, peers and environment (Tiggemann, 2011), are present across a range of
contexts, including both rural and urban locations and Aboriginal and non-Aboriginal cultural backgrounds. The findings of this study showed that women, regardless of their location, age and cultural background perceived and internalised messages from the media about ideals and recognised how often these ideals are unattainable and culturally narrow. This suggests that while engagement with mainstream media, by the way of reading, listening to, and viewing cultural body forms as they are presented, may be marginally different across contexts, but still likely result in a desire for thinness that inevitably results in body dissatisfaction when it is unable to be reached.

Similar to other Australian (e.g. Kenardy, Brown, & Vogt, 2001) and international studies (e.g. Blake et al., 2013; Gagne et al., 2012), over half of the participants reported currently engaging in weight loss behaviours. These findings provide further support for the proliferation of the slim ideal and the pervasiveness of the desire to be lighter, irrespective of cultural background. This widely present desire for thinness contributes significantly towards understanding the participant’s attitudes towards body weight and obesity as intended by inclusion of the first research question. These findings require further investigation into the reasons behind the pursuit of weight loss, particularly given the known detrimental effects of some weight loss methods (Kenardy et al., 2001). In any case, these findings confirm the existing literature purporting that body image is a salient issue among Australian women (e.g. Ball & Kenardy, 2002; Carey et al., 2013) and among Aboriginal Australian women (e.g. Mission Australia, 2012; State Government Victoria, 2009a).

That the majority of the women in the present study predominantly desired a lighter body weight could reflect a number of things. One is internalisation of thin ideal perpetuated by the media and Western society, another is varied understandings of what a healthy body weight means, and another could be historical or traditional understandings of what body weight represents in certain cultures. While the main finding is that women desire to be thinner than they are, the rationale underpinning that desire is not evident within the current study and would be recommended for consideration in future research. It is also important to recognise that while the current findings suggest women desire a body weight that is less than their current weight, the findings do not articulate that women want to be thin, per se, but rather thinner than they are.
The majority of all participants desired weight loss and a smaller proportion of the participants reported a desire to be ‘heavier’. The Aboriginal women were more likely to report desires to be ‘heavier’ and to report actively pursuing weight gain. That the proportion of Aboriginal women desiring weight gain or to be ‘heavier’ was greater than the proportion of Aboriginal women in the underweight category, could be interpreted as indicating an inaccurate perception of actual weight or that the reason for the desire to be heavier are among Aboriginal women is not necessarily connected to actual weight. As such, it is important to examine weight gain desire by weight category because the issue of high body weight and Type 2 Diabetes are so closely linked among Aboriginal women in Australia. This study found that more than 10% of the normal weight Aboriginal women were trying to gain weight. Previous weight gain attempts were more common among Aboriginal than non-Aboriginal women. This corresponds with a higher proportion of Aboriginal women in the normal weight category who expressed a desire for their body weight to be heavier. Again, it is important to investigate further to understand the reasons behind the desire for weight gain among a proportion of normal weight Aboriginal women and to further understand what meaning weight gain has for Aboriginal women.

Similar proportions of Aboriginal and non-Aboriginal women reportedly engaged in increased exercise with the purpose of increasing the size of their muscles. More than half of the participants engaged in this behaviour, attesting to its’ commonness, as well as the prevalence of the understanding of the concept of exercising for muscle modification. Interestingly, this was most common in the middle age group (30-50) of Aboriginal women who were 20% more likely to engage in increased exercise for increased muscles. Considering that many of the participants expressed appreciation for the effects exercise has on their bodies and seeing the ‘outcomes’ of exercise, such as increased muscle tone and definition, it is possible that the participants appreciate tone, rather than bulk.

One of the most pronounced differences between Aboriginal and non-Aboriginal women was the behaviour to increase eating for the purpose of increasing the size of muscles among the Aboriginal women, regardless of their age, location or weight status. The Aboriginal women were 16% more likely to engage in this behaviour than were their non-Aboriginal counterparts. While a drive for muscularity has frequently been reported as prevalent among adolescent males (e.g. Hargreaves & Tiggemann, 2009; Nowell & Ricciardelli, 2008)
increased eating with the purpose of increased muscles among the Aboriginal women in the current study, could be attributable to the known associations between eating, muscles, strength and health. Markula (2001) discussed the historical associations with muscularity and masculinity, but also that there has been a shift toward desired tone in women’s bodies in recent years, which is supported by some of the participant comments in this study and could explain why some women might engage in behaviours to increase the size of their muscles. Furthermore, that Aboriginal women were more likely to increase their eating for the purpose of increased muscles is likely to be associated with sports participation among Aboriginal women and warrants further investigation.

The Aboriginal women experienced significantly greater levels of body dissatisfaction than their non-Aboriginal peers. Particularly different was the dissatisfaction with weight, shape, size/width of shoulders, muscle size and abdominal muscles/stomach, and chests, and this was particularly noticeable among the urban Aboriginal women. While large portions of all the participants expressed dissatisfaction with their weight, the urban Aboriginal women were more likely to express dissatisfaction with their weight, muscle size, and shoulders, than were their non-Aboriginal urban counterparts. In rural locations, dissatisfaction with shoulders was the only item that was different among Aboriginal and non-Aboriginal women, in that Aboriginal women in rural locations were more dissatisfied with their shoulders than their non-Aboriginal counterparts. Again, it is possible that this may be associated with sports participation. These findings respond to both research questions one and three, contributing to understandings of perceptions and attitudes towards body weight and shape and the impact that geographic location may have on these perceptions.

While the levels of body satisfaction among the younger (<30) and the older women (>50) were similar for Aboriginal and non-Aboriginal women, there were some striking differences in the middle age category (30-50). These were that the Aboriginal women were more likely to express dissatisfaction with their weight, abdominal muscles/stomach, or shoulders and also more likely to express dissatisfaction with their muscle size and hips than the non-Aboriginal women of the same age. Responses to the open-ended questions indicated that some dissatisfaction was borne of upward social comparison with peers and the media, and feedback from the primary people in their lives, such as partners. Further qualitative research would be useful to further explore the reasons for this dissatisfaction specifically among the
adult Aboriginal women, and to examine why it might be higher among the Aboriginal than
the non-Aboriginal women.

One of the major findings of this cross cultural study was that Aboriginal women selected
significantly larger figures as representative of their current self, ideal self, and ideal female
than those selected by non-Aboriginal women. Rather than being the reflection of cultural
background which has been reported in studies of Black women in the USA (e.g. Kronenfeld
et al., 2010) the larger figures selected among Aboriginal women seem to reflect the larger
BMI evidenced among Aboriginal women in the present sample. In fact, the multiple
regression analyses showed that BMI accounted for the majority of the variance in the current
self, ideal self and ideal female scores, indicating that rather than reflecting differences in
body ideals, the finding actually suggests that Aboriginal women hold accurate perceptions
about their actual weight and shape. The current study also contributes that both Aboriginal
and non-Aboriginal women selected ideal figures that were smaller than their perceived
current selves, expressed internalisation of the thin ideal and displayed anti-fat attitudes. This
could be interpreted to mean that both Aboriginal and non-Aboriginal women generally want
to be thinner and that there doesn’t appear to be a protective barrier based on ethnicity or
cultural background for Australian Aboriginal women.

The findings respond to the fourth research question does weight status have an impact on the
body image perceptions of women. The findings suggest that the poorer body image of
Aboriginal women may actually reflect their weight status because the Aboriginal women in
the current study also had lower mean body appearance rating scores for their self-score and
their other people score. Additionally, despite cultural differences, most of the women who
were overweight or obese had lower body appearance ratings than the normal weight women
and BMI was the primary predictor of all body appearance rating items. The lower mean
body appearance scores of Aboriginal women are therefore likely to be attributable to higher
body weight rather than Aboriginality. Further, the participants displayed an understanding of
their own weight status based on appraisals of their weight status compared with others. If the
participants perceived their weight compared favourably with others (e.g. they were thinner
than another) their body image or feelings toward their body were more positive.
Alternatively, if they perceived that they compared unfavourably, their perception of their
weight had a negative impact on their body image and feelings toward their body. Hence, it is
likely that both actual and perceived weight status do have an impact on the body image perceptions of women.

The fact that there were no rural or urban differences in body appearance ratings suggest that the perceived and actual body weight of women is purveyed equally across different geographical locations across NSW as it is across the Western world. This could indicate that the pressures to be thin, or to reach societal body appearance standards, are present for women even in rural locations, and that location does not provide a protective barrier. Overall the findings suggest that there are identifiable differences in the body image, desired weight, desire for musculinity, body ideals and associated perceptions of the Aboriginal and non-Aboriginal women in the current study, but that these may be best explained by the larger BMI evidenced among the Aboriginal women than differences based on cultural background or geographic location.

Considering the limited Australian research specifically representing the body image of Aboriginal women and that previous research has reported from the USA that Black populations are less likely to possess weight, shape or body image dissatisfaction (e.g. Bordo, 2013; Chithambo & Huey, 2013), the present findings oppose the idea of immunity to body image concerns among Black or Indigenous populations in Australia. This is similar to the findings of Williams et al. (2006) that Fijian girls, while traditionally known to value larger body sizes, expressed that they were unhappy and dissatisfied with their bodies. Similarly, whilst not specifically examining eating disorder features in this study of Australian women, the findings of the current study align with those of Hay and Carriage (2012) that body image concern, and a desire for thinness, is at least as common in Australia among Aboriginal women as among non-Aboriginal women.

While these current findings indicate disparities in the body image, body ideals, satisfaction and body esteem of Aboriginal and non-Aboriginal women, the results of multiple regression analyses indicate that these disparities clearly reflect the larger BMI that was evidenced among the Aboriginal women, rather than cultural differences per se. In responding to the fifth research question what predicts the development of body image, body ideals and body satisfaction, the findings contribute that BMI was the biggest and most significant predictor of desired body weight, body figure ideals, and body appearance ratings among all women,
independent of age or geographic location. Similarly, the development of body image and body satisfaction was found to be influenced primarily by family members, partners, peers, the media (and critical media literacy), healthy eating, physical activity and certain clothing, fashion or outfits.

In the current findings, there is some support for the assertion that Aboriginal women have a greater acceptance of larger body sizes, but the most salient finding in the current study really lies in the differences among the normal weight women. For the majority of the items, the women who were overweight or obese had similar perceptions regardless of Aboriginality. Among the normal weight women, the non-Aboriginal women were more likely to want to be lighter, which is consistent with what would be expected based on the extensive literature purporting that Western women desire thinness (e.g. Arroyo et al., 2010; Bailey & Ricciardelli, 2010; Evans, 2003; McLaren & Kuh, 2004). Conversely, while the majority of women in the normal weight category, regardless of cultural background, expressed desires to be lighter, the Aboriginal women were more likely to report a desire to be heavier, which is consistent with the findings of Cinelli and O’Dea (2009) that some Aboriginal youth may have a certain desire for bigness. While the majority of normal weight women would like to be lighter, the Aboriginal women didn’t necessarily desire thinness to the same extent as non-Aboriginal women. This also supports, to an extent, the assertion that Aboriginal women may have a greater acceptance of larger body sizes. It is important to conduct further investigation in order to clarify what ‘heavier’ and being bigger means to Aboriginal women, and to find out for what purpose they might pursue being heavier.

The current study found that only 1% of non-Aboriginal women reported being too thin and that 83% wanted to be lighter supporting previous Australian reports for desired thinness among Australian women (e.g. Slevec & Tiggemann, 2011; Tiggemann & Pickering, 1996; Williams, Germov, & Young, 2011), with many reporting similar proportions of women desiring to be lighter. For instance, up to three-quarters of Australian high school girls consistently choose an ideal figure that they wish to have that is thinner than their own (Australian Government Office for Youth, 2009).

If being in the normal weight category can be considered as ‘about right’, the non-Aboriginal women in the normal weight category held more accurate body weight perceptions than the
normal weight Aboriginal women, in that over 85% of the non-Aboriginal normal weight women suggested they were about right, compared with only 64% of the Aboriginal women. In contrast, research has shown that of healthy weight Australian women, up to 47% believe they are overweight (Australian Government Office for Youth, 2009). In the present findings, the normal weight Aboriginal women were more likely to perceive they were too fat (27%) than were their non-Aboriginal counterparts (14%). Conversely, Aboriginal women were also more likely to perceive they were too thin (8%) while only 1% of the normal weight non-Aboriginal women expressed the same.

That the Aboriginal women in the normal weight category had perceptions about weight that did not necessarily reflect their actual weight supports the previous findings of Turner and Graham (2005) who found that the responses of Aboriginal people to this same question were often different to the observed body weight of the respondent. This suggests that perhaps body weight and what is considered too thin, about right and too fat, as it is understood or perceived in many Western contexts, may carry different meaning for some Indigenous peoples. While homogeneity between Indigenous peoples globally is not assumed, further evidence of this is provided in another relevant study with Cree schoolchildren in Canada, where Willows, Marshall, Raine, and Ridley (2009) found that although 64.5% of the children were overweight or obese, over 60% considered their size to be ‘just right’.

It has been suggested that the difference in body image among females of different ethnic groups lies not in that they have differing desires to lose weight when they are overweight, but rather that they have different perceptions of what overweight is and what it is not. Thompson et al. (1996) proposed that Black females in the USA are as likely as White females to attempt weight loss if they perceive themselves to be overweight; however, proportionately fewer Black females actually perceive themselves to be overweight. While the current data did not explore why participants were pursuing weight loss, the number of Aboriginal women who expressed they were ‘too fat’ was almost exactly that of the women currently pursuing weight loss. It may therefore be reasonable to suggest that the Aboriginal women in the current study who were pursuing weight loss were doing so because they perceived they were too fat. Some participant responses featured feedback from doctors influenced their body image or how they felt towards their bodies, while others mentioned looking good or appearing a certain way, hence, it is unclear whether this pursuit of weight
loss is for aesthetic or health reasons. Further qualitative research would be useful in gaining a greater understanding of this.

Regardless of cultural background, among the overweight/obese women, only a quarter reported they were ‘about right’ compared with three quarters who reported they were ‘too fat’. The finding that there was no difference in the body image of the Aboriginal and non-Aboriginal women in the overweight/obese weight category could indicate a higher level of awareness around the ‘measurement’ of body image constructs among this sample of respondents as well as a high degree of acculturation to the Western body ideal constructs among the Aboriginal women.

Overall, the proportion of non-Aboriginal women currently attempting to lose weight was much higher than those who were reportedly too fat- which reinforces the question, why do these non-Aboriginal women who do not perceive they are ‘too fat’ attempt to lose weight? These findings support previous research reporting a similar disparity, such as the findings of O’Dea and Caputi (2001) that about 40% of young women considered themselves’ too fat, but up to 80% were actually trying to lose weight. Another study, with underweight women from Australia with Northern European, Southern European or Asian cultural backgrounds, found that despite being underweight, up to 42% wanted to be slimmer (O’Dea, 1998). These proportions are comparable to another Australian study, by Williams, Germov, and Young (2007), which found that of 11,589 women, 74% were actively trying to control their weight.

The findings of the current study, and these previous studies (e.g. O’Dea, 1998; O’Dea & Caputi, 2001; Williams et al., 2007), provide evidence for the prevalence of the ‘normative’ nature of body surveillance and how entrenched body working is among women (Germov & Williams, 1999), regardless of weight. Germov and Williams (1999) explain this body surveillance as it relates to sociocultural theory in that

…women themselves become the ultimate “body police” by internalizing the cultural imperatives of the thin ideal. Women are encouraged to modify and monitor themselves…in a never-ending process of body-surveillance to conform to the socially acceptable body image, even at the expense of their health (p. 125).
This assertion could assist in understanding why such high proportions of women, both in the current study and in others, seek weight modification, whether it be lighter or heavier.

The desire to be heavier or actively pursuing weight gain was far less common than the desire to be lighter, although Aboriginal women were significantly more likely to report this, which corroborates the findings of Cinelli and O'Dea (2009) among adolescents. Similarly McCabe et al. (2005) reported that Aboriginal youth showed a tendency to desire and pursue weight gain. McCabe et al. (2005) suggested that the high engagement in body change strategies found among Indigenous youth in their study may be reflective of media messages, in that while Indigenous youth perceived fewer media messages, overall the media messages appeared to have a greater impact among the Indigenous than the non-Indigenous youth. The current study found that media ideals were certainly acknowledged by many participants regardless of cultural background, but also that the media does impact on many of the participants desire to engage in body change behaviours, such as pursuing weight loss.

This desire for ‘heaviness’ or ‘weight gain’ was further reinforced by the finding that among the youngest women (<30) twice as many Aboriginal as non-Aboriginal women had previously tried to gain weight. The proportion of Aboriginal women pursuing weight gain was only slightly higher than the proportion of Aboriginal women who were in the underweight category, which could suggest that the women pursuing weight gain were doing so based on their actual weight status. More research is needed to clarify the reasons why Aboriginal women might pursue weight gain. It is likely that one important factor in the pursuit of weight gain might be involvement in sport or physical activity. It could also be that weight gain was associated with functionality among the Aboriginal women, similar to the importance placed on functionality among adolescent Fijian girls (Williams et al., 2006). While the open-ended responses of the participants did not necessarily link weight gain with functionality, functionality was valued some participants, although this was not reflective of cultural background.

The current study found that Aboriginal women were more likely to increase their eating to increase their muscle size. With the exception of the studies by McCabe and colleagues (2002; 2005) there are no known studies to compare these specific findings to. The greater proportions of Aboriginal women engaging in this behaviour, could be linked with a greater
desire for muscularity for sporting success (Ricciardelli et al., 2006) or the greater desire to “build up my body” that has been found among Indigenous youth (Cinelli & O'Dea, 2009). The greater prevalence of modification of eating for increased muscles among Aboriginal women, whilst still uncommon, requires further clarification. These behaviours for increased muscularity, suggest a drive for muscularity among Aboriginal women that may also be explained, at least in part by previous findings among Aboriginal adolescents that physical activity is associated with getting stronger which is highly valued, with the inverse being considered lazy and a sign of weakness (Nelson, 2012). Strength, physical activity and laziness were also mentioned in the responses to the open-ended questions in the current study, providing further acknowledgement of the connections between these concepts among the current participants.

While previous studies have alluded to larger body ideals among young Indigenous Australians (e.g. Cinelli & O'Dea, 2009; Mellor et al., 2004), none have explicitly measured ideal body size, and hence there are no Australian data with which to compare the present findings. This highlights a need for further investigation. Further, given the known high prevalence of Type 2 Diabetes, obesity and associated health concerns among Aboriginal Australians (e.g. Gracey & King, 2009; Gubhaju et al., 2013; Hay & Carriage, 2012; Shilton & Brown, 2004), the high proportions of Aboriginal women in the overweight and obese category, coupled with the desire to be heavier found among some normal weight Aboriginal women is worthy of further clarification. The findings suggest an urgent need to investigate the qualitative perceptions and understandings behind the body image, desired weight and body ideal constructs explored to gain an understanding of how best to address the issue of weight with Aboriginal women to promote optimum health.

Considering the previously discussed finding that the majority of women in the current study desired a body weight that is lighter than their current weight, it is interesting to note the trend among both the Aboriginal and non-Aboriginal women in the present sample to express as ideal a female figure that was on average smaller than the selected ideal-self figure. This is likely to suggest that women clearly recognise or acknowledge the sociocultural thin ideal, but may not necessarily aspire to achieve it. This corresponds with the previous findings of Williams and her colleagues (2006) that while Australian girls suggested they would welcome a weight reduction, they did not endorse thinness per se.
Consistent with the previously discussed body satisfaction trends, Aboriginal women overall had a higher discrepancy between their actual and ideal self than the non-Aboriginal women. While there are no comparable findings among adult Aboriginal women, the higher dissatisfaction among Aboriginal women is surprising considering the findings of Mellor et al. (2004) that Indigenous adolescents may be less dissatisfied with their weight and shape. This suggests the need for further research and clarification with various age groups of Australian Aboriginal peoples surrounding body image and body satisfaction.

The reason for the high levels of dissatisfaction among Aboriginal women in this instance is unclear. A number of both Aboriginal and non-Aboriginal participants made mention of the media and societal ideals that dictate certain expectations regarding what is an ideal body and the thin ideal. Similarly, Poran (2006) proposed that young Black women in the USA were indeed feeling pressures to be thin and to conform to mainstream beauty standards. Further, Poran (2006) found that rather than being insulated or protected from body image concerns, young Black women were confused and felt pressure from many conflicting social judgements and expectations placed upon them. While some participants in the current study suggested the narrow ideals in the media did not impact them because they did not reflect them culturally, others implied an awareness and internalisation of the ideals represented, and dissatisfaction born of comparing themselves to these representations of ‘perfection’. The participants also articulated perceiving both support and pressure from those around them, aligning with the findings of Poran (2006).

Similarly, Becker (2004) has detailed the negative impact in terms of disordered eating and related issues the introduction of television, and as such exposure to mainstream beauty standards, had on young Fijian women. This is indicative of the negative impact Western media and television can have not only on people of Western cultures, but also on people of more traditional cultures, such as Indigenous Fijians.

Considering the prevalence of body related concerns reported globally among adolescent and adult females in previous research, it is unsurprising that women in the current study expressed dissatisfaction with their weight and shape (e.g. Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013; Calzo et al., 2012; Gagne et al., 2012; Swami et al., 2010; von Lengerke, Mielck, & KORA Study Group, 2012), their muscle size (e.g. Arroyo et
al., 2010), their thighs (Kashubeck-West et al., 2013), and their abdominals/stomach (e.g. Kashubeck-West et al., 2013; Mellor et al., 2004). Altabe (1998) postulated that women from different racial backgrounds tended to perceive and prioritise parts of their body differently.

Hence, while the dissatisfaction is understandable, the reasons for the difference in dissatisfaction and why it is higher among Aboriginal women for weight, shape, size and width of shoulders and chests in this instance is unclear. This could possibly be explained, at least in part, by the fact that Aboriginal Australians have been found to have different body shape profiles to other ethnic groups (Kondalsamy-Chennakesavan et al., 2008; Wang et al., 2007) that perhaps don’t ‘fit’ as well against the ideals upon which they are compared. This body shape profile is characterised by long limbs and greater adiposity in the abdomen region (Norgan, 1994), which could potentially aid in understanding the dissatisfaction with shape found among the Aboriginal women in the current study, but does little to explain the dissatisfaction with the size and width of shoulders or chests. Despite this, there is a such a degree of diversity among Aboriginal peoples in Australia, this suggestion is used with caution.

That Aboriginal women in the current study had larger mean figure rating scores for current self, ideal self and ideal female, and that all women, regardless of cultural background, selected ideal figures smaller than their perceived selves is similar to much of the international literature on women, including Black or Canadian Aboriginal populations (e.g. Forbes et al., 2012; Kelly, Bulik, & Mazzeo, 2011; Malpede et al., 2013; Marchessault, 2004; Runfola et al., 2013). While the preference for larger figures found among the Aboriginal women in the current study could represent a preference for larger figures generally; the larger figure preferences among the Aboriginal women in the present study is more likely to be attributable to actual larger body sizes. In a study with Canadian Aboriginal women, Fleming et al. (2006) found that body size perceptions changed for the women based on the sociocultural context of the women, in that in places dominated by ‘white culture’ they felt fatter, but on home reserved they were too thin. Further evidence for the importance of cultural context on the development of body size preferences was provided by Willows and colleagues (2009), as they explained that among Cree children in Canada, tolerance of and preference for larger body sizes may be ‘normal’ given the prevalence of obesity among both children and adults in Cree communities. This reasoning may be applicable to the findings
among the Aboriginal women in the present study. Despite this, the desire to be smaller among all women indicates a desire to be thinner that permeates many cultures globally.

That the environment and exposure to obesity in specific communities influences understandings of what is ‘normal’ in particular contexts, provides a prompt for recognising there are many factors that can influence the attitudes, perceptions and desires of women when it comes to their bodies. The current study ran analyses examining the independent variables cultural background, age, sporting participation, geographic location and BMI as predictors of desired body weight, figure rating scales and ideals, and body appearance ratings. While these independent variables had recognised and varied influence in terms of predicting the dependent variables, there is still a great deal unexplained by the models. For instance, the study did not take into account familial, peer (McCabe & Ricciardelli, 2001) or education influences, media consumption (Miller & Halberstadt, 2005), employment status, self-esteem (Bailey & Ricciardelli, 2010), socioeconomic status of individuals or communities or eating habits (O’Dea, 1994), all of which have been found in previous research to have some influence on the factors investigated.

The discrepancy between current and ideal figures is important to recognise in both Aboriginal and non-Aboriginal women, as recent research indicates that aiming for a goal that is mismatched with current weight status increases the use of unhealthy behaviours among dissatisfied individuals (Roy & Gauvin, 2013). Kronenfeld et al. (2010) also attested that a high discrepancy between one’s ‘current’ and ‘ideal’ self may put women at risk of engaging in high-risk weight control practices in order to control their weight or attain their ideal body size. Another comparable study found that Black, White and Hispanic participants in the USA all experienced a discrepancy between their current and ideal selves, although White women experienced a discrepancy at a lower BMI than the Black or Hispanic women (Fitzgibbon, Blackman, & Avellone, 2000). The authors suggest their findings could have “unhealthful implications” (Fitzgibbon et al., 2000, p. 582) for weight control behaviours and encourage the further examination of the relationships between ethnicity, body discrepancy, obesity and weight control.

Similarly, the discrepancy between one’s current and ideal self has been explained to be of greater importance than actual current size. For instance, Maphis and colleagues recently
stated that “‘being large’ may not be as salient and emotionally detrimental to a person as ‘being larger than one wants to be’” (Maphis et al., 2013, p. 366). In the present study, the discrepancy score was primarily predicted by BMI, meaning that the larger women were further from their ideal self than were the women with a lower BMI.

**5.2 Implications for the development of relevant and culturally appropriate health promotion programs with Aboriginal women.**

One of the aims of the research was to promote understanding and identify areas of need for further research that is required to address the ‘gap’ in health and education facing Australia’s Indigenous populations. Further, the final research question was what implications do the body image perceptions of Australian Aboriginal girls and women have for the health status of Australian Aboriginal populations?

This research extends on previous studies through the inclusion of women across a diverse age range, from a variety of rural and urban geographic locations, and from both Aboriginal and non-Aboriginal backgrounds. Collectively the findings of this new study suggest that the majority of women, regardless of cultural background, experience discontent with their bodies in their current physicality and seek or desire change.

Understanding these Western body constructs, and how they may vary based on geographic location, cultural background, BMI, or age, is imperative in designing programs that can firstly promote positive health and healthy bodies without exacerbating the known concerns of these women. Additionally this research adds to the information base about how to promote positive body image and body acceptance without promoting or condoning obesity; which is particularly important considering the known high prevalence of overweight and obesity among Aboriginal Australians (Australian Bureau of Statistics, 2008). The various findings of this, and other studies (e.g. Hay & Carriage, 2012), also confirm that while body image is a known widespread concern (State Government Victoria, 2009a), perceptions are often very individual and occur within a context specific setting. It is for this reason that the promotion of a healthy body, sound nutrition and physical activity is important, but should be designed in consultation with members of the target community in accordance with the principles of culturally appropriate health promotion outlined by Demaio et al. (2012) and McLennan and Khavarpour (2004).
Further, the finding that discontent with body size and shape appears to continue well into adulthood for women, suggests that relying on school-based education programs is not enough, and there is a need for general community based health promotion, media literacy and health education to take place in a variety of community contexts. This is particularly salient given the known diversity that exists between communities in Australia, based on both culture, media exposure, and remote, rural or urban geographic location.

5.3 Strengths and limitations of the study.

There are a number of strengths and limitations within the present study that are important to consider. Strengths include the fact that, to the best knowledge of the author, this is the first known study to examine the body image perceptions and desired body weight of both Aboriginal and non-Aboriginal adult women in Australia. Another design strength of the study is the adequate sample size consisting of women from both rural and urban geographic locations and inclusion of actual measured body weight as a variable upon which actual perceptions can be assessed. Limitations include the restrictions inherent in the instruments used for data collection, inequitable participation of Aboriginal and non-Aboriginal women, snowball method of recruitment, limited socio-demographic or socioeconomic information, and the use of BMI as a weight status measure rather than a measure of body composition.

Owing to the relatively new inclusion of Aboriginal Australians in research pertaining to body image, there are no scales that have been validated for use specifically with Aboriginal populations. As explained in the methodology, the Body Image for Women questionnaire was designed using a variety of previously validated scales from various studies (Cinelli & O'Dea, 2009; Fuller-Tyszkiewicz et al., 2012; O'Dea & Caputi, 2001; Ricciardelli & McCabe, 2000; Stunkard et al., 1983; Van Hoorn et al., 1999). While some components of the questionnaire have been validated for use in cross-cultural populations (Fuller-Tyszkiewicz et al., 2012) and make comparisons with previous research possible in many respects, it is not known whether these measures are relevant specifically for Aboriginal women. For future research, the development of specifically validated scales for Aboriginal women is recommended.

While the questionnaire was designed in consultation with several female Aboriginal community leaders to ensure ease of understanding and layout, the representation of Caucasian figures in the figure rating scale (Gardner & Brown, 2010) may have made the
scale less relevant to the Aboriginal participants, and as such, the results must be interpreted with caution. It is also recommended that scales be developed and modified in consultation with Aboriginal people, to ensure any measures used in future research are validated and relevant for use among Aboriginal Australian populations. Furthermore, the use of quantitative questionnaires does not allow participants to explain their selections and as such the need for further qualitative research is acknowledged.

While the inclusion of both Aboriginal and non-Aboriginal women in the current study allows for cross-cultural comparison, fewer Aboriginal than non-Aboriginal women participated in the study. While this is understandable given that Aboriginal Australians represent a much smaller proportion of the Australian population than do non-Aboriginal Australians, a greater number of Aboriginal women, particularly among the older women would have enabled a wider range of statistical analyses to be performed. Similarly, obtaining more specific background information from the participants, such as their specific Aboriginal nations or language groups, or allowing participants to write their cultural background, might have increased the validity and salience of the findings. Further to this, considering the great degree of diversity that exists between Aboriginal people and groups in Australia, data that provided greater depth in understanding the extent of acculturation toward mainstream Western culture would have been beneficial and is recommended for any future research of this kind. As identified in Section 3.8 Limitations any information of this nature must be collected respectfully and sensitively.

The snowball method of recruitment allowed for vouching for the researcher, voluntary participation in the research and for rapport to be established between researcher and participants, and as such represented a significant strength in recruitment. Snowball recruitment may have also limited the sample size in rural geographic locations and fewer older participants. Despite this, the inclusion of participants from both rural and urban locations, as was first done by Mellor and his colleagues (2004), has allowed for an understanding of how the concepts examined may differ based on geographic location as well as cultural background.

The weight and height measurements of participants were taken by the researcher to calculate BMI and this was an important strength of this study because it allowed for checking
perceived and actual weight. However, using BMI as a measure to determine weight status may be inappropriate for use among Aboriginal women because studies have found that Aboriginal Australians have different body shape and are more likely to have central fat distribution to European Australians and as such can have a deceptively low BMI (Piers et al., 2003; Wang et al., 2007). Within the constraints of this research it is acknowledged that measurement of body composition was not possible, nor was it appropriate to employ more rigorous measures of adiposity, such as skin fold tests. Considering this, it is recommended that future researchers consider the limitations of using BMI among Aboriginal women.

Furthermore, while BMI was proven to be a strong predictor of desired body weight, this research does not explicitly provide insight into the impact of BMI on weight change behaviours. There are known links between the social, cultural and political circumstances experienced by many Aboriginal people in Australia, and the low self-esteem; and connections between low self-esteem and body dissatisfaction (Baker & Gringart, 2009). More specifically, in a study with Cree school children in Canada, Willows et al (2013) found associations between confidence, self-esteem, BMI, and self-evaluations related to physical appearance, self-concept, and intellectual and school status (Willows, Ridley, Raine, & Maximova, 2013). As such in the present context, it could be considered that results suggesting dissatisfaction in some women could be due to a variety of factors not measured in this study. Hence, further qualitative research is recommended as these perceptions have important implications for the development of health issues such as obesity and Type 2 Diabetes that are known to be prevalent among Indigenous populations (e.g. Gracey & King, 2009; Hay & Carriage, 2012; Shilton & Brown, 2004). Qualitative research would also allow women to express their opinions, perceptions, and attitudes in their own words, which would allow a much more holistic understanding of the construct of body image and influences on body image among women. This would also allow women to express their voices in narrative ways, which are known to be a prominent method of communication for Aboriginal peoples (Thompson & Gifford, 2000).

Considering there is a plethora of research surrounding the body image of women in Western countries, juxtaposed with no known studies with adult Aboriginal women that focus specifically on body image perceptions, it is recommended that future research is conducted with Aboriginal women to build upon the findings of this research. Specifically, future
research should be qualitative in nature, or at least have a qualitative component and take a narrative approach, to allow women to elaborate on their opinions and explain their understandings in their own words. In a similar manner, future research should include Aboriginal males to address the gap in the literature.

5.4 Conclusions.

The study sought to investigate the perceptions of body weight, shape, obesity, body image, body satisfaction and body ideals of Aboriginal and non-Aboriginal Australian women of various ages. The findings suggest that there are some important disparities in the body image perceptions of the Aboriginal and non-Aboriginal women in the present study.

The findings provide insight into the different views held by women from rural and urban locations, where the views diverge based on age and how for various components the views of Aboriginal and non-Aboriginal women align or diverge. This research has provided support for the complexity and multi-faceted nature of body image (Grogan, 2008), particularly among Indigenous young people (Nelson, 2012) and whilst providing some ‘answers’, has also raised many questions for future research.

Specifically, it was found that the present sample of Aboriginal women from rural and urban NSW have poorer body image, greater body dissatisfaction, and engage in more strategies to modify weight and increase muscles, compared to the non-Aboriginal women. Analyses revealed that these differences may not reflect differences borne of cultural perceptions, but rather a difference in actual body weight, which in turn impacts on perceptions. Despite the fact that the present study may not indicate higher body esteem or more positive body image among Aboriginal women as has been reported previously, the greater propensity toward obesity among Aboriginal women is worthy of attention because of the greater risk of hypertension and Type 2 Diabetes.

Furthermore, the similarities in the body image perceptions of Aboriginal and non-Aboriginal women of matching weight categories suggests that body image accuracy and concerns are as prevalent among Aboriginal women as they are among other Australian women. It was also found that the majority of women in the study regardless of cultural background, desired to be lighter than they currently are, providing support to previous research attesting that the
drive for thinness found among Western women may have reached parity among minority groups. It is unknown whether this drive for thinness among Aboriginal women is mirroring that of non-Aboriginal women due to the adoption of mainstream Western ideals or due to understandings of ‘healthy weight’ or other unknown factors.

Certain tensions exist between body image researchers and weight loss researchers. Some health professionals may perceive that women who are overweight or obese and desire weight loss to be a positive attitude, as it would move women toward a healthier weight range. However, evidence suggests that health education and programs surrounding weight loss can stigmatise obesity and cause psychological harm (Willows et al., 2013). As such, many health educators aim to teach in accordance with the principle “first, do no harm” (O’Dea, 2002). Specifically, while controversial according to some, the “Health at Every Size” (HAES) approach focuses on adopting healthy habits for the sake of health and wellbeing rather than weight control.

The growing shift towards the HAES approach, follows research identifying that overweight and obese individuals who engaged in lifestyle modifications through diet, exercise and other behaviour change for the purpose of weight loss, often failed to produce thinner, healthier bodies, regained lost weight, and had lasting unintended consequences (Bacon & Aphramor, 2011). These consequences included for some preoccupation with food and body, repeated cycles of weight loss and gain, reduced self-esteem, distraction from other health goals, eating disorders and weight stigmatisation and discrimination (Bacon & Aphramor, 2011). Bombak (2014) highlighted that evidence is accumulating in support of the weight-neutral, nutrition and physical activity based HAES approach, suggesting that this may be a promising chronic disease prevention strategy.

While the potential health benefits of weight loss for overweight and obese individuals is not denied, understanding these tensions that exist between perspectives promoting HAES and weight loss for health is important when interpreting the desires for weight loss found in the present study. As such, qualitative research investigating the reasons behind the weight loss desires found among participants, such as aesthetics, health, or other social or cultural factors, would be beneficial. These findings have important implications for the development of programs addressing the body image of Aboriginal women, as it has now been demonstrated
that body image, body weight, and body dissatisfaction are as much concerns for Aboriginal women as they are for non-Aboriginal women. Understanding factors that promote body satisfaction differentially across racial and ethnic groups could become a tool in appropriately tailored interventions designed to prevent eating disorders (Homan, 2010) and promote positive body esteem. This is also of utmost importance in tailoring health education and clinical treatment programs for Aboriginal Australians that focus on closing the gap that exists between Indigenous and non-Indigenous Australians surrounding all aspects of health and education and promoting positive and healthy body image for all Australians.

It is acknowledged that the findings are not generalizable to all Aboriginal populations within the country, and represent the perceptions of some Aboriginal and non-Aboriginal women from within and around NSW. Further, considering the limited pool of Australian research available with which to compare the current findings, global research with Indigenous populations and Black and White studies in the USA were drawn upon. With this considered, it is acknowledged that Indigenous Australians may differ greatly to other Black or Indigenous populations around the world and homogeneity cannot be assumed.

Considering the relatively new inclusion of Aboriginal people into the research surrounding body image, this study contributes to the small existing body of literature and supports the need for imminent future research.
CHAPTER 6 – REFERENCES


Kashubeck-West, S., Coker, A. D., Awad, G. H., Stinson, R. D., Bledman, R., & Mintz, L. (2013). Do measures commonly used in body image research perform adequately with African American college women? *Cultural diversity and ethnic minority psychology, Advance online publication.*


Nelson, A. (2012). 'You don't have to be black skinned to be black': Indigenous young people's bodily practices. Sport, Education and Society, 17(1), 57-75.


Appendix A- HREC Approval (11226)
HUMAN RESEARCH ETHICS COMMITTEE
REQUEST FOR MODIFICATION

1. Principal Investigator: Associate Professor Jennifer O'Dea
   Department: Faculty of Education and Social Work
   Address: A35, room 911


3. HREC Approval No.: 11226

4. Names of Students/Co-Investigators: Renata Cinelli

5. Project Description:

The project involved interviewing Indigenous Australian adolescents, male and female. The interviews were about perceptions and attitudes about body image, underweight, normal weight, overweight and obesity. Ms Renata Cinelli completed the original study and graduated with a BeD Hons (I) – we now wish to have Ms Cinelli continue the study as a PhD project and to include adult women as well as the adolescent girls.

6. Any previously approved minor amendments? □ Yes    X No
   If YES, please briefly outline

7. Nature of and reasons for amendment(s)
   Please provide details of the changes you propose to make to the project and explain why they are necessary. Please justify any increase in sample size.

It is proposed that in addition to the originally designed interviews, a sample of 300 questionnaires be conducted in NSW. This is designed to strengthen the reliability of the findings as well as to enable the quantitative analysis of the data by three groups of generational age groups – adolescent girls; women aged 18-50 and women aged older than 50 years. The quantitative analyses will be conducted using MANCOVA and will include age group as a covariate. The interviews will also include adult women in
addition to adolescent girls, to gain a greater understanding of the scope of body image and perceptions across the lifespan.
8. Adding New Staff Member / Student / Research Assistant
   If YES, provide the following (If more than one, please copy this page)

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<td>Has the new staff member received a copy of the approved application?</td>
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9. Removing Staff Member / Student / Research Assistant
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10. Possible inconveniences or risks to subjects:
    If Yes, please outline any inconvenience or possible risks that the changes you propose may create for participants (eg changes to confidentiality provisions, physical or psychological risks, increased time commitments etc).

 Modification Form - 28 Oct 2010
11. Actions to be taken by researchers to reduce risks:  
☐ Yes  ☒ No  
If Yes, please provide details of any additional actions and / or support that you will need to provide to participants as a result of the proposed changes.

N/A

12. Expected date of implementation of amendments to research:  
Date:  Feb, 2011

13. Time Extension  
☐ Yes  ☒ No  
If Yes, state new finishing date

Date:  The extension of the study from an Honours project to a PhD study will necessitate an extension of the study over three additional years. We expect the PhD thesis to be submitted by December, 2013

14. Whether funding arrangements for the research been affected by the changes  
☐ Yes  ☒ No

The PhD student, Renata Cinelli, has an APA scholarship.

15. Implications for compliance with legislative requirements:  
☐ Yes  ☒ No

Please check current legislation and related requirements, if appropriate – including, for example Privacy Act 1998 (please refer to Guidelines under Section 95 of the Privacy Act produced by the NHMRC) and Children and Young Persons Act 1999.

16. Attach copies of amended surveys, questionnaires or interview questions  
☐ Yes  ☒ No

The quantitative Body Image Survey for Aboriginal women is attached. The original interview questions will remain the same.

17. Attach copies of the amended advertisement, participant information statement and consent form.  
☐ Yes  ☒ No

Participants need to be advised of changes to procedures, time commitments, etc. You will need to update the participant information statement to reflect the changes

Attached are the amended participant information statement and consent forms.

Modification Form - 28 Oct 2010
18. Details of other permission or approvals required as a result of your proposed changes

We have consulted with the relevant research staff from the Koori Centre and we have met frequently with Lyn Riley and Janet Mooney, both of whom have agreed to advise regarding the project and the recruitment of Aboriginal women.

Ms Mooney was present at the Faculty of Education & Social Work PhD Proposal meeting for Ms Cinelli’s research proposal which was formally held on October 27th, 2010.

Ms Cinelli is also an Indigenous student, and as such, she has legitimate access to Aboriginal communities in NSW.

19. Other Amendments

If you require an additional title to be added to the HREC Database (Grant for application)

Title:

Granting Body:

20. Declaration of Researchers

[Signatures and dates]

NOTE

- All Modification Requests require the signature of Head of Faculty/Department/School except where the request is ONLY to add/remove a researcher.
- The Modification Request will not be processed without the signature of Head of Faculty/Department/School

Modification Form - 28 Oct 2010
Appendix B- Participant Information Statement
Title: Perceptions of body weight, shape and body image among generations of Australian Aboriginal women.

PARTICIPANT INFORMATION STATEMENT

(1) What is the study about?

This is a study of the body image perceptions of Australian Aboriginal women of various ages. We hope to gain a unique insight into the body image of Australian Aboriginal women in order to create the most appropriate educational and preventive approaches to foster a healthy body image among young Australian Aboriginals.

(2) Who is carrying out the study?

The study is being conducted by a PhD student, Ms Renata Cinelli and will form the basis for the degree of Doctorate of Philosophy at The University of Sydney under the supervision of Dr Jennifer O’Dea who is an Associate Professor in Health Education. Ms Cinelli is a young Aboriginal woman.

(3) What does the study involve?

The study involves one 30 minute interview with you and Ms Cinelli, during which she will ask you to discuss your perceptions and opinions about body image, body weight and shape. Ms Cinelli will also ask you to complete a short questionnaire which will take about 15 minutes. You will not be asked to put your name on the questionnaire.

(4) How much time will the study take?

The interviews will be conducted at a time agreed upon by you and the researcher and will take approximately 30 minutes. The interviews will be tape recorded.

(5) Can I withdraw from the study?

Yes. Being in this study is completely voluntary - you are not under any obligation to consent and - if you do consent - you can withdraw at any time without affecting your relationship with The University of Sydney.

You may stop the interview at any time if you do not wish to continue, the audio recording will be erased and the information provided will not be included in the study.
(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

(7) Will the study benefit me?

No, the study is not expected to directly benefit you or your family. The study may assist school administrators, as we expect to be able to use the results to see whether there are any special needs regarding body image among Aboriginal young people in order to make their school physical education more relevant and culturally appropriate.

(8) Can I tell other people about the study?

Yes, you may discuss the study with whomever you wish.

(9) What if I require further information?

When you have read this information, Ms Renata Cinelli will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Renata Cinelli, PhD student on 93516229 or Dr Jennifer O’Dea, Associate Professor and PhD supervisor on 93516226.

(10) What if I have a complaint or concerns?

Any person with concerns or complaints about the conduct of a research study can contact The Manager, Human Ethics Administration, University of Sydney on +61 2 8627 8176 (Telephone); +61 2 8627 8177 (Facsimile) or ro.humanethics@sydney.edu.au (Email).

This information sheet is for you to keep.
Appendix C- Participant Consent Form
PARTICIPANT CONSENT FORM

I, ________________________________ [PRINT NAME], give consent to my participation in the research project.

TITLE: Perceptions of body weight, shape and body image among generations of Australian Aboriginal women.

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

2. I have read the Participant Information Statement and have been given the opportunity to discuss the information and my involvement in the project with the researcher(s).

3. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) or the University of Sydney now or in the future.

4. I understand that my involvement is strictly confidential and no information about me will be used in any way that reveals my identity.

5. I understand that being in this study is completely voluntary – I am not under any obligation to consent.

6. I understand that I can stop the interview at any time if I do not wish to continue, the audio recording will be erased and the information provided will not be included in the study.

Body image in Aboriginal women
I consent to: –

i) Audio-taping  YES □ NO □

ii) Receiving Feedback  YES □ NO □

If you answered YES to the “Receiving Feedback Question (ii)”, please provide your details i.e. mailing address, email address.

Feedback Option

Address: __________________________________________

__________________________________________________

Email: ___________________________________________

Signed: ..............................................................................

Name: ..............................................................................

Date: ..............................................................................
Appendix D- Parent/Guardian Consent Form (for participants <18 years old)
PARENTAL (OR GUARDIAN) CONSENT FORM

I, ............................................................... agree to permit ........................................................., who is
aged ................................ years, to participate in the research project –

TITLE: Perceptions of body weight, shape and body image among generations of Australian Aboriginal women.

In giving my consent I acknowledge that:

1. I have read the Information Statement and the time involved for my child’s participation in the project. The researcher/s has given me the opportunity to discuss the information and ask any questions I have about the project and they have been answered to my satisfaction.

2. I understand that I can withdraw my child from the study at any time without prejudice to my or my child’s relationship with the researcher/s now or in the future.

3. I agree that research data gathered from the results of the study may be published provided that neither my child nor I can be identified.

4. I understand that if I have any questions relating to my child’s participation in this research I may contact the researcher/s who will be happy to answer them.

5. I acknowledge receipt of the Information Statement.

Body image in Aboriginal women

Page 1 of 2
I consent to: –

i) Audio-taping YES □ NO □

ii) Receiving Feedback YES □ NO □

If you answered YES to the "Receiving Feedback Question (ii)", please provide your details i.e. mailing address, email address.

Feedback Option

Address: ____________________________________________

____________________________________________________

Email: ______________________________________________

.................................................................
Signature of Parent/Guardian

.................................................................
Please PRINT name

.................................................................
Date

.................................................................
Signature of Child

.................................................................
Please PRINT name

.................................................................
Date

.................................................................

Body image in Aboriginal women

Page 2 of 2
Body Image Survey for Aboriginal women

- Participation in this survey is voluntary, confidential and private.
- Your answers are completely anonymous.
- No-one will know what answers you provide.
- There are no right or wrong answers.

How old are you?

Location of hometown:  
Country  
City  

Section 1: Body Image Satisfaction

1. Do you think you are:

   □  Too thin
   □  About right
   □  Too fat

2. Would you like your body weight to be:

   □  A lot heavier
   □  A little heavier
   □  Same as at present
   □  A little lighter
   □  A lot lighter

3. How satisfied are you with your weight?

   □  Very satisfied
   □  Satisfied
   □  Dissatisfied
   □  Very dissatisfied

4. How satisfied are you with your body shape?

   □  Very satisfied
   □  Satisfied
   □  Dissatisfied
   □  Very dissatisfied

5. How satisfied are you with your muscle size?

   □  Very satisfied
   □  Satisfied
   □  Dissatisfied
   □  Very dissatisfied
6. How satisfied are you with your hips?

- [ ] Very satisfied
- [ ] Satisfied
- [ ] Dissatisfied
- [ ] Very dissatisfied

7. How satisfied are you with your thighs?

- [ ] Very satisfied
- [ ] Satisfied
- [ ] Dissatisfied
- [ ] Very dissatisfied

8. How satisfied are you with your chest?

- [ ] Very satisfied
- [ ] Satisfied
- [ ] Dissatisfied
- [ ] Very dissatisfied

9. How satisfied are you with your abdominal region/ stomach?

- [ ] Very satisfied
- [ ] Satisfied
- [ ] Dissatisfied
- [ ] Very dissatisfied

10. How satisfied are you with the size/ width of your shoulders?

- [ ] Very satisfied
- [ ] Satisfied
- [ ] Dissatisfied
- [ ] Very dissatisfied

11. How satisfied are you with your legs?

- [ ] Very satisfied
- [ ] Satisfied
- [ ] Dissatisfied
- [ ] Very dissatisfied
12. How satisfied are you with your arms?

- [ ] Very satisfied
- [ ] Satisfied
- [ ] Dissatisfied
- [ ] Very dissatisfied

Section 2: Desire to change your weight

13. Have you ever tried to lose weight?

- [ ] Yes
- [ ] No

14. Are you currently trying to lose weight?

- [ ] Yes
- [ ] No

15. Have you ever tried to gain weight?

- [ ] Yes
- [ ] No

16. Are you currently trying to gain weight?

- [ ] Yes
- [ ] No

Section 3: Desire to increase muscles

17. How often do you do more exercise to increase the size of your muscles?

- [ ] Always
- [ ] Almost always
- [ ] Sometimes
- [ ] Never

18. How often do you increase your eating to increase the size of your muscles?

- [ ] Always
- [ ] Almost always
- [ ] Sometimes
- [ ] Never
Section 4:

Please refer to the figures from 1 to 9 below.

19. Which **female** figure looks most like you?  
20. Which **female** figure would you like to look like?  
21. Which **female** figure looks **best**?  
22. Which **male** figure looks **best**?

---

Please rate out of 10 (10 being perfect)

23. How you think you look?  
24. How you think other people think you look?  
25. How you think people of the opposite sex think you look?  
26. How you think women in your family think you look?  
27. How you think men in your family think you look?
Section 5: Influences on your body image.

28. Who do you think most influences your body image? Please explain.

29. What do you think most influences your body image? Please explain.

30. Who helps you to feel good about your body? Please explain.

31. What helps you to feel good about your body? Please explain.

Thank you very much for completing this survey!
Appendix F – Results by geographic location and age
Appendix F: Results by geographic location and age

Appendix F Results by geographic location and age specifically addresses research questions two Does age have an impact on the body image perceptions of women and three Does geographic location have an impact on the body image perceptions of women?

Appendix F Synopsis.

This results section explores the differences in body image perceptions, desired body weight, body satisfaction, body ideals from the figure rating scales, body appearance ratings, sporting participation and actual body weight based on cultural background, urban or rural geographic location, and age. Each variable is presented first by geographic location and then by age group category (<30, 31-50, and 50+).

Regardless of age or geographic location, Aboriginal women were more likely to report perceiving they were too thin or too fat, were less likely to fall in the normal weight category, more likely to be dissatisfied with aspects of their body and weight, and more likely to engage in weight and muscle change behaviours.

The Aboriginal women had higher mean scores for the Stunkard Figure ratings than the non-Aboriginal women and the rural women, both Aboriginal and non-Aboriginal, had higher scores than the urban women. Geographic location had little impact on sporting participation, although sporting participation was much more common among younger women and declined with increasing age.

In summary, body dissatisfaction, a desire for lighter body weight and weight change behaviours are prevalent among women across the lifespan and irrespective of geographic location.
### Appendix F Results.

Table F1

*Body image among Aboriginal and non-Aboriginal women by urban or rural geographic location and age group*

<table>
<thead>
<tr>
<th>Body Image</th>
<th>Aboriginal women (N = 213)</th>
<th>Non-Aboriginal women (N = 411)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Too thin</td>
<td>About right</td>
<td>Too fat</td>
</tr>
<tr>
<td>Geographic location</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Urban</td>
<td>6.2</td>
<td>(8)</td>
<td>39.5</td>
</tr>
<tr>
<td>Rural</td>
<td>3.6</td>
<td>(3)</td>
<td>34.5</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 30 years</td>
<td>6.4</td>
<td>(5)</td>
<td>43.6</td>
</tr>
<tr>
<td>31-50 years</td>
<td>4.4</td>
<td>(4)</td>
<td>39.6</td>
</tr>
<tr>
<td>51 years or older</td>
<td>4.5</td>
<td>(2)</td>
<td>22.7</td>
</tr>
</tbody>
</table>

*Note.* *p*< 0.05, **p*<0.01, *** p<0.001.

Table F1 shows that urban Aboriginal women were more likely to perceive themselves as *too thin* or *too fat* compared to urban non-Aboriginal women (χ²= 24.16, df=2, p=0.000). Among the rural participants, regardless of cultural background, very low proportions perceived themselves to be *too thin*, and more than half reported themselves to be *too fat*. There was no significant difference between rural Aboriginal and non-Aboriginal women’s body image perceptions (χ²= 4.42, df=2, p=0.098).

Each age group uncovered a statistically significant difference in the body image of Aboriginal and non-Aboriginal women (Less than 30 years χ²=13.49, df=2, p=0.001, 31-50 years χ²=9.19, df=2, p=0.008, 50< years χ²=9.29, df=2, p=0.011). Regardless of cultural background, few participants perceived themselves to be *too thin*, although in every age
category this was more common among Aboriginal women. Regardless of age, Aboriginal women were more likely report they were *too fat* compared to their same-aged non-Aboriginal counterparts, and for both groups the proportion of women reporting they were *too fat* increased with increasing age category.

In summary, Aboriginal women in each age group and urban residents particularly, were more likely than non-Aboriginal women to report being *too thin or too fat*, compared to non-Aboriginal women who were more likely to report their weight as *about right*. Regardless of cultural background, the proportion of women who reported being *too fat* increased with each age category and rural women were more likely to report being *too fat* than were their urban counterparts.
<table>
<thead>
<tr>
<th>Desired weight</th>
<th>Aboriginal women (N=213)</th>
<th>Non-Aboriginal women (N = 411)</th>
<th>(\chi^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% n</td>
<td>% n</td>
<td></td>
</tr>
<tr>
<td>A lot heavier</td>
<td>1.6 (2)</td>
<td>0.0 (0)</td>
<td></td>
</tr>
<tr>
<td>A little heavier</td>
<td>6.2 (8)</td>
<td>6.0 (5)</td>
<td></td>
</tr>
<tr>
<td>Same as at present</td>
<td>13.2 (17)</td>
<td>17.9 (15)</td>
<td></td>
</tr>
<tr>
<td>A little lighter</td>
<td>53.5 (69)</td>
<td>39.3 (33)</td>
<td></td>
</tr>
<tr>
<td>A lot lighter</td>
<td>25.6 (33)</td>
<td>36.9 (31)</td>
<td></td>
</tr>
<tr>
<td>A little heavier</td>
<td>0.0 (0)</td>
<td>0.0 (0)</td>
<td></td>
</tr>
<tr>
<td>A lot heavier</td>
<td>3.5 (10)</td>
<td>0.8 (1)</td>
<td></td>
</tr>
<tr>
<td>Same as at present</td>
<td>13.7 (39)</td>
<td>18.0 (23)</td>
<td></td>
</tr>
<tr>
<td>A little lighter</td>
<td>65.1 (185)</td>
<td>57.0 (73)</td>
<td></td>
</tr>
<tr>
<td>A lot lighter</td>
<td>0.0 (0)</td>
<td>24.2 (31)</td>
<td></td>
</tr>
</tbody>
</table>

**Geographic location**

- **Urban**
  - 1.6% (2) desired a lot heavier, 6.2% (8) desired a little heavier, 13.2% (17) desired same as at present, 53.5% (69) desired a little lighter, 25.6% (33) desired a lot lighter, 3.5% (10) desired a lot heavier, 13.7% (39) desired same as at present, 65.1% (185) desired a little lighter, 0.0% (0) desired a lot lighter.
  - \(\chi^2 = 10.65\), df=4, p=0.031.
- **Rural**
  - 0.0% (0) desired a lot heavier, 6.0% (5) desired a little heavier, 17.9% (15) desired same as at present, 39.3% (33) desired a little lighter, 36.9% (31) desired a lot lighter, 0.0% (0) desired a little heavier, 0.8% (1) desired same as at present, 57.0% (73) desired a little lighter, 0.0% (0) desired a lot lighter.
  - \(\chi^2 = 10.78\), df=3, p=0.011.

**Age group**

- **Less than 30 years**
  - 0.0% (0) desired a lot heavier, 10.3% (8) desired a little heavier, 17.9% (14) desired same as at present, 50.0% (39) desired a little lighter, 21.8% (17) desired a lot lighter, 3.4% (5) desired a little heavier, 12.2% (18) desired same as at present, 70.7% (104) desired a little lighter, 13.6% (20) desired a lot lighter.
  - \(\chi^2 = 10.84\), df=4, p=0.031.
- **31-50 years**
  - 1.1% (1) desired a lot heavier, 4.4% (4) desired a little heavier, 12.1% (11) desired same as at present, 49.5% (45) desired a little lighter, 33.0% (30) desired a lot lighter, 0.0% (0) desired a little heavier, 2.0% (3) desired same as at present, 57.4% (85) desired a little lighter, 23.0% (34) desired a lot lighter.
  - \(\chi^2 = 6.56\), df=3, p=0.039.
- **51 years or older**
  - 2.3% (1) desired a lot heavier, 2.3% (1) desired a little heavier, 15.9% (7) desired same as at present, 40.9% (18) desired a little lighter, 38.6% (17) desired a lot lighter, 0.0% (0) desired a little heavier, 2.6% (3) desired same as at present, 59.0% (69) desired a little lighter, 23.1% (27) desired a lot lighter.
  - \(\chi^2 = 7.44\), df=3, p=0.026.

Note: * p< 0.05.

Table F2 displays the desired body weight of Aboriginal and non-Aboriginal women by geographic location (rural or urban) and age group (Less than 30 years; 31-50 years; and 51+ years). A larger proportion of urban Aboriginal women desired their weight to be *a lot heavier, the same as at present* and *a lot lighter* than did urban non-Aboriginal women (\(\chi^2= 10.65\), df=4, p=0.031). Greater proportions of rural Aboriginal women wanted to be *a little heavier* or *a lot lighter* than did rural non-Aboriginal women (\(\chi^2= 10.78\), df=3, p=0.011).
Regardless of cultural background, low proportions of the women wanted to be a lot heavier, and urban women were more likely to report a desire to be a little heavier. Relatively more urban women than rural women wanted to be a little lighter, and a greater proportion of rural women than urban women wanted to be a lot lighter.

Regardless of age category, Table F2 above shows that only two participants (both were Aboriginal) in the study desired to be a lot heavier and that there was a strong trend among all age groups toward desiring to be a little lighter. For the less than 30 years age category, approximately 75% of all respondents desired to be either a little lighter or a lot lighter. Aboriginal women were more likely to express a desire to be a lot lighter or a little heavier than were non-Aboriginal women, and less likely to desire to be a little lighter, although half of the Aboriginal women did express this ($\chi^2=10.84$, df=3, p=0.013).

In the 31-50 year age category, more Aboriginal than non-Aboriginal women desired a heavier weight. About 80% of women from both Aboriginal and non-Aboriginal groups desired to be either a little lighter or a lot lighter, although when broken down, proportionately more Aboriginal women wanted to be a lot lighter, while more non-Aboriginal women wanted to be a little lighter. Regardless of cultural background, it is clear that for this age group, the prominent desire is to be lighter than at present and the scores of Aboriginal and non-Aboriginal women were similar ($\chi^2=6.56$, df=4, p=0.136).

2x5 chi-square analyses were also performed on the greater than 50 years age group, but did not uncover a statistically significant difference between the groups ($\chi^2=7.44$, df=4, p=0.100). Again it became apparent that women across both cultural groups were more likely to express desires to be lighter, than they were to be heavier.

In summary, the desired body weight of Aboriginal and non-Aboriginal women in rural and urban locations, and in the less than 30 years age group differs with younger Aboriginal women wanting to be heavier than their non-Aboriginal peers, although regardless of cultural background, age group or geographic location, over 70% of all participants expressed desires to be either a little or a lot lighter.
Figure F1

Comparison of desired body weight between urban Aboriginal and urban non-Aboriginal women

Note. Chi-square analyses for geographic location (urban), cultural background and desired weight category (collapsed categories a little lighter/a lot lighter = lighter, same as at present, a little heavier/a lot heavier = heavier) = 4.26, df=2, p=0.119

Figure F1 displays the desired body weight of urban Aboriginal and urban non-Aboriginal women. 2x3 chi-square analyses using the Monte Carlo method to control for small cell numbers were performed on the collapsed variables of heavier, same as at present and lighter and revealed no significant difference in desired weight between urban Aboriginal and urban non-Aboriginal.
Comparison of desired body weight between rural Aboriginal and rural non-Aboriginal women

Note. Chi-square analyses for geographic location (rural), cultural background and desired weight category (collapsed categories a little lighter/a lot lighter = lighter, same as at present, a little heavier/a lot heavier = heavier) = 4.94, df=2, p=0.086

Figure F2 shows that although the proportion of rural Aboriginal women who reported a desire to be heavier was greater than that reported by rural non-Aboriginal women (6% versus 1%) the difference was not found to be statistically significant. The trend revealed that regardless of cultural group, the rural participants desired body weight was similar.
Figure F3

*Comparison of desired body weight of less than 30 year old Aboriginal and non-Aboriginal women*

Note. Chi-square analyses for cultural background, age group (<30 years old), and desired weight category (collapsed categories *a little lighter/a lot lighter = lighter, same as at present, a little heavier/a lot heavier = heavier*) = 7.05*, df=2, p=0.029

Figure F3 shows that Aboriginal women in this age group were more likely to be satisfied to stay the same or be heavier than were non-Aboriginal women, although the majority of women from both cultural groups preferred to be lighter. Chi-square analyses were performed on the collapsed variables of *heavier, same as at present* and *lighter* (2x3 tables) and indicated a significant difference between Aboriginal and non-Aboriginal women’s desired weight in this age category.
Figure F4

Comparison of desired body weight of 31-50 year old Aboriginal and non-Aboriginal women

Note. Chi-square analyses for cultural background, age group (31-50 years), and desired weight category (collapsed categories a little lighter/a lot lighter = lighter, same as at present, a little heavier/a lot heavier = heavier) = 2.90, df=2, p=0.227

Figure F4 shows no significant difference between Aboriginal and non-Aboriginal womens’ desired weight in this age group. In this instance, the observed trend revealed that Aboriginal women were more likely to prefer to be lighter or heavier than were non Aboriginal women, although over 80% of both groups expressed a desire to be lighter.
Figure F5

Comparison of desired body weight in the 50 years or greater Aboriginal and non-Aboriginal women

Note. Chi-square analyses for cultural background, age group (50< years), and desired weight category (collapsed categories a little lighter/a lot lighter = lighter, same as at present, a little heavier/a lot heavier = heavier) = 0.44, df=2, p=0.855

Figure F5 represents that similar proportions of Aboriginal and non-Aboriginal women preferred to be lighter, with fewer desiring to be heavier or the same as at present and no statistically significant difference was found.
### Table F3

**Comparison of body satisfaction among urban Aboriginal and urban non-Aboriginal women**

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>2.4 (3)</td>
<td>36.0 (45)</td>
<td>44.0 (55)</td>
<td>17.6 (22)</td>
<td>3.2 (9)</td>
<td>47.2 (134)</td>
<td>43.7 (124)</td>
<td>6.0 (17)</td>
<td>14.94**</td>
<td></td>
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</tr>
<tr>
<td>Shape</td>
<td>1.6 (2)</td>
<td>47.2 (59)</td>
<td>37.6 (47)</td>
<td>13.6 (17)</td>
<td>2.5 (7)</td>
<td>53.5 (152)</td>
<td>39.8 (113)</td>
<td>4.2 (12)</td>
<td>11.83**</td>
<td></td>
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<tr>
<td>Muscle Size</td>
<td>3.2 (4)</td>
<td>41.6 (52)</td>
<td>43.2 (54)</td>
<td>12.0 (15)</td>
<td>3.9 (11)</td>
<td>52.3 (148)</td>
<td>42.0 (119)</td>
<td>1.8 (5)</td>
<td>20.68***</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hips</td>
<td>4.1 (5)</td>
<td>52.0 (64)</td>
<td>33.3 (41)</td>
<td>10.6 (13)</td>
<td>7.1 (20)</td>
<td>57.1 (161)</td>
<td>30.9 (87)</td>
<td>5.0 (14)</td>
<td>5.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Thighs</td>
<td>4.0 (5)</td>
<td>35.5 (44)</td>
<td>45.2 (56)</td>
<td>15.3 (19)</td>
<td>5.0 (14)</td>
<td>36.2 (102)</td>
<td>47.9 (135)</td>
<td>11.0 (31)</td>
<td>1.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Chest</td>
<td>12.1 (15)</td>
<td>54.8 (68)</td>
<td>23.4 (29)</td>
<td>9.7 (12)</td>
<td>7.4 (21)</td>
<td>63.1 (178)</td>
<td>24.8 (70)</td>
<td>4.6 (13)</td>
<td>6.74</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>0.8 (1)</td>
<td>20.2 (25)</td>
<td>47.6 (59)</td>
<td>31.5 (39)</td>
<td>3.9 (11)</td>
<td>26.7 (75)</td>
<td>53.0 (149)</td>
<td>16.4 (46)</td>
<td>14.11**</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Size/width of shoulders</td>
<td>8.1 (10)</td>
<td>72.6 (90)</td>
<td>15.3 (19)</td>
<td>4.0 (5)</td>
<td>13.1 (37)</td>
<td>76.2 (215)</td>
<td>9.6 (27)</td>
<td>1.1 (3)</td>
<td>8.42*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legs</td>
<td>10.5 (13)</td>
<td>55.6 (69)</td>
<td>25.8 (32)</td>
<td>8.1 (10)</td>
<td>9.9 (28)</td>
<td>55.0 (155)</td>
<td>27.3 (77)</td>
<td>7.8 (22)</td>
<td>0.11</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Arms</td>
<td>7.9 (10)</td>
<td>57.9 (73)</td>
<td>26.2 (33)</td>
<td>7.9 (10)</td>
<td>9.6 (27)</td>
<td>54.8 (154)</td>
<td>30.6 (86)</td>
<td>5.0 (14)</td>
<td>2.29</td>
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</tr>
</tbody>
</table>

*Note. *p< 0.05, **p<0.01, ***p<0.001.*
In Table F3 the data show a trend toward overall greater satisfaction among the urban non-Aboriginal women on all items except satisfaction with legs and arms.

2x4 chi-square tests were performed on all body satisfaction variables and the analyses reached statistical difference and greater satisfaction among urban non-Aboriginal women for the items satisfaction with weight ($\chi^2= 14.94$, df=3, $p=0.002$), shape ($\chi^2= 11.83$, df=3, $p=0.008$), muscle size ($\chi^2= 20.68$, df=3, $p=0.000$), abdominal muscles/stomach ($\chi^2= 14.11$, df=3, $p=0.003$), and size/width of shoulders ($\chi^2= 8.42$, df=3, $p=0.038$).

The scores of urban Aboriginal and urban non-Aboriginal women were similar on the remaining body satisfaction items (hips $\chi^2= 5.87$, df=3, $p=0.118$; thighs $\chi^2= 1.62$, df=1, $p=0.656$; chest $\chi^2= 6.74$, df=3, $p=0.081$; legs $\chi^2= 0.11$, df=3, $p=0.990$; arms $\chi^2= 2.29$, df=3, $p=0.515$).
In Figure F6, the data show greater body satisfaction among urban non-Aboriginal women on all items except satisfaction with legs and arms. Inversely this represents higher body dissatisfaction on all items among urban Aboriginal women. 2x2 chi-square analysis revealed significantly greater satisfaction scores for urban non-Aboriginal versus urban Aboriginal women for satisfaction with weight ($\chi^2= 4.51$, df=1, $p=0.034$), muscle size ($\chi^2= 4.06$, df=1, $p=0.044$) and size/width of shoulders ($\chi^2= 4.94$, df=1, $p=0.026$) items. The scores of urban Aboriginal and urban non-Aboriginal women were not different on the other items (satisfaction with shape $\chi^2= 1.53$, df=1, $p=0.217$; hips $\chi^2= 2.04$, df=1, $p=0.153$; thighs $\chi^2= 0.04$, df=1, $p=0.844$; chest $\chi^2= 0.38$, df=1, $p=0.539$; abdominal muscles/stomach $\chi^2= 3.53$, df=1, $p=0.060$; legs $\chi^2= 0.02$, df=1, $p=0.898$; arms $\chi^2= 0.03$, df=1, $p=0.863$).
Table F4

Comparison of body satisfaction among rural Aboriginal and rural non-Aboriginal women

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>%  n</td>
<td>%  n</td>
<td>%  n</td>
<td>%  n</td>
<td>%  n</td>
<td>%  n</td>
<td>%  n</td>
<td>%  n</td>
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<tr>
<td></td>
<td>3.9 (3)</td>
<td>31.6 (24)</td>
<td>47.4 (36)</td>
<td>17.1 (13)</td>
<td>2.3 (3)</td>
<td>39.8 (51)</td>
<td>44.5 (57)</td>
<td>13.3 (17)</td>
<td>1.86</td>
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<td>Shape</td>
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<td>31.1 (23)</td>
<td>48.6 (36)</td>
<td>13.5 (10)</td>
<td>2.3 (3)</td>
<td>42.2 (54)</td>
<td>45.3 (58)</td>
<td>10.2 (13)</td>
<td>4.44</td>
</tr>
<tr>
<td>Muscle Size</td>
<td>5.3 (4)</td>
<td>34.7 (26)</td>
<td>50.7 (38)</td>
<td>9.3 (7)</td>
<td>2.4 (3)</td>
<td>45.7 (58)</td>
<td>44.1 (56)</td>
<td>7.9 (10)</td>
<td>3.13</td>
</tr>
<tr>
<td>Hips</td>
<td>6.8 (5)</td>
<td>43.2 (32)</td>
<td>40.5 (30)</td>
<td>9.5 (7)</td>
<td>4.7 (6)</td>
<td>48.4 (62)</td>
<td>37.5 (48)</td>
<td>9.4 (12)</td>
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<td>Thighs</td>
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<td>47.3 (35)</td>
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<td>5.5 (7)</td>
<td>39.1 (50)</td>
<td>39.8 (51)</td>
<td>15.6 (20)</td>
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</tr>
<tr>
<td>Chest</td>
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<td>62.2 (46)</td>
<td>23.0 (17)</td>
<td>8.1 (6)</td>
<td>6.3 (8)</td>
<td>65.6 (84)</td>
<td>25.0 (32)</td>
<td>3.1 (4)</td>
<td>2.54</td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>0.0 (0)</td>
<td>21.3 (16)</td>
<td>46.7 (35)</td>
<td>32.0 (24)</td>
<td>1.6 (2)</td>
<td>22.7 (29)</td>
<td>51.6 (66)</td>
<td>24.2 (31)</td>
<td>2.49</td>
</tr>
<tr>
<td>Size/width of shoulders</td>
<td>9.3 (7)</td>
<td>68.0 (51)</td>
<td>18.7 (14)</td>
<td>4.0 (3)</td>
<td>11.7 (15)</td>
<td>78.9 (101)</td>
<td>7.0 (9)</td>
<td>2.3 (3)</td>
<td>7.09</td>
</tr>
<tr>
<td>Legs</td>
<td>17.3 (13)</td>
<td>42.7 (32)</td>
<td>26.7 (20)</td>
<td>13.3 (10)</td>
<td>4.7 (6)</td>
<td>59.4 (76)</td>
<td>25.8 (33)</td>
<td>10.2 (13)</td>
<td>11.00*</td>
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<tr>
<td>Arms</td>
<td>10.8 (8)</td>
<td>37.8 (28)</td>
<td>44.6 (33)</td>
<td>6.8 (5)</td>
<td>3.9 (5)</td>
<td>56.3 (72)</td>
<td>31.3 (40)</td>
<td>8.6 (11)</td>
<td>9.20*</td>
</tr>
</tbody>
</table>

Note. * p< 0.05.
In Table F4, the data shows a trend toward overall greater satisfaction among the rural non-Aboriginal women on all body satisfaction items.

2x4 chi-square tests revealed the difference between rural Aboriginal and rural non-Aboriginal women was significant for the items satisfaction with legs ($\chi^2= 11.00$, df=3, $p=0.012$) and arms ($\chi^2= 9.20$, df=3, $p=0.027$), with greater satisfaction among the rural non-Aboriginal women.

The scores of rural Aboriginal and rural non-Aboriginal women did not reach statistical difference on the remaining body satisfaction items (satisfaction with weight $\chi^2= 1.86$, df=3, $p=0.604$; shape $\chi^2= 4.40$, df=3, $p=0.221$; muscle size $\chi^2= 3.13$, df=3, $p=0.376$; hips $\chi^2= 0.75$, df=3, $p=0.861$; thighs $\chi^2= 1.49$, df=3, $p=0.685$; chest $\chi^2= 2.54$, df=3, $p=0.490$; abdominal muscles/stomach $\chi^2= 2.49$, df=3, $p=0.498$; size/width of shoulders $\chi^2= 7.09$, df=3, $p=0.066$).
Figure F7

Comparison of proportion of rural Aboriginal and rural non-Aboriginal women who were satisfied with specific body parts

Note. * p<0.05, Chi-square analyses performed on body satisfaction variables (collapsed categories of satisfied/very satisfied = satisfied and dissatisfied/very dissatisfied = dissatisfied). Only the satisfied results are displayed in the figure above.

Whilst the body satisfaction scores were similar among rural Aboriginal and rural non-Aboriginal women, Figure F7 shows a slightly greater, but not statistically significant difference, for body satisfaction among rural non-Aboriginal women on all items. 2x2 chi-square analyses were performed on all items and revealed a statistically significant difference for the satisfaction with size/width of shoulders item ($\chi^2= 5.78$, df=1, $p=0.016$). The results on all other items did not differ statistically (satisfaction with weight $\chi^2= 0.63$, df=1, $p=0.428$; shape $\chi^2= 0.61$, df=1, $p=0.435$; muscle size $\chi^2= 0.93$, df=1, $p=0.336$; hips $\chi^2= 0.08$, df=1, $p=0.778$; thighs $\chi^2= 0.16$, df=1, $p=0.69$; chest $\chi^2= 0.08$, df=1, $p=0.776$; abdominal muscles/stomach $\chi^2= 0.09$, df=1, $p=0.77$; legs $\chi^2= 0.18$, df=1, $p=0.669$; arms $\chi^2= 2.07$, df=1, $p=0.150$).
Table F5

Comparison of body satisfaction among Aboriginal and non-Aboriginal women in the less than 30 year old age category

<table>
<thead>
<tr>
<th>Body Satisfaction Item</th>
<th>Aboriginal women (N=66)</th>
<th>Non-Aboriginal women (N=148)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Satisfied</td>
<td>Satisfied</td>
<td>Dissatisfied</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Weight</td>
<td>7.6</td>
<td>(5)</td>
<td>40.9</td>
</tr>
<tr>
<td>Shape</td>
<td>9.1</td>
<td>(6)</td>
<td>50.0</td>
</tr>
<tr>
<td>Muscle Size</td>
<td>7.6</td>
<td>(5)</td>
<td>47.0</td>
</tr>
<tr>
<td>Hips</td>
<td>9.1</td>
<td>(6)</td>
<td>54.5</td>
</tr>
<tr>
<td>Thighs</td>
<td>6.1</td>
<td>(4)</td>
<td>33.3</td>
</tr>
<tr>
<td>Chest</td>
<td>15.2</td>
<td>(10)</td>
<td>51.5</td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>1.5</td>
<td>(1)</td>
<td>31.8</td>
</tr>
<tr>
<td>Size/width of shoulders</td>
<td>13.6</td>
<td>(9)</td>
<td>68.2</td>
</tr>
<tr>
<td>Legs</td>
<td>19.7</td>
<td>(13)</td>
<td>56.1</td>
</tr>
<tr>
<td>Arms</td>
<td>10.8</td>
<td>(7)</td>
<td>58.5</td>
</tr>
</tbody>
</table>

Table F5 shows that no significant difference in the scores of Aboriginal and non-Aboriginal women in the less than 30 years age category for any item. Almost half of both groups reported being satisfied for shape, muscle size, chest, hips, legs and arms and almost three-quarters of the women were satisfied with their chests.
Figure F8

*Comparison of proportion of Aboriginal and non-Aboriginal women in the less than 30 year old age category who were satisfied with specific body parts*

Note. Chi-square analyses performed on body satisfaction variables (collapsed categories of *satisfied*/very satisfied* = satisfied and *dissatisfied*/very dissatisfied* = dissatisfied). Only the *satisfied* results are displayed in the figure above.

Figure F8 shows that both Aboriginal and non-Aboriginal women in the less than 30 years age group had similar levels of satisfaction, although fewer women reported being satisfied with their thighs and abdominal muscles/stomach than for most other items. 2x2 chi-square analyses revealed the differences were not statistically significant on any item (weight $\chi^2=0.00$, df=1, p=1.000; shape $\chi^2=0.24$, df=1, p=0.627; muscles $\chi^2=0.00$, df=1, p=1.000; hips $\chi^2=0.42$, df=1, p=0.517; thighs $\chi^2=0.64$, df=1, p=0.424; chest $\chi^2=0.56$, df=1, p=0.455; abdominal muscles/stomach $\chi^2=0.00$, df=1, p=1.000; size/width of shoulders $\chi^2=0.63$, df=1, p=0.426; legs $\chi^2=1.16$, df=1, p=0.282; arms $\chi^2=0.02$, df=1, p=0.886).
Table F6

Comparison of body satisfaction among Aboriginal and non-Aboriginal women in the 31-50 year old age category

<table>
<thead>
<tr>
<th>Body Satisfaction Item</th>
<th>Very Satisfied</th>
<th>Satisfied</th>
<th>Dissatisfied</th>
<th>Very Dissatisfied</th>
<th>Very Satisfied</th>
<th>Satisfied</th>
<th>Dissatisfied</th>
<th>Very Dissatisfied</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>0.0 (0)</td>
<td>34.1 (31)</td>
<td>46.2 (42)</td>
<td>19.8 (18)</td>
<td>3.4 (5)</td>
<td>46.6 (69)</td>
<td>39.2 (58)</td>
<td>10.8 (16)</td>
<td>7.66</td>
</tr>
<tr>
<td>Shape</td>
<td>1.1 (1)</td>
<td>36.7 (33)</td>
<td>45.6 (41)</td>
<td>16.7 (15)</td>
<td>3.4 (5)</td>
<td>47.3 (70)</td>
<td>41.2 (61)</td>
<td>8.1 (12)</td>
<td>6.46</td>
</tr>
<tr>
<td>Muscle Size</td>
<td>2.2 (2)</td>
<td>31.1 (28)</td>
<td>54.4 (49)</td>
<td>12.2 (11)</td>
<td>5.4 (8)</td>
<td>46.9 (69)</td>
<td>42.9 (63)</td>
<td>4.8 (7)</td>
<td>10.47*</td>
</tr>
<tr>
<td>Hips</td>
<td>2.3 (2)</td>
<td>40.9 (36)</td>
<td>43.2 (38)</td>
<td>13.6 (12)</td>
<td>7.5 (11)</td>
<td>56.8 (83)</td>
<td>28.8 (42)</td>
<td>6.8 (10)</td>
<td>11.51**</td>
</tr>
<tr>
<td>Thighs</td>
<td>3.4 (3)</td>
<td>34.8 (31)</td>
<td>44.9 (40)</td>
<td>16.9 (15)</td>
<td>8.9 (13)</td>
<td>37.0 (54)</td>
<td>41.1 (60)</td>
<td>13.0 (19)</td>
<td>3.31</td>
</tr>
<tr>
<td>Chest</td>
<td>9.1 (8)</td>
<td>54.4 (48)</td>
<td>27.3 (24)</td>
<td>9.1 (8)</td>
<td>6.8 (10)</td>
<td>63.7 (93)</td>
<td>25.3 (37)</td>
<td>4.1 (6)</td>
<td>3.48</td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>0.0 (0)</td>
<td>15.7 (14)</td>
<td>49.4 (44)</td>
<td>34.8 (31)</td>
<td>4.8 (7)</td>
<td>26.7 (39)</td>
<td>47.3 (69)</td>
<td>21.2 (31)</td>
<td>11.15*</td>
</tr>
<tr>
<td>Size/width of shoulders</td>
<td>6.7 (6)</td>
<td>70.8 (63)</td>
<td>20.2 (18)</td>
<td>2.2 (2)</td>
<td>15.8 (23)</td>
<td>76.7 (112)</td>
<td>6.8 (10)</td>
<td>0.7 (1)</td>
<td>13.26**</td>
</tr>
<tr>
<td>Legs</td>
<td>7.9 (7)</td>
<td>50.6 (45)</td>
<td>31.5 (28)</td>
<td>10.1 (9)</td>
<td>6.8 (10)</td>
<td>58.2 (85)</td>
<td>24.7 (36)</td>
<td>10.3 (15)</td>
<td>1.61</td>
</tr>
<tr>
<td>Arms</td>
<td>7.7 (7)</td>
<td>46.2 (42)</td>
<td>39.6 (36)</td>
<td>6.6 (6)</td>
<td>9.6 (14)</td>
<td>52.7 (77)</td>
<td>31.5 (46)</td>
<td>6.2 (9)</td>
<td>1.78</td>
</tr>
</tbody>
</table>

Note. *p< 0.05, **p<0.01
Table F6 shows that the results between the Aboriginal and non-Aboriginal women in the 31-50 years age category were similar for most items. The proportions were statistically different for satisfaction with muscle size ($\chi^2= 10.47$, df=3, p=0.015), hips ($\chi^2= 11.51$, df=3, p=0.009), abdominal muscles/stomach ($\chi^2= 11.15$, df=3, p=0.011), and size/width of shoulders ($\chi^2= 13.26$, df=3, p=0.003). For all of these items, Aboriginal women were more likely to report being dissatisfied or very dissatisfied than were their non-Aboriginal counterparts in the 31-50 year old age category.

The Aboriginal women in this age category were also more likely to report being dissatisfied or very dissatisfied for the satisfaction with weight ($\chi^2= 7.66$, df=3, p=0.054) and shape ($\chi^2= 6.46$, df=3, p=0.090) items compared with their non-Aboriginal counterparts. These were near but did not reach statistical difference.

The scores on the remaining items (thighs, chest, legs and arms) were not significantly different.
Figure F9

Comparison of proportion of Aboriginal and non-Aboriginal women in the 31-50 year old age category who were satisfied with specific body parts

Note. *p<0.05, **p<0.01, Chi-square analyses performed on body satisfaction variables (collapsed categories of satisfied/very satisfied = satisfied and dissatisfied/very dissatisfied = dissatisfied). Only the satisfied results are displayed in the figure above.

Figure F9 shows that among the 31-50 year old women, on all items proportionately more non-Aboriginal women were satisfied with certain aspects of their bodies, and hence that Aboriginal women reported less satisfaction. 2x2 chi-square analyses revealed these differences were statistically significant on the items satisfaction with weight (χ²= 5.18, df=1, p=0.023), muscle size (χ²= 7.43, df=1, p=0.006), hips (χ²= 09.19, df=1, p=0.002), abdominal muscles/stomach (χ²= 6.43, df=1, p=0.011), and size/width of shoulders (χ²= 9.51, df=1, p=0.002). The remaining items (shape, thighs, chest, legs, and arms) did not reach statistical significance.
Table F7

Comparison of body satisfaction among Aboriginal and non-Aboriginal women in the 50 years or older age category

<table>
<thead>
<tr>
<th>Body Satisfaction</th>
<th>Aboriginal females (N=44)</th>
<th>Non-Aboriginal females (N=117)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Satisfied</td>
<td>Satisfied</td>
<td>Dissatisfied</td>
</tr>
<tr>
<td>Weight</td>
<td>2.3 (1)</td>
<td>25.0 (11)</td>
<td>50.0 (22)</td>
</tr>
<tr>
<td>Shape</td>
<td>0.0 (0)</td>
<td>37.2 (16)</td>
<td>44.2 (19)</td>
</tr>
<tr>
<td>Muscle Size</td>
<td>2.3 (1)</td>
<td>43.2 (19)</td>
<td>34.1 (15)</td>
</tr>
<tr>
<td>Hips</td>
<td>4.7 (2)</td>
<td>55.8 (24)</td>
<td>27.9 (12)</td>
</tr>
<tr>
<td>Thighs</td>
<td>7.0 (3)</td>
<td>37.2 (16)</td>
<td>44.2 (19)</td>
</tr>
<tr>
<td>Chest</td>
<td>4.5 (2)</td>
<td>72.7 (32)</td>
<td>9.1 (4)</td>
</tr>
<tr>
<td>Abdominal muscles/stomach</td>
<td>0.0 (0)</td>
<td>13.6 (6)</td>
<td>52.3 (23)</td>
</tr>
<tr>
<td>Size/width of shoulders</td>
<td>4.5 (2)</td>
<td>75.0 (33)</td>
<td>11.4 (5)</td>
</tr>
<tr>
<td>Legs</td>
<td>13.6 (6)</td>
<td>43.2 (19)</td>
<td>22.7 (10)</td>
</tr>
<tr>
<td>Arms</td>
<td>9.1 (4)</td>
<td>47.7 (21)</td>
<td>31.8 (14)</td>
</tr>
</tbody>
</table>

Note. *p< 0.05
Table F7 shows that among the 50 years or older women, for all body satisfaction items, Aboriginal women were more likely to report being *very dissatisfied* than non-Aboriginal women. The difference was marked for satisfaction with muscle size ($\chi^2= 10.69$, df=3, $p=0.014$) and chest, as Aboriginal women were more likely to report being *satisfied* or *very satisfied* with their chest than were their non-Aboriginal counterparts ($\chi^2= 8.89$, df=3, $p=0.028$).

For the remaining items (weight, shape, hips, thighs, abdominal muscles/stomach, size/width of shoulders, legs, and arms), the differences in the body satisfaction scores of Aboriginal and non-Aboriginal women in the 50 years or older age category did not reach statistical significance.
Figure F10

Comparison of proportion of Aboriginal and non-Aboriginal women in the 50 years or older age category who were satisfied with specific body parts

Note. Chi-square analyses performed on body satisfaction variables (collapsed categories of satisfied/very satisfied = satisfied and dissatisfied/very dissatisfied = dissatisfied). Only the satisfied results are displayed in the figure above.

Figure F10 shows that non-Aboriginal women were more likely to report being satisfied than were Aboriginal women on all items except satisfaction with hips and chest. 2x2 chi-square analyses revealed the difference between Aboriginal and non-Aboriginal women was not statistically significant on any item (weight $\chi^2=3.60$, df=1, p=0.058; shape $\chi^2=2.24$, df=1, p=0.134; muscles $\chi^2=0.60$, df=1, p=0.440; hips $\chi^2=0.00$, df=1, p=1.000; thighs $\chi^2=0.18$, df=1, p=0.670; chest $\chi^2=0.66$, df=1, p=0.417; abdominal muscles/stomach $\chi^2=0.46$, df=1, p=0.498; shoulders $\chi^2=2.10$, df=1, p=0.147; legs $\chi^2=0.07$, df=1, p=0.791; arms $\chi^2=0.01$, df=1, p=0.946).
Table F8

A comparison of weight change behaviours among Aboriginal and non-Aboriginal women by geographic location

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N = 201)</th>
<th>Non-Aboriginal women (N = 412)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>81.3 (104)</td>
<td>18.8 (24)</td>
<td>86.9 (245)</td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>55.8 (72)</td>
<td>44.2 (57)</td>
<td>56.7 (160)</td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18.6 (24)</td>
<td>81.4 (105)</td>
<td>13.5 (38)</td>
</tr>
<tr>
<td>Currently trying to gain weight</td>
<td>7.0 (9)</td>
<td>93.0 (120)</td>
<td>2.5 (7)</td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>85.7 (72)</td>
<td>14.3 (12)</td>
<td>87.4 (111)</td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>60.7 (51)</td>
<td>39.3 (33)</td>
<td>53.1 (68)</td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18.3 (39)</td>
<td>81.7 (174)</td>
<td>12.7 (52)</td>
</tr>
<tr>
<td>Currently trying to gain weight</td>
<td>6.0 (5)</td>
<td>94.0 (79)</td>
<td>0.8 (1)</td>
</tr>
</tbody>
</table>

Table F8 displays the results of Aboriginal and non-Aboriginal women’s weight change behaviours by geographic location. For all items and regardless of geographic location, Aboriginal and non-Aboriginal women had similar reported behaviours, showing high proportions of the women had tried to lose weight and over half from both groups were currently trying to lose weight. Table F8 above also shows that the women, from both rural and urban locations were much more likely to try to lose weight than to try to gain weight. Regardless of geographic location, attempts to gain weight were more common among Aboriginal women, although this difference did not reach statistical difference.
Table F9

*A comparison of weight change behaviours of Aboriginal and non-Aboriginal by age category*

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Aboriginal women (N = 213)</th>
<th>Non-Aboriginal women (N = 411)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n)</td>
<td>No (n)</td>
<td>Yes (n)</td>
</tr>
<tr>
<td>Less than 30 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td>76.9 (60)</td>
<td>23.1 (18)</td>
<td>87.1 (128)</td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>57.7 (45)</td>
<td>42.3 (33)</td>
<td>55.8 (82)</td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td>20.5 (16)</td>
<td>79.5 (62)</td>
<td>9.5 (14)</td>
</tr>
<tr>
<td>Currently trying to gain weight</td>
<td>9.0 (7)</td>
<td>91.0 (71)</td>
<td>2.7 (4)</td>
</tr>
<tr>
<td>31-50 years old</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td>85.6 (77)</td>
<td>14.4 (13)</td>
<td>87.7 (128)</td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>54.9 (50)</td>
<td>45.1 (41)</td>
<td>53.4 (78)</td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td>17.6 (16)</td>
<td>82.4 (75)</td>
<td>13.7 (20)</td>
</tr>
<tr>
<td>Currently trying to gain weight</td>
<td>5.5 (5)</td>
<td>94.5 (86)</td>
<td>1.4 (2)</td>
</tr>
<tr>
<td>50 years or older</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td>88.6 (39)</td>
<td>11.4 (5)</td>
<td>86.2 (100)</td>
</tr>
<tr>
<td>Currently trying to lose weight</td>
<td>63.6 (28)</td>
<td>36.4 (16)</td>
<td>58.1 (68)</td>
</tr>
<tr>
<td>Tried to gain weight</td>
<td>15.9 (7)</td>
<td>84.1 (37)</td>
<td>15.4 (18)</td>
</tr>
<tr>
<td>Currently trying to gain weight</td>
<td>4.5 (2)</td>
<td>95.5 (42)</td>
<td>1.7 (2)</td>
</tr>
</tbody>
</table>

*Note.* *p*<0.05
Table F9 displays the results of the Aboriginal and non-Aboriginal women’s weight change desires by age category. Regardless of cultural group or age, there is a clear trend towards desiring weight loss. In every age category more Aboriginal and non-Aboriginal women reported previously trying to lose weight than reported currently trying to lose weight, although over half of all participants admitted to currently trying to lose weight.

Chi-square analyses (2x2 tables) were performed to determine any difference between the Aboriginal and non-Aboriginal women’s scores on the weight change behaviour items for each age category. In every age category, the weight change behaviours of Aboriginal and non-Aboriginal women were similar and did not reach statistical significance, except the less than 30 years age category where significantly higher proportions of Aboriginal women had previously tried to gain weight than had non-Aboriginal women ($\chi^2=4.42$, df=1, p=0.036). In every age category a higher percentage of Aboriginal women reported currently trying to gain weight than their non-Aboriginal counterparts, although this was still less than 10% and the difference did not reach statistical significance.

In summary, weight loss behaviours are widespread among both Aboriginal and non-Aboriginal women of all ages and geographic locations, with more than half of women currently attempting weight loss.
Figure F11

*Comparison of the proportion of urban Aboriginal and urban non-Aboriginal women who report increasing their exercise to increase the size of their muscles*

![Bar chart showing the proportion of urban Aboriginal and urban non-Aboriginal women who reported increasing their exercise to increase the size of their muscles.](image)

*Note.* Chi-square analyses for cultural background, geographic location and increasing exercise for increased muscles = 3.48, df=3, p=0.323

Figure F11 shows the proportion of urban Aboriginal and urban non-Aboriginal women who reported increasing their exercise to increase the size of their muscles. The data show that relatively fewer urban Aboriginal women report *always* or *almost always* increasing their exercise to increase the size of their muscles, whilst more than half of the Aboriginal women reported *sometimes* doing this. 2x4 chi-square analysis revealed no significant difference in the scores.
Figure F12

Comparison of the proportion of rural Aboriginal and rural non-Aboriginal women who report increasing their exercise to increase the size of their muscles

Note. Chi-square analyses for cultural background, geographic location and increasing exercise for increased muscles = 5.53, df=3, p=0.137

Figure F12 displays the results of rural Aboriginal and rural non-Aboriginal women for the question “how often do you increase your exercise to increase the size of your muscles?” The figure shows a pattern of rural Aboriginal women being more likely to increase their exercise to increase the size of their muscles. Despite this pattern, 2x4 chi-square analysis revealed no significant difference in the proportion of rural Aboriginal and non-Aboriginal women who increase their exercise to increase the size of their muscles.
Figure F13

*Comparison of the proportion of Aboriginal and non-Aboriginal women in the less than 30 years old age category who report increasing their exercise to increase the size of their muscles*

![Bar chart showing the proportion of Aboriginal and non-Aboriginal women in the less than 30 years old age category who report increasing their exercise to increase the size of their muscles. The chart indicates that both groups of women were most likely to report *sometimes* for this behaviour, followed by *never* as the most common responses. There was no significant difference in the scores of Aboriginal and non-Aboriginal women.]

*Note.* Chi-square analyses for cultural background, age and increasing exercise for increased muscles = 2.27, df = 3, p=0.550

Figure F13 displays a comparison of the proportion of Aboriginal and non-Aboriginal women in the less than 30 years old age category who reported increasing their exercise to increase the size of their muscles. Both groups of women were most likely to report *sometimes* for this behaviour, followed by *never* as the most common responses. There was no significant difference in the scores of Aboriginal and non-Aboriginal women.
Figure F14

Comparison of the proportion of Aboriginal and non-Aboriginal women in the 31-50 year old age category who reported increasing their exercise to increase the size of their muscles

Note. Chi-square analyses for cultural background, age and increasing exercise for increased muscles = 9.51*, df = 3, p=0.023

Figure F14 displays a comparison of the proportion of Aboriginal and non-Aboriginal women in the 31-50 year old age category who reported increasing their exercise to increase the size of their muscles. Non-Aboriginal women were more likely to report *always or almost always* than were Aboriginal women, although these levels were similar. Aboriginal women were almost 20% more likely to report *sometimes* as the frequency of the behaviour, whilst non-Aboriginal women were almost 20% more likely to report *never* increasing their exercise to increase the size of their muscles. The scores of Aboriginal and non-Aboriginal women in this age category were significantly different on this item.
Figure F15

Comparison of the proportion of Aboriginal and non-Aboriginal women in the 50 years or older age category who reported increasing their exercise to increase the size of their muscles

Note. Chi-square analyses for cultural background, age and increasing exercise for increased muscles = 3.13, df = 3, p=0.370

Figure F15 displays a comparison of the proportion of Aboriginal and non-Aboriginal women in the 50 years or older age category who reported increasing their exercise to increase the size of their muscles. Both groups of women were unlikely to report *always* or *almost always* for this behaviour. Aboriginal women were most likely to report *never* while non-Aboriginal women were most likely to report *sometimes*. There was no significant difference in the Aboriginal and non-Aboriginal women’s scores on this item.
Figure F16

Comparison of the proportion of urban Aboriginal and urban non-Aboriginal women who reported increasing their eating to increase the size of their muscles

Note. Chi-square analyses for cultural background, geographic location and increasing eating for increased muscles = 12.11**, df=3, p=0.006

Figure F16 displays the results of urban Aboriginal and urban non-Aboriginal women to the question “how often do you increase your eating to increase the size of your muscles?” The figure shows that urban Aboriginal women were more likely to increase their eating to increase the size of their muscles than their urban non-Aboriginal counterparts. A chi-square revealed a significant difference in the scores of urban Aboriginal and urban non-Aboriginal women on this item with urban Aboriginal women more likely to report eating to enhance muscle size.
Comparison of the proportion of rural Aboriginal and rural non-Aboriginal women who reported increasing their eating to increase the size of their muscles

Note. Chi-square analyses for cultural background, geographic location and increasing eating for increased muscles =25.11***, df=3, p=0.000

Figure F17 displays the results of the rural Aboriginal and rural non-Aboriginal women for the question “how often do you increase your eating to increase the size of your muscles?” Rural Aboriginal women were more likely than rural non-Aboriginal women to report this behaviour, with 29.4% reporting some form of eating for muscle increase. The trend shows that the rural women, both Aboriginal and non-Aboriginal were unlikely to report engaging in this behaviour. A 2x4 chi-square analysis indicated a highly significant difference in the scores of rural Aboriginal and rural non-Aboriginal women for the frequency of increasing their eating to increase the size of their muscles.
Figure F18

*Comparison of the proportion of Aboriginal and non-Aboriginal women in the less than 30 year old age category who reported increasing their eating to increase the size of their muscles*

![Bar chart showing the proportion of Aboriginal and non-Aboriginal women reporting increased eating to increase muscle size.](image)

*Note.* Chi-square analyses for cultural background, age and increasing eating for increased muscles = 20.23***, df = 3, p=0.000

Figure F18 shows that it was unlikely for non-Aboriginal women in the less than 30 years age group to engage in this behaviour, as over 90% selected *never*. Over 70% of Aboriginal women also selected never, although greater proportions selected *sometimes, almost always* or *always*. According to 2x4 chi-square analyses this difference was highly significant.
**Figure F19**

*Comparison of the proportion of Aboriginal and non-Aboriginal women in the 31-50 year old age category who reported increasing their eating to increase the size of their muscles*

Note. Chi-square analyses for cultural background, age and increasing eating for increased muscles = 14.48**, df = 3, p=0.001

Figure F19 shows that it was unlikely for non-Aboriginal women in this age category to engage in this behaviour, as over 90% selected *never*. Over 70% of Aboriginal women also selected *never*, although greater proportions selected *sometimes*, *almost always* or *always* than did their non-Aboriginal counterparts. According to 2x4 chi-square analyses this difference was highly significant.
Figure F20

Comparison of the proportion of Aboriginal and non-Aboriginal women in the 50 years or older age category who reported increasing their eating to increase the size of their muscles

Note. Chi-square analyses for cultural background, age and increasing eating for increased muscles = 0.49, df = 1, p = 0.729

Figure F20 shows that it was unlikely for women from both groups in this age category to engage in this behaviour, as over 90% selected never. No participants in either group selected always or almost always increasing their eating to increase the size of their muscles. Due to insufficient cell numbers, chi-square analyses were performed on the 2x2 table of sometimes and never. No significant difference was found.
Figure F21

Comparison of the distribution of the Stunkard ‘current self’ Figure Rating Scale of urban Aboriginal and urban non-Aboriginal women

Note. \( \chi^2 = 17.25^*, \text{df } = 8, p=0.020, \) perceived current self = figures 1-9, 1 being emaciated, 9 being obese.

Figure F21 shows the comparison of the urban Aboriginal and urban non-Aboriginal women for the Stunkard Figure Rating Scale on the item “which female figure looks most like you” (current self). A chi-square for independence (2x9 tables) was performed to examine the impact of cultural background on current self scores of the urban women. Urban Aboriginal women were significantly more likely than urban non-Aboriginal women to believe their body looked like one of the larger figures from five through eight. This difference was significant.
Figure F22

Comparison of the distribution of the Stunkard ‘current self’ Figure Rating Scale of rural Aboriginal and rural non-Aboriginal women

Note.  $\chi^2 = 9.64$, df = 8, p=0.292, perceived current self = figures 1-9, 1 being emaciated, 9 being obese.

Figure F22 shows the results of the rural Aboriginal and rural non-Aboriginal women for the Stunkard Figure Rating Scale on the current perceived self item “which female figure looks most like you” (current self). The rural Aboriginal women were less likely than the rural non-Aboriginal women to perceive themselves as average figures (figures 4 & 5) and were more likely to perceive themselves as much bigger (figures 6-9). A chi-square for independence (2x9 tables) was performed to examine the impact of cultural background on current self scores of the rural women and revealed the difference between rural Aboriginal and rural non-Aboriginal women on this item was not significant.
Figure F23

Comparison of the distribution of the Stunkard ‘ideal self’ Figure Rating Scale of urban Aboriginal and urban non-Aboriginal women

Note. $\chi^2 = 4.99$, df = 6, $p = 0.571$, perceived ideal self = figures 1-9, 1 being emaciated, 9 being obese.

Figure F23 shows the proportion of urban Aboriginal and urban non-Aboriginal women for their ideal self figure rating “which female figure would you most like to look like” (ideal self). Figure two was the modal score among both groups of women and participants were unlikely to select any figures larger than five. A chi-square for independence (2x9 tables) was performed to examine the impact of cultural background on ideal self scores of the urban women and revealed the difference between urban Aboriginal and urban non-Aboriginal women on this item was not significant.
Figure F24

Comparison of the distribution of the Stunkard ‘ideal self’ Figure Rating Scale of rural Aboriginal and rural non-Aboriginal women

Note. $\chi^2 = 10.22$, df = 5, p=0.060, perceived ideal self = figures 1-9, 1 being emaciated, 9 being obese.

Figure F24 shows the proportion of selections of rural Aboriginal and rural non-Aboriginal women for the “figure you would most like to look like” (ideal self) on Stunkard Figure Rating Scale. Both rural Aboriginal and non-Aboriginal women only selected items six or lower as their ideal self, showing no desire for the larger figures of seven through nine. Figure two was marginally the most popular for the non-Aboriginal women, whilst figure three was most popular for Aboriginal women. A chi-square for independence (2x9 tables) was performed to examine the impact of cultural background on ideal self scores of the rural women and revealed the difference between rural Aboriginal and rural non-Aboriginal women on this item was near but did not reach statistical significance.
Figure F25

*Comparison of the distribution of the Stunkard ‘ideal female’ Figure Rating Scale of urban Aboriginal and urban non-Aboriginal women*

![Bar chart showing comparison of ideal female figures for urban Aboriginal and non-Aboriginal women.](chart.png)

*Note.* $\chi^2 = 14.92^{**}$, df = 5, *p*=0.007, ideal female = figures 1-9, 1 being emaciated, 9 being obese.

Figure F25 depicts the results of urban Aboriginal and urban non-Aboriginal women for the Stunkard figure rating scale item “which female figure looks best” (ideal female). Results show that the majority of both the urban Aboriginal and urban non-Aboriginal women think figure two “looks best”, and few selected any figure beyond four as ideal. A chi-square for independence (2x5 tables) was performed to examine the impact of cultural background on ideal female scores of the urban women and revealed the difference between urban Aboriginal and urban non-Aboriginal women on this item was significant.
Figure F26

Comparison of the distribution of the Stunkard ‘ideal female’ Figure Rating Scale of rural Aboriginal and rural non-Aboriginal women

Note. $\chi^2 = 17.68^{**}$, df = 5, $p=0.001$, ideal female = figures 1-9, 1 being emaciated, 9 being obese.

Figure F26 displays the proportion of responses of rural Aboriginal and rural non-Aboriginal women to the question “which female figure looks best” (ideal female) on the Stunkard Figure Rating Scale. The Figure shows participants were most likely to select figures two, three or four, with Aboriginal women being the only ones to select figure one or six. Regardless of cultural background, no participants selected any ideal female figure larger than six. A chi-square for independence (2x5 tables) was performed to examine the impact of cultural background on ideal female scores of the rural women and revealed the difference between rural Aboriginal and rural non-Aboriginal women on this item was significant.
Figure F27

Comparison of the distribution of the Stunkard ‘ideal male’ Figure Rating Scale of urban Aboriginal and urban non-Aboriginal women

Note. $\chi^2 = 9.98$, df = 5, p=0.065, ideal male = figures 1-9, 1 being emaciated, 9 being obese.

Figure F27 shows the selections of urban Aboriginal and urban non-Aboriginal women for the ideal male figure (“which male figure looks best”) based on the Stunkard Scale. This shows that the majority of participants selected figure three or figure four and no participants selected any figure higher than figure six. The urban non-Aboriginal women selected only scores between 2-5, while urban Aboriginal women had a larger range, selecting figures between one and six. A chi-square for independence (2x6 tables) indicated this difference was near but did not reach statistical significance.
Figure F28

Comparison of the distribution of the Stunkard ‘ideal male’ Figure Rating Scale of rural Aboriginal and rural non-Aboriginal women

Note. $\chi^2 = 4.25$, df = 5, p=0.539, ideal male = figures 1-9, 1 being emaciated, 9 being obese.

Figure F28 shows the scores of rural Aboriginal and rural non-Aboriginal women for the ideal male figure (“which male figure looks best”). Figure four was the most popular among both groups and few participants selected figures one, two, five or six. No participants selected any figure larger than six. A chi-square for independence (2x6 tables) was performed to examine the impact of cultural background on ideal male scores of the rural women and revealed the difference between rural Aboriginal and rural non-Aboriginal women on this item was not significant.
Table F10

*A comparison of the mean (SD) Stunkard body size perception ratings of Aboriginal and non-Aboriginal women by geographic location*

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N=209)</th>
<th></th>
<th>Non-Aboriginal women (N=411)</th>
<th></th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td><strong>Urban women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current self</td>
<td>4.32</td>
<td>1.75</td>
<td>4.00</td>
<td>1.47</td>
<td>a 5.71*</td>
</tr>
<tr>
<td>Ideal self</td>
<td>2.82</td>
<td>1.04</td>
<td>2.71</td>
<td>1.00</td>
<td>2.63</td>
</tr>
<tr>
<td>Ideal female</td>
<td>2.75</td>
<td>0.97</td>
<td>2.51</td>
<td>0.85</td>
<td>a 9.21**</td>
</tr>
<tr>
<td>Ideal male</td>
<td>3.56</td>
<td>0.95</td>
<td>3.52</td>
<td>0.82</td>
<td>0.70</td>
</tr>
<tr>
<td>Discrepancy score</td>
<td>1.50</td>
<td>1.50</td>
<td>1.31</td>
<td>1.07</td>
<td>2.39</td>
</tr>
<tr>
<td><strong>Rural women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current self</td>
<td>5.00</td>
<td>1.86</td>
<td>4.60</td>
<td>1.53</td>
<td>4.23*</td>
</tr>
<tr>
<td>Ideal self</td>
<td>3.17</td>
<td>1.12</td>
<td>2.98</td>
<td>0.92</td>
<td>3.95*</td>
</tr>
<tr>
<td>Ideal female</td>
<td>2.91</td>
<td>1.10</td>
<td>2.85</td>
<td>0.77</td>
<td>1.00</td>
</tr>
<tr>
<td>Ideal male</td>
<td>3.62</td>
<td>0.87</td>
<td>3.59</td>
<td>0.77</td>
<td>0.13</td>
</tr>
<tr>
<td>Discrepancy score</td>
<td>1.80</td>
<td>1.53</td>
<td>1.64</td>
<td>1.31</td>
<td>0.70</td>
</tr>
</tbody>
</table>

*Note.* a Significant at p<0.025 due to violation of homogeneity of variance assumption (Tabachnick & Fidell, 2013), * p<0.05, ** p<0.01
Table F10 on the previous page shows mean (SD) scores of the Aboriginal and non-Aboriginal women for the Stunkard Figural Rating Scales by geographic location (urban/rural). Regardless of geographic location, Aboriginal women had greater mean scores than non-Aboriginal women for all figure rating items. A one-way analysis of covariance (ANCOVA) controlling for age as a covariate was conducted to compare the scores of the Aboriginal and non-Aboriginal women on the four items of the Stunkard Figure Rating Scale perceived current self, ideal self, ideal female, ideal male as well as the discrepancy score. The discrepancy score was calculated to indicate the degree of body dissatisfaction (current self – ideal self). The independent variable was cultural background (Aboriginal/non-Aboriginal) and the dependent variable was the item from the Stunkard Scale.

After adjusting for age, there was a significant difference in the urban Aboriginal and urban non-Aboriginal women’s scores for current self (F (1, 405) =5.71, p= 0.017), and ideal female (F (1, 398) = 9.21, p=0.003), but not for ideal self (F (1, 403) = 2.63, p=0.106) or ideal male (F (1, 399) = 0.15, p=0.698). Urban Aboriginal women had a larger mean discrepancy score than did urban non-Aboriginal women indicating a greater degree of body dissatisfaction overall, although this was not statistically significant (F (1, 402) = 2.39, p=0.123).

Among the rural women, after adjusting for age, there was a significant difference in the rural Aboriginal and rural non-Aboriginal women’s scores for current self (F (1, 210) = 4.23, p=0.041) and ideal self (F (1, 209) = 3.95, p=0.048), but not for ideal female (F (1, 205) = 1.00, p=0.320) or ideal male (F (1, 207) = 0.13, p=0.720). The rural Aboriginal women also had larger mean discrepancy scores than rural non-Aboriginal women, although this was not statistically significant (F (1, 209) = 0.70, p=0.403).

Table F10 also shows that regardless of cultural background, the rural women had greater mean scores on all items than the urban women. In summary, the Aboriginal women consistently reported bigger ideal figures and greater dissatisfaction than their non-Aboriginal counterparts.
The following analyses explore the differences in the Body Appearance Ratings of Aboriginal and non-Aboriginal women by geographic location to assess perception of physical appearance using a self-perception rating score from zero to ten (10 being perfect). This explores how participants rate their own body appearance (self score) and their perceptions of how other people, people of the opposite sex (opposite sex score), women in your family (female family score) and men in your family (male family score) would rate them.

Figure F29

Comparison of the ‘self’ scores of urban Aboriginal and urban non-Aboriginal women about the way they look

Note. $\chi^2 = 24.67^{**}$, df = 9, p=0.004, physical self-perception score = rating for “how you think you look” from 0-10 (10 being perfect).

Figure F29 shows that for their physical self-perception, the urban Aboriginal women were more likely to score themselves at the extremities (1-2, 10) than were their urban non-Aboriginal counterparts. According to a chi-square for independence (2x10 tables) the physical self-perception scores of urban Aboriginal and urban non-Aboriginal women were significantly different.
Comparison of the ‘self’ scores of rural Aboriginal and rural non-Aboriginal women about the way they look

Figure F30 shows that for their physical self-perception the rural Aboriginal women were more likely to score themselves at the extremities (0-3 and 10) than were non-Aboriginal women. According to a chi-square for independence (2x10 tables) the self scores of rural Aboriginal and rural non-Aboriginal women were not significantly different.
Figure F31

Comparison of the ‘other people’ scores of urban Aboriginal and urban non-Aboriginal women about the way they look

Note. $\chi^2 = 23.32^{**}$, df = 9, p=0.003, other people scores = rating for “how you think other people think you look” from 0-10 (10 being perfect).

Figure F31 shows that for their perception of others’ opinion, the urban Aboriginal women were more likely to select the extremities (1-2 and 8-10) than were the urban non-Aboriginal women. According to a chi-square for independence (2x10 tables) the perception of other people scores of urban Aboriginal and urban non-Aboriginal women were not significantly different.
Figure F32

Comparison of the ‘other people’ scores of rural Aboriginal and rural non-Aboriginal women about the way they look

Note. $\chi^2 = 11.69$, df = 9, p=0.228, other people scores = rating for “how you think other people think you look” from 0-10 (10 being perfect).

Figure F32 shows that for their perception of other’s opinions, the rural Aboriginal women were more likely to select the extremities (1-2 and 9-10) than were the rural non-Aboriginal women. According to a chi-square for independence (2x10 tables) the perception of other people scores of rural Aboriginal and rural non-Aboriginal women were significantly different.
Figure F33

Comparison of the ‘opposite sex’ scores of urban Aboriginal and urban non-Aboriginal women about the way they look

Note. $\chi^2=18.88^*, df=10, p=0.038$, opposite sex scores = rating for “how you think people of the opposite sex think you look” from 0-10 (10 being perfect).

Figure F33 shows that for the opposite sex perceptions, the urban Aboriginal women were more likely to select the extremities (0-4 and 8-10), whilst urban non-Aboriginal women were more likely to select the scores in the mid-range (5-7). A chi-square for independence (2x10 tables) was performed and showed that scores were significantly different for urban Aboriginal and urban non-Aboriginal women.
Comparison of the ‘opposite sex’ scores of rural Aboriginal and rural non-Aboriginal women about the way they look

Figure F34 shows that, for the opposite sex perception, a greater proportion of rural Aboriginal than rural non-Aboriginal women selected the upper and lower scores (1-3 and 9-10), whilst the rural non-Aboriginal women showed a greater tendency to select the mid-range scores of four through six. A chi-square for independence (2x10 tables) was performed and showed that scores were not significantly different among the rural Aboriginal and rural non-Aboriginal women.

Note: $\chi^2=12.25^*, \text{df} = 9, p=0.203$, opposite sex scores = rating for “how you think people of the opposite sex think you look” from 0-10 (10 being perfect).
Figure F35

Comparison of the ‘female family’ scores of urban Aboriginal and urban non-Aboriginal women about the way they look

Note. $\chi^2 = 13.08, \text{df} = 9, p=0.159$, female family scores = rating for “how you think the women in your family think you look” from 0-10 (10 being perfect).

Figure F35 shows that, for the female family scores, a greater proportion of urban Aboriginal than urban non-Aboriginal women selected the upper and lower scores (1-4 and 9-10). A chi-square for independence (2x10 tables) was performed to examine the impact of cultural background on perception of female relative scores and found no significant difference in the urban Aboriginal and urban non-Aboriginal womens’ scores.
Comparison of the ‘female family’ scores of rural Aboriginal and rural non-Aboriginal women about the way they look

Figure F36 shows that for the female family scores, the rural non-Aboriginal women’s scores follow a normal bell curve, whilst the rural Aboriginal women’s selections are more haphazard. A chi-square for independence (2x10 tables) was performed to examine the impact of cultural background on perception of female relative scores and found rural Aboriginal and rural non-Aboriginal women’s scores were significantly different.

Note. $\chi^2 = 20.53^*$, df = 10, p=0.017, female family scores = rating for “how you think the women in your family think you look” from 0-10 (10 being perfect).
Comparison of the ‘male family’ scores of urban Aboriginal and urban non-Aboriginal women about the way they look

Note: $\chi^2 = 12.72$, df = 9, p=0.173, male family score= rating for “how you think the men in your family think you look” from 0-10 (10 being perfect).

Figure F37 shows that for the male family score, the urban Aboriginal women were more likely to select the extremities (1-2 and 9-10) compared to the urban non-Aboriginal women. A chi-square for independence (2x10 tables) was performed to examine the impact of cultural background on perception of men scores and revealed no significant difference in scores of urban Aboriginal and urban non-Aboriginal women.
Figure F38

*Comparison of the ‘male family score’ of rural Aboriginal and rural non-Aboriginal women about the way they look*

![Bar chart showing comparison between rural Aboriginal and rural non-Aboriginal women on male family score.](image)

**Note.**  \( \chi^2 = 17.47, \text{df} = 10, \ p = 0.054, \) male family score = rating for “how you think the men in your family think you look” from 0-10 (10 being perfect).

Figure F38 displays that for the male family score, the rural Aboriginal women were more likely to select the extremities (0-4 and 9-10) than were the rural non-Aboriginal women. A chi-square for independence (2x10 tables) was performed to examine the impact of cultural background on perception of male family members’ scores and revealed no significant difference in scores of rural Aboriginal and rural non-Aboriginal women.
Table F11

A comparison of the mean (SD) Body Appearance Ratings of Aboriginal and non-Aboriginal women by urban or rural geographic location

<table>
<thead>
<tr>
<th>Body Appearance Rating Item</th>
<th>Mean (n=125)</th>
<th>SD</th>
<th>Mean (n=281)</th>
<th>SD</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aboriginal women (N=173)</strong></td>
<td></td>
<td></td>
<td><strong>Non-Aboriginal women (N=378)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban women</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>5.98</td>
<td>1.84</td>
<td>6.24</td>
<td>1.36</td>
<td>3.01</td>
</tr>
<tr>
<td>Other people</td>
<td>5.95</td>
<td>2.05</td>
<td>6.23</td>
<td>1.47</td>
<td>2.92</td>
</tr>
<tr>
<td>Opposite sex</td>
<td>5.84</td>
<td>2.26</td>
<td>5.97</td>
<td>1.70</td>
<td>0.55</td>
</tr>
<tr>
<td>Female family</td>
<td>7.01</td>
<td>2.07</td>
<td>6.98</td>
<td>1.73</td>
<td>0.06</td>
</tr>
<tr>
<td>Male family</td>
<td>6.82</td>
<td>2.08</td>
<td>6.86</td>
<td>1.76</td>
<td>0.24</td>
</tr>
<tr>
<td>Rural women</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>5.55</td>
<td>1.91</td>
<td>5.75</td>
<td>1.56</td>
<td>0.75</td>
</tr>
<tr>
<td>Other people</td>
<td>5.68</td>
<td>2.08</td>
<td>5.83</td>
<td>1.64</td>
<td>0.60</td>
</tr>
<tr>
<td>Opposite sex</td>
<td>5.49</td>
<td>2.29</td>
<td>5.53</td>
<td>1.84</td>
<td>0.04</td>
</tr>
<tr>
<td>Female family</td>
<td>6.60</td>
<td>2.34</td>
<td>6.33</td>
<td>1.84</td>
<td>0.04</td>
</tr>
<tr>
<td>Male family</td>
<td>6.29</td>
<td>2.40</td>
<td>6.36</td>
<td>1.77</td>
<td>0.62</td>
</tr>
</tbody>
</table>
Table F11 shows mean (SD) scores of the Aboriginal and non-Aboriginal women for the Body Appearance Ratings by urban or rural geographic location. One-way analysis of covariance (ANCOVA) controlling for age as a covariate was conducted to compare the scores of Aboriginal and non-Aboriginal women from urban and rural locations on the five Body Appearance Rating items (self, other people, opposite sex, female family and male family). The independent variable was cultural background (Aboriginal/non-Aboriginal) and the dependent variable was the item from the body appearance rating.

After controlling for age, the scores of urban Aboriginal and non-Aboriginal women were similar for their perceptions for all body appearance rating items (Self F (1, 404) =3.01, p=0.084; Other people F (1, 395) = 2.92, p=0.088; Opposite sex F (1, 392) = 0.55, p=0.46; Female family F (1, 402) = 0.06, p=0.804; and Male family F (1, 391) = 0.24, p=0.622).

Among the rural women, after adjusting for age, there was no significant difference in the rural Aboriginal and rural non-Aboriginal women’s scores for Self (F (1, 209) = 0.75, p=0.388), other people (F (1, 204) = 0.60, p=0.439), Opposite sex (F (1, 203) = 0.04, p=0.837), Female family (F (1, 203) = 0.04, p=0.850) or Male family (F (1, 204) = 0.62, p=0.431).

Interestingly, the rural women, regardless of cultural background had lower scores on each item than their urban counterparts. Further, regardless of cultural background or geographic location, there is a trend toward higher scores regarding male and female family perceptions.
Table F12

Comparison of the proportion of Aboriginal and non-Aboriginal women who currently play sport by geographic location

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal women (N=197)</th>
<th>Non-Aboriginal women (N=393)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Urban women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plays sport “yes”</td>
<td>35.6 (42)</td>
<td></td>
<td>36.4 (98)</td>
</tr>
<tr>
<td>Does not play sport “no”</td>
<td>64.4 (76)</td>
<td></td>
<td>63.6 (171)</td>
</tr>
<tr>
<td>Rural women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plays sport “yes”</td>
<td>40.5 (32)</td>
<td></td>
<td>32.3 (40)</td>
</tr>
<tr>
<td>Does not play sport “no”</td>
<td>59.5 (47)</td>
<td></td>
<td>67.7 (84)</td>
</tr>
</tbody>
</table>

Table F12 shows no significant difference in the proportion of urban women who reported playing sport ($\chi^2=0.03$, df=1, p=0.874). There was also no significant difference in the proportion of rural women who reported playing sport ($\chi^2=1.43$, df=1, p=0.231).
Table F13

Comparison of the proportion of Aboriginal and non-Aboriginal women who currently play sport by age category.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Aboriginal Women (N=197)</th>
<th>Non-Aboriginal Women (N=393)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 30 years</td>
<td>(% n)</td>
<td>(% n)</td>
<td></td>
</tr>
<tr>
<td>Plays sport “yes”</td>
<td>67.6 (48)</td>
<td>48.2 (67)</td>
<td>6.38*</td>
</tr>
<tr>
<td>Does not play sport “no”</td>
<td>32.4 (23)</td>
<td>51.8 (72)</td>
<td></td>
</tr>
<tr>
<td>31-50 years</td>
<td>(% n)</td>
<td>(% n)</td>
<td></td>
</tr>
<tr>
<td>Plays sport “yes”</td>
<td>26.5 (22)</td>
<td>30.7 (43)</td>
<td>0.27</td>
</tr>
<tr>
<td>Does not play sport “no”</td>
<td>73.5 (61)</td>
<td>69.3 (97)</td>
<td></td>
</tr>
<tr>
<td>50&lt; years</td>
<td>(% n)</td>
<td>(% n)</td>
<td></td>
</tr>
<tr>
<td>Plays sport “yes”</td>
<td>9.3 (4)</td>
<td>24.6 (28)</td>
<td>3.59</td>
</tr>
<tr>
<td>Does not play sport “no”</td>
<td>90.7 (39)</td>
<td>75.4 (86)</td>
<td></td>
</tr>
</tbody>
</table>

Note. *p< 0.05

Table F13 shows that regardless of cultural group, the proportion of women playing sport decreases as the age group increases. For the less than 30 years age category, relatively more Aboriginal women participated in sport. A 2x2 chi-square analyses revealed this difference is statistically significant (\( \chi^2=6.38, \text{df}=1, p=0.012 \)).

In the 31-50 years age category, relatively fewer Aboriginal women reported currently playing sport, although this did not reach statistical significance (2x2 chi-square; \( \chi^2=0.27, \text{df}=1, p=0.606 \)). For the greater than 50 years age category, relatively more non-Aboriginal women engaged in sport, although this was still less than one quarter of the non-Aboriginal women in this age group. This disparity was near but did not reach statistical significance (\( \chi^2=3.59, \text{df}=1, p=0.058 \)).
Figure F39

Urban Aboriginal and urban non-Aboriginal women by body mass index (BMI) category

![Graph showing the percentage distribution of urban Aboriginal and urban non-Aboriginal women by BMI category. The graph compares the underweight, normal weight, overweight, and obese categories for each group.]

Note. Chi-square analyses for cultural background, urban living and weight category = 16.74**, df = 3, p = 0.001

Figure F39 shows that urban Aboriginal women are more likely than their urban non-Aboriginal counterparts to be underweight, overweight or obese, and less likely to be in the normal weight category.
Figure F40

*Rural Aboriginal and rural non-Aboriginal women by body mass index (BMI) category*

![Bar chart showing BMI categories for rural Aboriginal and rural non-Aboriginal women](chart.png)

*Note.* Chi-square analyses for cultural background, rural living and weight category = 18.42***, df=3, p=0.000

Figure F40 show that the rural Aboriginal women were more likely to be obese, but less likely to fall in the normal or overweight categories. 2x4 chi-square analyses revealed a highly significant difference in these proportions.
Aboriginal and non-Aboriginal women in the less than 30 year old age category according to body mass index (BMI) classification

Figure F41

Note. Chi-square analyses for cultural background, age and weight category = 29.44***, df=3, p=0.000

Figure F41 shows that in the less than 30 years age category, the Aboriginal women were more likely than non-Aboriginal women to be classified as underweight or obese, while non-Aboriginal women were more likely to be in the normal weight or overweight categories. 2x4 chi-square analyses revealed that overall the difference in these two groups for BMI classifications was highly significant.
Aboriginal and non-Aboriginal women in the 31-50 year old age category according to body mass index (BMI) classification

Figure F42 illustrates that in the 31-50 year old age category, the Aboriginal women were more likely than non-Aboriginal women to be classified as overweight or obese, whilst non-Aboriginal women were more likely to be in the underweight or normal weight categories. 2x4 chi-square analyses revealed that overall the difference in these two groups for BMI classifications was statistically significant.

Note. Chi-square analyses for cultural background, age and weight category = 11.18**, df=3, p=0.008
Figure F43

Aboriginal and non-Aboriginal women in the 50 years or greater age category according to body mass index (BMI) classification

Note. Chi-square analyses for cultural background, age and weight category = 14.86**, df = 3, p = 0.001

Figure F43 illustrates that in the 50 years or older age category, the Aboriginal women were more likely than non-Aboriginal women to be classified as overweight or obese, whilst non-Aboriginal women were more likely to be in the underweight or normal weight categories. 2x4 chi-square analyses revealed that overall the difference in these two groups for BMI classifications was statistically significant.