Body Change and Body Image

in Older Adulthood

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I certify that this is a true and accurate account of the work carried out. The thesis has been composed by myself and the work herein is my own.

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I. Acknowledgements

I would like to extend my unreserved gratitude to the participants of my study for their time and interest in the project; to the Pain Clinic Ninewells Hospital for providing a wonderful working environment, oh and the chocolate biscuits; to my supervisors Penelope Fraser and Paul Morris for their unceasing time and patience and for making me think! and finally to my family and friends for their love and encouragement and for making me laugh!

Dedicated to

Doris **Nanny** Elliott

and Frances **Frangran** Court

II. Abstract

II.i Background

In the course of their lives, individuals evolve a body image, which can be challenged due to ageing. Individuals who have difficulties reconciling their body image with reality may resort to various strategies, such as exercise and dieting, in order to cope. These behaviours may in turn result in more severe psychological problems, e.g. eating disorders, which are under researched in older adults. Body image, body change, physical illness and ways of coping with ageing have been researched to various degrees in older adults, but these findings have not been integrated. To justify the further investigation of eating disorders in older adults, these previous findings should be integrated and confirmed in a representative sample of the general population. The aim of this study was to assess gender differences in body image and to explore the associations between physical & psychological health and body image in an older adult non-clinical sample.

II.ii Methods

The study was between groups, cross-sectional in design comprising of a single administration of a combined self-report questionnaire as no intervention requiring a follow up was offered. The non-clinical sample was recruited through multiple channels i.e. community centres, church groups and the staff of a large teaching hospital. 103 women aged 50-96 and 57 men aged 50-84 returned a total of 160 completed questionnaires (80.0% of the questionnaires distributed).

II.iii Results

Older women were found to have more body image concerns than older men. Older women's body image concern was found to be associated with BMI, whereas older

men's body image concern was associated with BMI and physical health. Older women and men presented with similar negative attitudes towards ageing. Both older women and older men desired weight loss despite being of normal weight, although this was more common in older women.

Physical illness was not associated with psychological symptoms, physical illness was directly associated with body image concerns in older men only, while body image concerns in older women were associated with age controlling behaviours.

II.iv Summary

The current study demonstrates that the many of the associations relating to body image in younger populations are also present in older adults. These results, in combination with the literature on the aetiology of eating disorders, which emphasises the association with body image discontent, provides sufficient justification for epidemiological work to establish the prevalence of eating disorders in older adults. Ultimately, the current study serves as a staging point between the vast literature on body image in younger populations & the limited literature on body image in older adults and future research investigating gender differences in the components of *body images*.

III. Abbreviations

APA	American Psychiatric Association
BI Questionnaire	Body Image Questionnaire
BIBC Questionnaire	Body Image and Body Change Questionnaire
BMI	Body Mass Index
CBT	Cognitive Behavioural Therapy
DI	Dissatisfaction Index
DSM (IV TR)	Diagnostic and Statistical Manual Fourth Edition Text Revision
GHQ	General Health Questionnaire
GPHB	General Preventative Health Behaviours
RSE Scale	Rosenberg Self-Esteem Scale
SD	Standard Deviation

Word Count: 26,406
excluding references and appendices

IV. Contents

1. Introduction

> *'In a fraught world with rigid standards and labels, it is easy for me to think, I am too short, I am too dark, I am too heavy, my face is too round, I am too outspoken. On the worse days, all those negative images bear down on me; and I can hardly face myself in the mirror...'*
>
> Corinthians 15:1-11 (quotation submitted to the author by one of the participants in the study)

In the course of their lives, individuals evolve a body image, which can be challenged due to illness and ageing, the latter having the feature that worse is to come. Individuals who have difficulties reconciling their body image with reality may resort to various strategies, such as exercise (increase in the normal level of energy expenditure through physical activity) and dieting (an attempt to lose weight either by increasing fruit and vegetable intake, decreasing sugar and fat intake and or fasting and the skipping of meals), in order to cope. These behaviours may in turn result in more severe psychological problems, e.g. eating disorders (Ackard, Croll & Kearney-Cooke, 2002), which are under researched in older adults. Body image, body change, physical illness and ways of coping with ageing have been researched to various degrees in older adults but these findings have not been integrated.

1.1 Ageing

In 2025 there will be approximately 1.2 billion individuals over aged 60 years worldwide (WHO, 2002). Currently, in the UK 20.8% of the population is aged over 60 years and it is predicted that the figure will be 29.4% by 2025 (WHO, 2002). Given

the increasing numbers of older adults, the investigation of psychological factors associated with ageing is becoming increasingly relevant.

1.1.1 Negative Attitudes to Ageing

'Self being eclipsed by the body' Biggs (1994)

Negative beliefs about ageing and older adults are prevalent in Western societies and are likely to have been determined by cultural traditions and values (WHO, 2002). It is clear that the pervasive image of old age is one of mental and physical decline (Baltes, 1991). Biggs (1994) suggested that physical signs of ageing are a short hand method for categorising individuals within a value system, such as social usefulness. Biggs (1994) also highlighted the alteration in others' behaviours as a consequence of the aged appearance: he suggested that the changes in physical appearance, particularly to the face, associated with ageing are a mask that can not be removed and others respond and make assumptions about the older individual not in terms of their actual personality but the old age mask that they wear. Ultimately an older adult's appearance can lead to disenfranchisement in society. In Western societies, ageing is not only a process of physical decline but impairment of individuals' self-expression, which in turn will hinder a continued sense of personal meaning (Biggs, 1994).

Han, Morrison & Lean (1999) using silhouette photographs of a variety of body sizes and BMIs, demonstrated that a sample of 201 males and 161 females, ranging in age from 28 to 67 years, rated silhouettes of overweight individuals as significantly older and of poorer health. WHO (1999) reported myths surrounding ageing and highlighted that older adults are viewed as a homogeneous group who are frail; needing medical support; with nothing to contribute to society and who are an economic burden.

Bowd (2003) explored negative stereotyping of older adults, with particular reference to narrative jokes. He discovered that American jokes about older adults are based mainly on the assumption that ageing leads, inescapably, to dementia and to physical health problems, particularly impotency in men. Unattractiveness in women, especially sexually, was also a common theme. For example,

> *'A couple of old ladies were sitting on the patio in their twilight home. Both were very bored. One turned to the other and said "Nothing ever happens here. All the men are half dead. There's no fun."*
>
> *The other nodded. "Very well, let's do something to liven the place up."*
>
> *So they agreed to streak across the lawn to attract the attention of the old fellows sitting around sunning themselves.*
>
> *One old guy looked up and said to his neighbour, "Did you see that?"*
>
> *The other replied, "I think so. Couldn't say for certain. My eyes aren't too good these days. What were they wearing?"*
>
> *"Can't say for sure. But whatever it was it needed ironing."*

Bowd (2003)

In this joke, older men are portrayed as infirmed ("all the men are half dead") and having lost their faculties ("my eyes aren't too good these days" and by not realising the women were naked). The women are portrayed as sexually inappropriate (choosing to run around the grounds naked) and also as unattractive (having wrinkled and sagging skin).

Bowd (2003) cited Fiske (1998), who suggested that older adults were stereotyped in Western culture as 'ill, unattractive, asexual, senile, incompetent, ineffectual, slow, rigid, stingy, dull, forgetful, poor, isolated and conservative'. Further, Hummert (1993) suggested that older adults hold these beliefs themselves and that this may

have a relationship to changes in body image as they age or as they perceive their ageing processes. The extent to which the older adult subscribes to the negative stereotype affects their behaviour and may lead to 'passive acceptance of the supposed negative consequences of ageing' (Bowd, 2003).

1.1.2 Impact of Self Perceptions of Health and Health Behaviours

Attitudes to ageing could have a negative impact on an individual's health. Kuper & Marmot (2003) suggested that an individual's belief as to when middle age ends has a direct relationship to their perceived longevity and ultimately predicted future health status. They assessed a sample of 40 to 60 year old male (n=5262) and female (n=2277) British civil servants but although controlling for Body Mass Index, current health status, health behaviours, age, social factors and employment, they did not address psychological variables. Kuper & Marmot (2003) demonstrated that individuals in their sample who believed that middle age ended at less than 60 years were significantly more likely to have coronary heart disease at a seven year follow-up. They concluded that an individual's perceived age of leaving middle age is equivalent to a summary of their perceived rate of ageing. In addition, that the link between perceived age of leaving middle age and future health status may be causal, as if an individual believes that they have a minimal time left before death they will not engage in healthy behaviours, thus establishing a self-fulfilling prophecy.

Interestingly, Kuper & Marmot (2003) considered that individuals with unhealthy lifestyles may believe themselves to be older and report to becoming an older adult at an earlier chronological age.

1.1.3 Successful Ageing

In an attempt to modify society's and individuals' negative perceptions of ageing there has been a movement (research, clinical and political) in recent years relating to positive aspects of ageing and dispelling societal myths surrounding ageing. Successful ageing can be viewed as avoidance of significant physical and psychological illness; a lack of cognitive impairment and continued involvement in the society in which the older adult lives.

> *'**Active ageing** is the process of optimizing opportunities for health, participation and security in order to enhance the quality of life as people age.'*
>
> *WHO (2002)*

The WHO (2002) in their document Active Ageing: A Policy Framework advocated the continued active participation of older adults in social, economic, cultural, spiritual and civic aspects of society, despite any potential physical incapacities. It was hoped that this inclusion would foster a sense of well-being, good quality of life and facilitate the realisation of the individual's physical social and mental potential. WHO (2002) outlined a series of determinants which facilitate understanding of the ageing process and highlight potential areas for intervention, they include *Health and Social Services* (e.g. screening for disease), *Behavioural* (e.g. health promotion for smoking cessation), *Personal* (e.g. treatment of the negative psychological impact of illness), *Economic* (e.g. provision of pensions), *Social* (e.g. befriending services to reduce loneliness and increase social support) and *Physical environment* (e.g. provision of safe housing). Ultimately, the focus was one of independence and autonomy in older adulthood.

Moreover, Baltes' (1991) treatise on successful ageing posited strategies to adapt to the challenges of ageing, namely through the use of selection of tasks within a

person's current ability; optimization of skills through practice and compensation via the juxtaposition of tasks of differing challenges. Further, Baltes (1991) emphasised the need to understand the concept of ageing as heterogeneous (individual variation); one of normal and/or pathological processes; where there is a continued capacity for creativity and new learning; the accumulated knowledge of an ageing mind can compensation for potential cognitive decline and that the sense of self in not lost, remaining a powerful force.

Although, policies which encourage an optimistic view point of ageing may be attempts at an antidote for the detrimental impact of anti-ageing values in Western societies; McHugh (2003) attacks the notion of positive ageing strategies. He suggests that they are ageist in themselves, by creating a polarisation of the notion of ageing - individuals who are successful in ageing by avoiding illness and disability and individuals who fail to achieve the idealised goal of successful ageing. Further, McHugh (2003) argues that positive ageing strategies advocate the attainment of an unachievable ideal and disregard the inevitability of death. In addition, he highlights the use of the mask metaphor (Biggs, 1994) discussed above, and argues that this concept is also ageist, as it prohibits an individual from redefining their sense of self as they age, as it suggests that individuals are ageless underneath the mask. McHugh (2003) considers that the sense of self is determined by the experiences an individual has over a lifetime. McHugh (2003) identifies that the goal of agelessness prevalent in the development of retirement communities in the United States of America, promotes a lifestyle of older adulthood that is not associated with the actual realities of ageing such as change in physical function and appearance (McHugh, 2003), rather retirement is a period of justified narcissism. McHugh (2003) concludes that the goals of agelessness and successful ageing

strategies are a process of denial of actual ageing processes and fail to facilitate constructive development of an ageing self based in reality.

1.2 Body Image

Research on body image initially explored the concept in terms of an individual's neuronal representation and perceptions of their own body (White, 2000). The concept was thereafter investigated primarily in the context of eating disorders: this has led to a bias towards definitions relating to concerns associated with body size and weight. Currently, there is little consensus in terms of a definition of body image, with researchers using a variety of terms and concepts ranging from both the subjective to the objective and from the static to the dynamic.

1.2.1 Objective Definitions

> *Judge not according to the appearance-*
>
> *Gospel According to St John 7:24*

Prunzinsky & Cash (2002) presented a historical review of the development of the concept of body image. They cited Schilder's definition of body image as one of the first attempts at a description of the concept:

> *'the picture of our own body which we form in our own mind'*
>
> *(Schilder 1935/1950)*

However, Prunzinsky & Cash (2002) suggested that this notion was too simplistic an approach and White (2000) observed that this definition was based solely upon neurological perception and spatial awareness of body parts. More recently, psychological elements have been incorporated into definitions, thus body image is the perceptual and subjective experience of our bodies.

1.2.2 Subjective Definitions

White (2000) emphasised the subjective aspect of body image and noted that an individual's attitude need not reflect reality: body image is comprised of an individual's thoughts and feelings about their shape, size, appearance and function.

There are a multitude of definitions (Prunzinsky & Cash, 2002) derived from a variety of theoretical viewpoints (White, 2000). Prunzinsky & Cash (2002) reported 16 possible definitions of body image: weight satisfaction, size perception and accuracy, appearance evaluation, appearance orientation, body esteem, body concern, body dysphoria, body dysmorphia, body schema, body percept, body distortion, body image, body image disturbance and body image disorder. To highlight the complexity and multidimensional nature of this term, Prunzinsky & Cash (2002) advocate the use of the plural version of the term, *body images*.

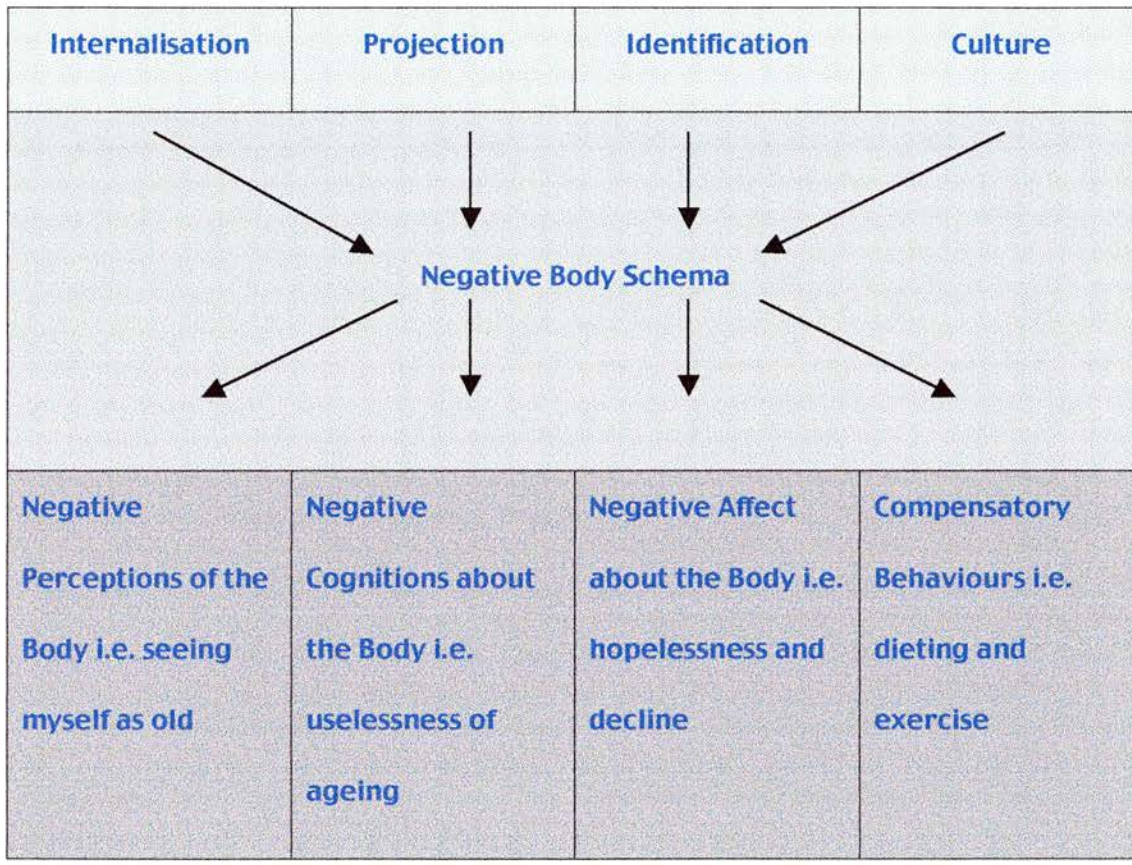
1.2.3 Dynamic Models

Cash & Fleming (2002) argued that body image is not, as is generally assumed, a stable trait, but rather that it is situationally variable. This suggests that body image is a dynamic construct that may alter as a consequence of social setting, psychological state or even physical state.

Kearney-Cooke (2002) advocated a cognitive-developmental approach when attempting to disentangle the processes that lead to the development of a negative body image or schema. She suggests that unrealistic standards of body shape and beauty promulgated by the media in Western societies combine with an individual's internalization (the process of internal representation of an individual's interactions with the world), projection (the process of attributing internal beliefs to others) and identification (the process of adopting a similar other's (e.g. parent of the

individual's gender attitudes and beliefs) processes. In turn, once an individual has a negative body schema, this affects the way they think, feel and behave about their body and also serves to maintain a poor body image as it acts as a selective, negative, filter which alters the way an individual interprets past, current and future experiences.

Model for the Development of Body Image Disturbance (Kearney-Cooke, 2002)



This model is particularly informative when exploring body image in older adulthood, as it demonstrates that the development of a negative body schema is a dynamic process, which is influenced by both internal and external factors. The model permits the notion that an individual may have held a positive body schema

throughout younger adulthood, but, once they begin to notice signs of ageing (identification with negative stereotypes, or with older relatives' views of age) or experience discrimination as a consequence of ageing (internalisation), this may have a detrimental impact on their body schema.

1.2.4 Influences on Body Image in Older Adults

Body image has been afforded limited research in older adult literature (Whitbourne & Skultety, 2002).

1.2.4.1 Culture

Western culture values youthful appearance highly in women and physical strength in men (Whitbourne & Skultety, 2002). Within this culture, where death, dying and illness are relatively taboo subjects, an older person may experience social pressure not to discuss their physical and psychological health (Whitbourne & Skultety, 2002). Indeed, as individuals age they become an external representation of human mortality and fallibility and as a consequence they can become marginalised and isolated from society.

1.2.4.2 Identification, Projection and Internalisation

Whitbourne & Skultety, (2002) suggest that the 'baby boomers', who are now middle aged, may find ageing particularly difficult as their cohort was responsible for defining as a social standard the 'pinnacle of youth' in the 1960's. If an individual's world view is based on the premise that youth is the pinnacle of existence, then previous bias or prejudice against older adults may well become internalised, especially when an individual can identify signs of ageing in themselves. Further, awareness that one's world view was shared by a vast cultural movement may lead to projection of these negative beliefs regarding ageing

appearance on to friends, colleagues, neighbours etc and may result in compensatory action.

Afflitto (2000) suggested that the combination of the relative ageing of Western society and continued adherence to the youthful beauty concept accounts for the growing number of older clients seeking plastic surgery. This suggests that body dissatisfaction is at a level which precipitates many older adults undergoing procedures requiring a general anaesthetic in order to change their appearance and thus reduce their body dissatisfaction. The American Association of Retired Persons (now referred to as AARP), which supports individuals of 50 years and over in fulfilling their needs and interests, conducted an investigation of public attitudes towards aging, beauty and cosmetic surgery. Specifically, AARP (2001) assessed efforts of American women to look younger: they found that in a sample of 55 to 64 year olds (n=147) 67% had dieted; 61% had dyed their hair to cover grey; 44% had used cosmetics to cover up signs of ageing and 9% had plastic surgery and in a sample of 65 years plus (n=203) 48% had dieted; 47% had dyed their hair to cover grey; 40% had used cosmetics to cover up signs of ageing and 4% had plastic surgery. AARP (2001) reported that men made fewer attempts to remain youthful, but did not present a breakdown of their behaviours with age.

1.2.5 Body Image Disturbance in Older Adults

Although there is limited research exploring the possible association between body dissatisfaction and physical abilities and appearance in older adults, some research has been conducted relating to concepts of beauty, dieting behaviours and skin appearance and their association with body dissatisfaction in this age group.

1.2.5.1 Perceptions of Body

Franzoi & Koehler (1998) reported that there is a progressive physical decline with age, including sensory loss (e.g. hearing and eyesight problems), physical impairments (e.g. arthritis) and reduced physical attractiveness due to changes in the facial bones' alignment, hair going grey or falling out and skin becoming less elastic and therefore wrinkled. Court (2002) demonstrated that older women and older men had more physical ailments than younger women and younger men.

Franzoi & Koehler (1998) found that older adults had less positive attitudes to body items associated with body functioning (co-ordination, agility, sex drive and health), which is consistent with actual progressive decline in bodily function efficiency. They also viewed themselves as less attractive, which is consistent with structural changes in the face as people age, which moves them further from Western cultural beauty standards. In addition, Van Deusen, Harlowe & Barker (1990) demonstrated that older adults perceived their body considerably less positively than younger adults, particularly their hands.

1.2.5.2 Cognitions Regarding Body

Hurd (2000) asserted that 'beauty' is directly associated with 'youthfulness' and 'thinness' in current Western societies. Further, Hurd (2000) demonstrated that older women (61-92 years) still adhered to ageist beliefs concerning the concept of beauty. Thus becoming older is likely to lead to feelings of unattractiveness and body dissatisfaction.

1.2.5.3 Affect Regarding Body

Compromised physical health is likely to have a negative impact on mental health, for example, the acquisition of glaucoma (Green, Siddall & Murdoch, 2002), cancer

(Craven, 2000) and myocardial infarction (Drory, Kravetz & Hirschberger, 2002). Older adults are therefore more vulnerable to psychological difficulties due to their elevated risk of physical health problems.

1.2.5.4 Compensatory Behaviours

Preventative and compensatory strategies for the effects of ageing on *appearance, competence* and *physical health* include healthy eating strategies, cessation of smoking (Whitbourne & Skultety, 2002) and aerobic exercise (Wilcox, 1997). It has also been demonstrated that this can lead to amelioration of low self esteem as the ageing process has, to an extent, been controlled (Whitbourne & Skultety, 2002).

1.2.6 Components of Body Image

There has been a bias in traditional body image questionnaires towards concerns of weight only (McCabe & Ricciardelli 2001b): this could potentially neglect aspects of male body image concern. Previous research has attempted to understand body images in terms of weight & muscularity and appearance & function.

1.2.6.1 Weight and Muscularity

Muscularity has been associated with the Western culturally bound notions of male sexual prowess, powerfulness and masculinity (Mishkind, et al., 1986). McCabe & Ricciardelli (2003) suggested that there is an increasing trend for men to have negative body images, citing the increase in sales of glossy magazines advocating an ideal 'muscular' male body image. However, the apparent increasing trend could be due to the limited amount of research considering male body image in previous years.

McCabe & Ricciardelli (2003) investigated the nature of body image and body change strategies in preadolescent boys and girls. They recruited girls (n=270) and

boys (n=237) with an age range of 8 to 11 years from ten Australian primary schools from a broad range of socio-economic backgrounds. Consent to take part was sought from school principals then from the student's parents. Participants completed the questionnaire in classroom settings of up to 20 students. Information about the study was provided to the participants and they were able to opt-out at this point. Questionnaire items and responses were read out to the participants and clarification was provided. It took 30 minutes to complete the questionnaire using this procedure. McCabe & Ricciardelli (2003) utilised the Body Image and Body Change questionnaire (McCabe & Ricciardelli, 2001b) designed to assess weight change cognitions and behaviours and aspects of body image (concern and importance). Further, to assess psychological symptoms they included the Positive and Negative Affect Schedule for Children (Joiner, Catanzaro & Laurent, 1996) and the Self Description Questionnaire (self-esteem) (Marsh, 1990). When conducting the analysis, McCabe & Ricciardelli (2003) grouped responses into two age categories: 8-9 years and 10-11 years as there were low response rates in the 11 year age category for both genders.

McCabe & Ricciardelli (2003) observed an association of lower self-esteem & negative affect with body image concern in both male and female preadolescents. This finding is consistent with previous literature (Folk, Pederson & Cullari, 1993, Mendelsen, White & Mendelson, 1996 and Kelly, Ricciardelli & Clarke, 1999). Further, they demonstrated gender differences in terms of these components of body image in preadolescents: girls focused on reduction of BMI and boys focused on both muscularity and reduction of BMI. This appears to be a well conducted study, particularly as it accounted for a socioeconomic status in recruitment. Completion of the questionnaires took part in classroom settings of up to 20 participants in the presence of questionnaire administrators, however, which may

have led to issues of social desirability bias in responses. McCabe & Ricciardelli (2003) highlighted that the study did not account for the attitudes and behaviours relating to body image and change of the parents of the participants and that, ultimately, eating patterns in the participants would be likely to be influenced by their parents' attitudes and behaviours. However, McCabe & Ricciardelli (2003) emphasised the importance of including attitudes and behaviours towards muscularity when assessing body images, particularly when assessing males.

1.2.6.2 Appearance and "Function" (i.e. Competence and Physical Health)

Reboussin et al. (2000) assessed body image in sedentary Americans aged 35-75 year old (men n=471; women n=383) with no disease limiting physical activity. The sample was part of a trial designed to promote active lifestyles: The Activity Counselling Trial. The sample was recruited from targeted Primary Care centres. The Body Image Questionnaire was designed to reduce participants' burden, as it was part of a larger survey. The questionnaire was explained to the participants and height and weight were measured at the initial screening visit: the questionnaire was completed at home, then collected and reviewed for completeness at a second screening visit. Reboussin et al. (2000) divided the data: half was used for exploration of the dimensional structure of the Body Image Questionnaire and half was reserved for confirmatory analysis. They concluded that there was a clear distinction between dissatisfaction with *function* and dissatisfaction with *appearance*. Moreover, they found that women's attitudes to the body were more negative than men's in both the appearance and function components. In addition, they observed that BMI and body fat were independent predictors of satisfaction with appearance but had little relationship to satisfaction with function. They acknowledged that the appearance subscale of the Body Image Questionnaire has only three items and has

not convergent validity. Further, they noted that it was impossible to determine whether well-being was an antecedent or consequence of body image satisfaction and recommended further research to determine the directionality of the affect - body image relationship amongst older adults.

The sample in the Reboussin et al. (2000) study is intrinsically biased in that active older adults were specifically excluded from the study. The Primary Care centres were specifically targeted and no other recruitment sources were included, further biasing the sample, as older adults at health centres were more likely to be physically ill. There was also likely to be strong social pressure on the participants, in that their completed questionnaires were reviewed in their presence, although whether they were advised in advance that this would be the case was not made explicit in the paper. Ultimately, they generalise their findings to all older adults, despite surveying an unrepresentative sample.

Whitbourne & Skultety (2002) proposed that there are three components of body image in older adulthood that require investigation: *appearance, competence* and *physical health.* An individual's *appearance* is an external signal to others (and themselves) about a multitude of information, e.g. age and attractiveness. Based on appearance, assumptions are made relating to a person's values, attributes and social status. *Competence* is an internal feeling derived from physical subjective sensations such as agility, endurance and power. *Physical health* is obviously related to disease state and has profound implications to an individual's opinion of their own mortality, quality of life (e.g. pain, hospitalisation) and subjective sense of control. Although gender issues were not the focus of Whitbourne & Collins (1998) study, they observed a theme in a small sample of middle aged adults: women's self-identity was more related to *appearance* and men's self-identity was more related to *competence.*

A pilot study preceding the current investigation was conducted by Court (2002), aiming to explore the possible association between physical changes to the body in terms of medical conditions, and body image concern as individuals age. The participants were recruited to the study by placing posters in two Primary care health centres, a Quaker Meeting House and a Medical Research Centre. These venues were considered appropriate as they had a large number of participants within the required age groups. Permission to conduct the study was gained from managers of the selected establishments.

Blank questionnaires, pens and a secure post box were placed underneath a recruitment and information poster in each setting. Participants were required to complete the questionnaire, which was estimated to take approximately five minutes and place it in the post box. Questionnaires could only be removed by breaking the seals on the box, ensuring that participants' responses remained confidential. Completed questionnaires were collected after four weeks. Participation in the study was completely anonymous and participants were at liberty to opt-out of the study at any point before returning the questionnaire.

The sample was comprised of a younger age group, consisting of women (n=18) ranging in age from 22-40 years and men (n=11) ranging in age from 20-38 years and an older age group, consisting of women (n=16) ranging in age from 65-90 years and men (n=14) ranging in age from 65-89 years. The Body Shape Questionnaire 16B (Evans & Dolan, 1993) was utilised as a measure of body concern and the Life Events Inventory (Holmes & Rahe, 1967) was utilised as a measure of experience of stress. Further, a slight modification was made to the Life Events Inventory to include a more specific categorisation of medical conditions currently being experienced, thus the item *are you experiencing any physical illness?* was replaced by *are you experiencing any of the following medical conditions?:- hearing problems, sight*

problems, heart problems, stroke, arthritis and cancer. This modification was devised as it was considered that there were no suitable measures then available relating to physical health complaints. In addition to the standard measures, information was obtained on gender, age, height, weight, dieting behaviour and employment status. Court (2002) observed that that negative body image was correlated with increasing BMI scores in both younger and older women but not men. Indeed, Shaw, Ebbeck & Snow (2000) demonstrated that ameliorated perceptions of physical appearance were related only to a decrease in body fat mass in older (50-75 years) women. In contrast, for older men only the number of physical health illnesses currently experienced correlated positively with body image concern. In retrospect, it was considered that the Body Shape Questionnaire 16B was inappropriately focused on concerns with weight and concerns relating to being *fat*, and thus was not representative of the other potential components of body image, i.e. issues of appearance, unrelated to weight and function, which are of particularly relevance when assessing an older and / or male population. Progressing from the pilot study and other research in this field (e.g. Hetherington & Burnett, 1994), the focus of the current study is that of gender differences within older age rather than comparisons between younger and old age groups, as it is considered that this aspect of body image is under-explored, particularly the body image concerns of older men.

There is justification for considering body images in terms of several components: weight, muscularity, appearance and function. It should be noted that these components are not necessarily independent: muscularity informs both appearance and function (competence), as does weight (although in differing proportions).

On balance, it is considered that men's body image will be more closely associated with function, as physical illness and muscularity are likely to weigh more heavily

on function. Conversely women's body image is more closely related to appearance, as BMI weighs more heavily on appearance.

Further, in the light of the limitations of Reboussin et al's (2000) sample, it is envisaged, contrary to their findings and accounting for the above notions, that women will be more concerned with appearance and men will be more concerned with function on the Body Image Questionnaire (Reboussin et al., 2000).

1.3 Ageing and Body Satisfaction

In younger age groups, risk factors for developing body image disturbance include peer, parental and media influences and interpersonal factors such as teasing, particularly when directed at body appearance (Furman & Thompson, 2002). Specific to older adults, the process of ageing has a direct impact on body appearance and function and, consequently, a potential impact on body image. The effects of ageing on the body include hair greying and thinning, changes in shape due to re-distribution in fat and bone disintegration, and loss of skin elasticity (Tiggemann & Lynch, 2001). Further, with each decade that an individual ages, they are likely to become 10lb heavier (Tiggemann & Lynch, 2001).

Reboussin et al. (2000) suggest that there are three correlates of body satisfaction: gender, body mass index and psychological well-being. Further, body image beliefs are connected to exercise levels, eating behaviours, interpersonal confidence, self-esteem, sexual behaviours and emotional stability (Cash & Fleming, 2002).

1.3.1 Gender

There has been a substantial body of research focusing on body image concerns on girls and young women (Pliner, Chaiken & Flett, 1990). In recent years there has

been an increased exploration of body image in boys & young men and in older women. There is limited research into body image concerns in older men (Smith et al., 1999).

1.3.1.1 Gender and Body Dissatisfaction

Pliner, Chaiken & Flett (1990) evaluated gender differences in concern with body weight and physical appearance over the life span. They noted that there is evidence in the literature that women are more likely to diet; express concern about their bodies; seek medical advice for issues of overweight and suffer eating disorders than men. Pliner, Chaiken & Flett (1990) considered that the reason behind gender differences in body image and weight concerns is Western cultural values espousing the virtue of 'thinness', associating it with physical attraction, particularly for women. Moreover, they highlighted that the physical attraction of middle aged and older women was likely to be judged more severely than that of middle aged and older men. Pliner, Chaiken & Flett (1990) suggested that this phenomenon is due to the differences in traditional gender roles in middle age - women's fertility is on the decline so their *'usefulness'* is reduced, whereas men may be reaching their professional peak - thus physical attributes are judged in terms of the success of their social roles.

Pliner, Chaiken & Flett (1990) reported that, in their sample of men (n=305) and women (n=334) ranging in age from 10 to 79 years recruited from a Canadian shopping centre, gender differences in body image concerns were present across the life span as assessed by the Eating Attitude Test (Garner & Garfinkel, 1979); Feelings of Social Inadequacy Scale (Janis & Field, 1959) and items relating to weight and appearance developed for the study. More recent research corroborates Pliner, Chaiken & Flett's (1990) observations: Stevens & Tiggemann (1998) reported that

body dissatisfaction is present in all ages of women. Further, Tiggemann & Lynch (2001), assessing a sample of 322 women aged 20-84 years, observed that body dissatisfaction was equivalent across the age range, but noted that appearance anxiety, disordered eating and habitual body monitoring and self objectification (adopting observers' perspectives on your physical self) reduced with age.

Court (2002) found that body dissatisfaction was more closely related to gender than to age, with women being more dissatisfied than men. This finding is consistent with that of Walters (2001), who demonstrated that young women tended to overestimate their weight and young men tended to underestimate their weight, although this research was using a cystic fibrosis population. Further, Tiggermann (1992) discovered that women in the sample were more concerned with body image than men. This trend was also observed in different ethnic groups (Smith et al., 1999).

1.3.1.2 Gender and Desire to Lose Weight

Thinness is held as a virtue in western societies (McCabe & Ricciardelli, 2003). This cultural attitude is so pervasive that it has even been demonstrated in children as young as seven years (Kelly, Ricciardelli & Clarke, 1999) who consider that 'obesity' has a number of negative connotations, namely, dislikeability, having fewer friends, laziness and sadness (Tiggermann & Wilson-Barrett, 1998).

Hetherington & Burnett (1994) assessed older adult women in an exercise group and observed that the prevalence of dissatisfaction with weight and desire to lose weight was equivalent in younger and older women. The older female participants could be viewed as a biased sample, however, as they were recruited from an exercise group, where there may have been a preoccupation with dieting and body appearance.

Further, Allaz et al. (1998) investigated the desire to lose weight in a sample of women (n=1053) ranging in age from 30 to 74 years. Participants were recruited from official residents lists in Geneva, Switzerland and the proportions of the age categories of the sample were matched to the proportions of age categories in the general population. Women were initially contacted by mail to request that they take part in a survey about women's health. If they did not respond they received a follow up phone call. If women opted-in to the study, they were interviewed in person in a mobile epidemiological unit by a trained interviewer. Information on participants' education, ethnicity, relationship status, dieting behaviour and actual and desired weight was gathered.

Allaz et al. (1998) demonstrated that desire to lose weight was common across all ages in women. Of women over 65 years of age, 62% wanted to lose weight despite 65% being of normal weight. Moreover, they observed that education level had an effect on desire to lose weight: more highly educated women desired to be slimmer. Further, that the larger the women's BMI, the more weight they desired to lose. They found that older women did not desire to lose as much weight as younger women and concluded that this was due to older women not experiencing as much social pressure to lose weight when they were teenagers. Ultimately, they concluded that cultural standards of slimness appear to be less accommodating than medical ones and highlight the phenomenon of *normative discontent* with weight in women over their lifetimes. Allaz et al. (1998) highlighted a variety flaws in their study: they did not assess attitudes to ageing and they had a minimal level of over weight participants. However, they presented a concise formula for assessing actual and desired weight, which is discussed in more depth in the methods section.

Court (2002), consistent with Allaz et al. (1998), found a proportion of the dieters in the older women (2 of the 3 dieters were of normal BMI), the older men (the 1 dieter

was of normal BMI) and the young women (1 of the 4 dieters was of normal BMI) groups were dieting despite the fact that they were within "normal" weight range as assessed by the BMI.

Rolland et al (1996) observed that 78% of overweight girls and 30% of normal weight girls desired to be thinner. Moreover, 60% of overweight boys and 13% of normal weight boys desired to be thinner. Further, 100% of the underweight boys desired to be larger and 44% of the underweight girls desired to be larger.

1.3.1.3 Gender and the Media

McCabe & Ricciardelli (2001b) assessed the impact of parents, peers and media on body image in adolescents. They assessed males (n=622) and females (n=644) Australians ranging in age from 12 to 16 years, recruited from ten co-educational high schools. They utilised the Body Image and Body Change Questionnaire and the Socio-cultural Influences on Body Image and Change Questionnaire, which they designed to assess the influence of the participants' parents, male and female best friend (three items each) and the media (television and magazine) (nine items). Consent was sought from both school principals and participants' parents. Questionnaires were completed in a classroom setting in a single class period.

McCabe & Ricciardelli (2001b) observed that in all ages of their sample of adolescents, females were in general less satisfied than males with their body image and were more likely to engage in dieting behaviours. Males were more likely to focus on increasing weight and muscles. They concluded that their findings were consistent with Western societal ideals of 'thin body' for females and 'muscular body' for males. They also reported that BMI was negatively correlated with body image in both males and females, i.e. the larger the BMI, the poorer the body image. In terms of external influences on body image, mothers and peers had a strong

influence, particularly for females. Moreover, media influence upon body image was stronger in females. They concluded that all forms of media present a particularly consistent image of 'perfect' female body image, whereas for males the 'perfect' image is less clear. This study was well designed, with clear aims that were investigated appropriately in terms of sample size and controlled for socio-economic status. However, questionnaire completion was not private so, as discussed previously, this may have lead to biased responses and social conformity.

Durkin & Paxton (2002) observed that, in a female adolescent sample, exposure to idealised body shapes commonly presented in the media immediately reduced body image satisfaction and increased depressive symptoms. This is an important investigation as it demonstrates the direction of the relationship between exposure to media influences and attitudes towards body image.

Pliner, Chaiken & Flett's (1990) advocated that gender differences in self-esteem specifically associated with body image could be related to the psychological concept of *'actual'* and *'idea'* self (Higgins, 1987 - Self-Discrepancy Theory). They proposed that the discrepancy between the actual and ideal body image selves in women is larger than for men and this explains the differences in the level of concerns relating to body image between the genders. Providing further evidence for this, Hayaki, Friedman & Brownell, (2002) highlight that women are subjected to unattainable and unrealistic standards for physical appearance. In addition, societal ideals for body shape presented in the media have progressively become thinner (Wiseman et al 1992) in conjunction with women in the general population becoming heavier (Spitzer, Henderson & Zivian, 1999). Further, Tiggemann & Lynch (2001) proposed that the *female body* is a social construct created for evaluation and critique. As a consequence, women gradually internalise the observer's view of their physical appearance and ultimately evaluate their bodies as

an object, from an external viewpoint - a process described as *self-objectification*. This leads to persistent over-monitoring by women of their body appearance and experience of negative emotions, such as anxiety and shame relating to their body shape.

1.3.2 Physical Health

Physical illness can have a directly negative influence on an individual's sense of body image (Gutweniger, Kopp & Gunther, 1999). Petronis et al. (2003) emphasised the notion advocated by William James (1890) that, if an individual has invested in a specific aspect of himself or herself then this can create a predisposition to psychological distress if that area of self is threatened. Therefore if an individual has defined himself or herself by physical agility then, in older age, if they suffer from arthritis they may be particularly vulnerable to symptoms of stress as the difference between their actual and ideal sense of self has been enlarged-**cognitive dissonance**.

Court (2002) demonstrated that older adults (over 65 years) had significantly more physical ailments than younger adults (20 to 40 years). This corroborates evidence from the WHO (2002) which reported that older age is accompanied by an increased risk of disability. Further, by way of a specific example, Champion (1996) reported that the frequency of cancer dramatically increases from 60 to 65 years and reaches a peak distribution in the 65 to 79 year age group.

1.3.2.1 Physical Health and Body Dissatisfaction

In the case of cancer, there has been extensive research into its negative repercussions for an individual's body image (White, 2002). Tumours and their treatments can lead to change in appearance, (surgery scarring, amputation, skin discoloration and hair loss) and body function and sensation (amputation and nerve

damage after operations and other treatments e.g. chemo and radiotherapy) (Anderson & Johnson, 1994). Appearance related side effects to cancer treatment have been rated by patients as more debilitating than side effects such as breathlessness and insomnia (White, 2000). Further, there can be a profound psychological impact of losing a body part such as a breast or testicle in terms of an individual's beliefs about sexual attraction (Weijmar et al., 1995 and Champion, 1996) and gender identity (Weijmar et al., 1995). In addition, self-confidence was reported as remaining lower than pre-morbid levels even when hair re-grew in cancer sufferers (Munstedt et al., 1997). White (2002) suggested that understanding the value attached by the individual to the body area with cancer was integral to understanding the impact that the cancer and the requisite treatments may have on the individual's body image. Intuitively, if an individual has based their sense of self around a certain body part, then removal of, or cancer in, that body part will be psychologically detrimental. Ultimately, the psychological consequences of cancer have been demonstrated to have an impact on an individual's mortality. Weihs et al., (2000) suggested that chronic anxiety associated with recurrent breast cancer was predictive of earlier death in a sample of 32 women.

In relation to arthritis, Gutweniger, Kopp & Gunther, (1999) reported that women (n=40) with rheumatoid arthritis had disturbances in their body image, specifically related to function and sexual dissatisfaction. Vamos, White & Caghley, (1990) observed that women (n=80) with rheumatoid arthritis had negative concerns relating to their body image, particularly their hands. Moreover, that this appeared to be a factor in the desire for surgery. Skevington, Blackwell & Britton, (1987) found that out-patients with rheumatoid arthritis had lowered self-esteem at their initial consultation.

1.3.2.2 Physical Health and Desire to Lose Weight

There is more limited research on the effects of diabetes on body image in older adults. Research with adolescents suggests that drive for thinness (Svensson, Engstrom & Aman, 2003), weight control practices and disordered eating behaviours (Meltzer et al., 2001) are common in both male and females. Meltzer et al., (2001) assessing adolescents aged 11 to 19 years (n152) with type one diabetes, observed a significant correlation between higher BMI scores and greater body dissatisfaction in this sample, particularly in females, when compared to normative controls. In addition, they demonstrated that individuals with higher BMI had more symptoms of bulimia. Rodin et al., (1986) demonstrated that 21% of a sample of female adolescents with insulin dependent diabetes mellitus (n=58) presented with clinically significant eating pathology. They concluded that eating disorders are a common feature in individuals with diabetes.

1.3.2.3 Physical Health and Gender

Women are likely in their lifetimes to experience physical health conditions that are not encountered by men - namely pregnancy and menopause. Low (1993) emphasised that pregnancy and menopause were particularly vulnerable periods of life for developing body image concerns. Further, body image concerns in pregnancy have been widely explored in the literature (Fox & Yamaguchi, 1997). Unlike menopause, pregnancy is a not a permanent condition. Moreover, menopause potentially has an impact on attitudes to female identity in terms of loss of fertility and gender roles (Deeks, 2003). Deeks (2003) reported an association between menopause and an increase in body image concerns, particularly in women with early onset menopause. Kellett, Trimble & Thorley, (1976) reported a case

study of an individual who developed anorexia nervosa with first onset in menopause.

In summary, it seems clear that experience of physical illness can have profound psychological impact, not just in terms of self-esteem, depression and self-confidence but also body image. Moreover that psychological sequelae of physical illness can increase the risk of mortality. Ultimately, it could be suggested that older adults are particularly vulnerable as they have potentially had more experience of body changing events (e.g. physical illness).

1.3.3 Psychological Health

There is a recognised association between body image concerns and other psychological symptomatology in the literature. Negative body image can be a risk factor for the development of other psychological symptomatology such as low self-esteem (Lerner et al., 1973) depression (Franko & Striegel-Moore, 2002) and eating disorders (Garner, 2002). Alternatively, psychological symptomatology can maintain or present in parallel with body image concerns.

1.3.3.1 Psychological Health and Physical Health

Guiry et al., (1987) observed symptoms of anxiety and depression and negative body image in both males and females (n=264) who had suffered one myocardial infarction. Further, Utz et al, (1990) demonstrated more negative body image in individuals (n=20) with a diagnosis of Mitral Valve Prolapse.

Gool et al (2003) reported an association between chronic disease (heart disease, diabetes and osteoarthritis) and the presentation of depression in both male and female adults. They considered that depression led to unhealthy behaviours such as smoking, alcohol misuse and inactivity, which correspondingly worsened the physical condition.

Further, although there is limited investigation of body image, Tang et al (1997) observed body dissatisfaction in a group of women (n=43) with Irritable Bowel Syndrome (IBS) and postulated the link between IBS and eating disorders.

1.3.3.2 Psychological Health and Body Dissatisfaction

A positive correlation between low self-esteem and negative attitudes towards body image has been demonstrated in the literature, both in young adult (Lerner et al, 1973 and adolescent populations (McCabe, Ricciardelli & Banfield, 2001). Indeed the concepts of self-esteem and body-esteem have been used interchangeable in the body image literature (Mendelson et al., 2002) However, the recent consensus in the literature is that body-esteem is a domain of the multi-dimensional construct of self-esteem. Moreover, that body-esteem can be viewed not as a global entity but also as multi-dimensional, including, for example, domains relating to weight, function and physical appearance (Mendelson et al., 2002). Mendelson et al (2002) reported that, in both eating disordered women and non-eating disordered women, self-esteem and body esteem were highly interrelated.

A connection in the literature has also been demonstrated between negative affect and body image concerns in adult (White, 2000) and adolescent (McCabe, Ricciardelli & Banfield, 2001) populations. Research findings are primarily based on correlations, therefore it is difficult to make conclusions as to the direction of the relationship. However, Franko & Striegel-Moore (2002) posited that depression could undermine personal and psychological resources, rendering the individual vulnerable to other psychological difficulties relating to self-identity, including body image disturbance. Conversely, Benrud-Larson et al., (2003) emphasised that body image concerns should be screened for and treated where necessary to prevent the development of secondary symptoms of depression.

Depression in old age is a complex issue (Woods, 1995), as prevalence rates have depended, to an extent, on the screening measures utilised in the surveys (Woods, 1995). Kales et al. (1999) suggested that depression should not be considered as a natural and unavoidable consequence of ageing. Depression symptoms in older adulthood have been associated to the experience of stressful life events (Woods, 1995) such as retirement and bereavement. Interestingly, an association between stressful life events and body image has not been demonstrated (Knauz, 1999) and with specific reference to an older adult sample (Court, 2002). As a consequence, life stress was not evaluated in the current study.

Depression and body image (Petronis et al., 2003) have both been associated with physical health decline, although the causal relationship has not been clearly explored (Davies, 1995). Ultimately, depression in older adults has been demonstrated to have a detrimental effect on the management of common diseases of old age and has been found to increase mortality (Greener, 2002).

In summary, the relationships between body image and other psychological constructs such as depression and self-esteem are extremely complex (White, 2000) and future investigation should account for the individual's current and past physical and psychological health status, and the social influences they have experienced over their lifetime which influence their belief systems about them selves and the world around them.

1.4 Eating Disorders

For the purposes of this study the term "eating disorders" is used to denote anorexia nervosa and bulimia nervosa, which are patterns of behaviour, whereas obesity is a state which may or may not be associated with a continuing pattern of behaviour.

1.4.1 Definitions

The focus for individuals with anorexia nervosa is to maintain their body weight below or at the minimum normal level through restricted eating and or exercise. However, individuals with bulimia nervosa maintain their body weight despite over eating (binging) by self-induced vomiting and or the use of laxatives and diet pills.

1.4.1.1 Anorexia Nervosa

The Fourth Edition of the Diagnostic and Statistical Manual of the American Psychiatric Association, Text Revision (DSM IV TR), (APA, 2001) defines anorexia nervosa as: refusal to maintain body weight at or above a minimally normal weight for age and height; intense fear of gaining weight or becoming fat, even though under weight; disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self evaluation or denial of the seriousness of the current low body weight and, in post menarcheal females, amenorrhea i.e. the absence of at least three consecutive menstrual cycles.

The diagnostic criteria for late onset anorexia nervosa include morbid fear of fat, denial of low body weight and self-induced starvation - post menopause amenorrhea is not included (Beck, Casper & Andersen, 1996).

1.4.1.2 Bulimia Nervosa

The Fourth Edition of the Diagnostic and Statistical Manual of the American Psychiatric Association, Text Revision (DSM IV TR), (APA, 2001) defines bulimia nervosa as: recurrent episodes of binge eating, characterised by eating within any given time period an amount of food that is definitely larger than most people would eat in a similar time and under similar circumstances, together with a sense of lack of control over eating during the episode; recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced

vomiting, misuse of laxatives, diuretics, enemas or other medication, fasting or excessive exercise; the binge eating and inappropriate compensatory behaviours both occur on average at least twice a week for three months; self-evaluation is unduly influenced by body weight and shape and the disturbance does not occur exclusively in episodes of anorexia nervosa.

Cash & Deagle (1997) demonstrated that a distortion in body image was a risk factor for the development of eating disorders. Dissatisfaction with body image is a frequent precursor to the development of anorexia nervosa and bulimia nervosa and has been demonstrated to be influential in relapse (Garner, 2002) Further, self-worth primarily based upon body shape, appearance and weight is a central attribute of the eating disorders (Geller et al., 1998).

1.4.2 Body Dissatisfaction

Body dissatisfaction or over concern with body image, has been demonstrated to be a common phenomenon in girls and young women (Rodin et al., 1985) and in boys and young men (McCabe & Ricciardelli, 2003). It has been suggested that body dissatisfaction is associated with changes due to puberty (Dawson & Henderson, 2001). These pubertal changes can be viewed as out with an individual's control. Body dissatisfaction is understood to be one of the main features of eating disorders (Bruch, 1962 and Garner & Garfinkel, 1981), which have a peak onset in adolescence and young adulthood (Feighner et al., 1972). It could be argued that restrained eating behaviours are a displaced expression of control as a reaction to uncontrollable body change in adolescence. Further, dieting appears to be the primary strategy for weight regulation and thus body image control by female adolescents (Huon, 1994).

1.4.3 Desire to Lose Weight

Preoccupation with weight and associated dieting frequency has been shown to be common in young women from Western societies (Hetherington & Burnett, 1994 and Fallaz et al., 1999). Furthermore, it has been demonstrated that this preoccupation is sustained in older women and also leads to dieting behaviours in normal weight older women (Hetherington & Burnett, 1994 and Fallaz et al., 1999).

Gupta (1995) observed that concerns relating to the appearance of skin as it aged (e.g. wrinkles, sagging of skin, loss of height, and redistribution of fat from extremities to torso, Whitbourne & Skultety, 2002) were linked to a desire to be thinner and to inappropriate dieting behaviours: dieting may be a strategy to control the ageing process for women. Excessive dieting and a drive for thinness are components in the aetiology of eating disorders (Gupta, 1995). Thus, changes in physical appearance as a consequence of ageing may trigger restricted eating and / or eating disorders in some individuals.

Gupta & Schork (1993) emphasised that their study was the first to their knowledge to directly investigate the ageing process on body image in both males and females. This study was part of a larger project the 'Windsor Western Health Survey'. The sample was recruited from a large shopping centre in Canada over four days. Shoppers were recruited and provided information about the study and consent was sought. Shoppers completed the questionnaire in a separate booth. Provision of identification information (name and address) was optional. The participants were males (n=71) and females (n=102) and were categorised by age (30 years and less, 31 to 45 years, 46 to 65 years and 65 and over). They gathered information through self-report, on BMI, relationship status and ethnic origin. They utilised the *drive for thinness* and *body dissatisfaction* subcategories of the Eating Disorder Inventory

(Garner & Olmstead, 1984) and devised an Age Related Concerns questionnaire as they considered that there was no existing questionnaire relating to these issues. Gupta & Schork (1993) concluded that both men and women were concerned with the effects of ageing on appearance. However, women were, in general, more concerned than men across the ages about age related changes to appearance for all items on the questionnaire. In summary, Gupta & Schork's (1993) successfully recruited a non-clinical sample of both males and females of an age range that spanned young to older adulthood. Further, they made a valid attempt at assessing, a hitherto, under-explored area of body image research, namely, attitudes to ageing with reference to concepts relating to disordered eating.

Poor body image and dieting behaviours in childhood are considered risk factors for future weight cycling and eating disorders (Birch & Fisher, 1998). Although there is limited research it seems possible that this association could occur at other ages. Hall & Driscoll (1993) suggested that for older adults, concerns about ageing related to perceived loss of attractiveness and sexuality is as traumatic as acquiring attractiveness and sexuality in adolescence and may be dealt with by similar psychological mechanisms. In accordance with this, Gupta (1990) regarded old age onset eating disorders as an identity crisis precipitated by the visible signs of ageing.

1.4.4 Restricted Eating

Gupta (1993) considered that negative attitudes towards an ageing appearance can be associated with a drive for thinness and excessive dieting, factors that are important in the development of eating disorders. Hall & Driscoll (1993) also suggested that restrictive eating behaviours were potentially methods for controlling *future decay* in appearance and thus their body image. Hsu & Zimmer

(1988) highlight that there is an increase in prevalence of eating disorders in older adults. They account for this phenomenon by emphasising the increase in eating disorders in younger ages over the past 30 years and argue that the chronic condition thus presents currently in older adulthood. Additionally, Hsu & Zimmer (1988), considered that older women may becoming more susceptible to social pressures to be slim, although they do not offer an explanation as to why. Nicholson & Ballance (1998) suggested that eating disorders in older adults can be viewed as failure to adjust to a new and challenging phase in the life cycle, as is the case in younger adults.

Mermelstein & Basu (2001) proposed that reduced eating and loss of appetite are common in older adults due to the financial constraints, social isolation and physical and cognitive decline that hinder food preparation.

1.4.5 Eating Disorders in Older Adults

There has been little research into the vulnerability of older adults to eating disorders (Hetherington & Burnett, 1994).

1.4.5.1 Case Studies

Single case studies have described eating disorders in older adults (Gowers & Crisp, 1990). Launer (1978) was one of the first researchers to highlight previously diagnosed anorexia nervosa in a 70 year old women. Hsu and Zimmer (1988) reported five cases of women with eating disorders, ranging in age from 57 to 72 years. The women presented with histories of chronic dieting, food refusal, binging, purging and depression. They highlighted that their diagnosis of eating disorders had been undetected by previous physicians: they concluded that diagnosis of eating disorders is difficult in the older adult population, as co-morbid

psychological difficulties such as depression may be viewed as the reason for weight loss and for the sufferer's denial of the problem. Hsu & Zimmer (1998) recommended thorough assessment of the potential for an eating disorder in older adults presenting with apparent depression accompanied by weight loss.

Hall & Driscoll (1993) observed pathological fear of fat, restricting eating, the hiding of food and laxative abuse in two older aged women (61 years - 12 year history and 64 years - nine year history). Beck, Casper & Andersen (1996) assessed 11 female cases of eating disorders with first onset ranging from 42 years to 80 years (mean age 60 years). They concluded older adults can experience *de novo* eating disorders (Anorexia Nervosa and Bulimia Nervosa) and they may present co-morbidly with other physical and psychological conditions. They recommended including the possibility of an eating disorder when investigating a presentation of unexplained weight loss in older adults.

Merelstein & Basu (2001) reported the case of a 92 year old woman, who had been admitted to hospital due to failure to thrive and malnutrition with no organic causation. Interestingly, they stated that the patient became aggressive towards staff attempting to provide her with nutritional supplements and they stated that eating even small amounts of food led to feelings of fatness in the patient; that she ran laps around the ward and ate prunes to correct the shape of her stomach. She did not present with either depression or cognitive impairment and was diagnosed with an eating disorder in view of her attitudes and behaviours. The patient was treated with cognitive therapy focusing on her beliefs relating to body image, food and weight and was symptom free at six months follow-up.

1.4.5.2 Prevalence

Although observation of eating disorders in older adults have primarily focused on females, Miller et al., (1991) observed a fear of weight gain in male out-patients over 70 years.

Hill, Haslett & Kumar (2001) advocated that anorexia nervosa does occur in older adulthood, with its onset specific to old age. They suggested that it was difficult to detect due to differential diagnosis with medical conditions that precipitate weight loss. Further, Nicholson & Ballance (1998) presented an overview of anorexia nervosa in later life and concluded that eating disorders could occur for the first time in older age; aetiology and treatment were broadly similar to younger age groups and two thirds of patients respond well to psychological and pharmacological treatments.

Conversely, Tiggemann & Lynch (2001) highlighted that although high rates of dieting and weight dissatisfaction have been demonstrated in older women, by making reference to the work of Allaz et al (1998) and Hetherington & Burnett, (1994), prevalence of eating disorders does diminish after its peak in adolescence and young adulthood. They posed the conundrum that body image concern, which is a core component of disordered eating, remains a stable construct with age, whereas the prevalence of eating disorders declines with ageing.

1.4.6 Importance of Healthy Eating in Old Age

If, as some literature suggests, older adults restrict their diet and engage in disordered eating behaviours as a consequence of body image concerns, they are at particular risk of negative effects of malnutrition. Prentice & Widdowson (2002) emphasise the need for maintenance of appropriate nutritional status and a healthy weight in older adults, as this protects against disease, hospitalisation and mortality. Indeed, they suggest that a large proportion of adults over 75 years are

malnourished on admission to hospital. Poor nutrition compromises health: deficiencies in calcium, vitamins D, A, C, E, and B lead to osteoporosis, cataracts, age related macular degeneration, heart disease, cancer and vascular disease respectively (Prentice & Widdowson, 2002).

As individuals age there can be a variety of factors that impede food intake: financial, social, access, mobility, lack of storage or cooking facilities, difficulties handling food, reduced appetite as taste perceptions change, digestive and chewing difficulties and absorption problems (Prentice & Widdowson, 2002).

Prentice & Widdowson (2002) quoting the Ministry of Agriculture, Fisheries, and Food and the Department of Health survey of the diet of the over 65 year olds in Britain, suggested that vitamin deficiencies were common, particularly in the over 85 years and in Scotland, the North of England and the Midlands.

Prentice & Widdowson (2002) recommended health promotion relating to adequate nutritional intake in the older adult age group and also that health professionals should be vigilant to a sudden decrease in weight in their older patients.

In summary, older age seems to be a vulnerability factor for compromised nutrition. If, in parallel, the older adult has concerns about their appearance and, as a consequence, actively limits their food intake then they are at particular risk for malnutrition and increased mortality.

1.5 Summary

Prunzinsky & Cash's (2002) notion of *body images* encapsulates the complexity of the dynamic body image, subject to influences of culture, gender, illness and ageing. Old age would appear to be a time when the formation of a negative body image is highly likely. Gender and cultural differences imply that the nature and

manifestation of negative body images in older adults may follow forms similar to those of adolescents and younger adults and, hence, older adults may have a similar propensity for eating disorders with serious consequences for both the psychological and physical well-being of an increasingly large section of the population. It is notable however that the evidence base is disparate and many concepts are derived from a single, possibly unrepresentative, population sample. To justify the further investigation of eating disorders in older adults, these previous findings should be integrated and confirmed in a representative sample of the general population.

2. Investigation

Whitbourne & Collins (1998) advocated that future research should focus on gender differences in body image as individuals age. The aim of the study therefore, was to assess gender differences in body image in an older adult non-clinical sample.

2.1 Initial Questions

It is possible that the gender differences in body image might be attributable simply to the different impact of ageing and of physical & psychological illness in older adults. In order to proceed with the main investigation it is necessary to explore these possibilities.

I. Do Older Women have more Negative Attitudes towards Ageing and Appearance than Older Men? (Gupta & Schork, 1993)

II. Is Physical illness Associated with Psychological Symptoms in Older Adults? (Guiry et al., 1987 and Gool et al., 2003)

III. Are Psychological Symptoms Associated with Body Image Concerns in Older Adults? (McCabe & Ricciardelli, 2003)

2.2 Hypotheses

As described in the introduction the existing literature gives rise to a number of predictions as to the likely patterns of gender differences in body image and resultant behaviour as individuals age.

I. Older women will have more body image concerns than older men (Tiggermann, 1992)

II. Older adults will desire weight loss despite being of normal weight (Allaz et al, 1998)

III. Older women's body image concern will be positively correlated with *BMI* (McCabe & Ricciardelli, 2003)

IV. Older men's body image concern will be positively correlated with *BMI* (McCabe & Ricciardelli, 2003), *Muscle Strength* (McCabe & Ricciardelli, 2003) and *Physical Health* (Court, 2002)

V. Body image concerns will be negatively correlated with health controlling behaviours in older adults (Wilcox, 1997)

3. Methods

3.1 Design

The study was between groups in design as this was deemed the most appropriate approach to examining the hypotheses: a longitudinal study would require years in order to be meaningful. The study comprised of a single administration of the combined self-report questionnaire as no intervention requiring a follow up was offered. There were two independent variables - gender and BMI - and ten dependent variables relating broadly to physical health, dieting behaviour psychological wellbeing and body image (Table 1).

Table 1 Independent and Dependent Variables

Independent Variables	**Dependent Variables**
Gender (Male & Female)	Number of Illnesses
Body Mass Index Category (Under, Normal, Over and Obese)	Desired BMI (Under, Normal, Over and Obese)
	Dieting Behaviour
	General Preventative Health Behaviours Checklist
	General Health Questionnaire 28
	Rosenberg Self-Esteem Scale
	Body Image and Body Change Questionnaire
	Body Image Questionnaire
	Ageing Related Concerns

3.2 Recruitment

The aim was to obtain a sample that was broadly representative of the Scottish population in the relevant age bands. In keeping with previous research e.g. Gupta (1994), this non-clinical sample was recruited through multiple channels i.e. community centres, church groups and the staff of a large teaching hospital. These venues were considered appropriate as, together, they offered access to large numbers of potential participants within the required age range.

Permission to conduct the study was granted by Tayside Committee on Medical Research Ethics. Permission to distribute questionnaires was obtained from managers of the selected establishments.

Participants' informed consent to inclusion was facilitated by an Information Sheet about the study, which was included with each questionnaire pack (Appendix 2).

It was intended that each participant's involvement would be entirely voluntary and anonymous. Participants were not offered and did not receive any form of payment or benefit for taking part in the study. In order to address concern that distributors of the questionnaire might inadvertently influence potential participants, they had multiple opportunities to opt-in or out of the study, e.g. by not accepting a questionnaire, by not filling in a questionnaire and by not returning a questionnaire. To preserve the anonymity of participants, questionnaires were returned via the post (stamped addressed envelope was provided) with no identifiers on the questionnaire booklet. Each questionnaire booklet was then assigned a code upon return to facilitate scoring.

3.2.1 Inclusion Criteria

All males and females aged 50 years or over were eligible for inclusion.

3.2.2 Ethical Considerations

Given the intimate nature of some of the data sought in this study, assurance of confidentiality was paramount. Accordingly, it was decided to make every effort to guarantee participants anonymity: no information that might uniquely identify an individual was requested: only age, weight and height were sought, but not name, date of birth, profession, area of residence, etc. Additionally, code numbers were assigned to each questionnaire upon receipt rather than upon distribution. The questionnaires having been returned in an envelope, stamped and addressed by the researcher but again without a serial number or other code. This had the disadvantage that return rates from particular venues or groups could not be calculated but this was felt to be a small price to pay to guarantee the participants anonymity. Further, the Tayside Committee on Medical Research Ethics supported this approach without reservation, requesting only that their standard phrasing for an assurance of confidentiality would be used on the Volunteer Information Sheet (Appendix 2) to ensure that these precautions be understood by the potential participants.

Given that some of the questionnaire packs were to be distributed by community leaders there was nevertheless felt to be a risk of individuals participating in order to assist or otherwise please the distributor (or the researcher). The steps taken to assure anonymity limited the options for assuring informed consent to participation. Accordingly, great care was taken to clearly describe in the Volunteer Information Sheet, the aims and implications of the study, what it would practically involve for the participant and how to contact the researcher for further information. In addition, it was emphasised that participants could opt-out of the study at any stage and that this would not affect any present or future treatment.

The Ethics Committee considered this issue of particular relevance and requested an explicit statement on the Volunteer Information Sheet. Further, in accordance with the Tayside ethical guidelines, pre-suppositional statements such as *thank you for completing my questionnaire* were not included.

The data protection act requires that information be collected and stored only for the purpose stated in light of the aforementioned attempts to guarantee anonymity. It was therefore decided to gather only the information specifically required to investigate the current hypotheses thereby limiting the opportunity for post hoc analysis. This was acceptable to the researcher given the aim of the study was primarily to confirm rather than to explore. This was also acceptable to the Tayside Committee for Medical Research Ethics who recommended no changes to the information set.

One negative aspect of the attempt to guarantee anonymity was that, although any participant distressed by the questionnaire was at liberty to contact the researcher, participants demonstrating significant psychological distress could not be identified for follow-up. As none of the participants should lack access to NHS mental health services this was felt to be an acceptable limitation by both the researcher and Tayside Committee for Medical Research Ethics.

3.2.3 Exclusion Criteria

In keeping with previous research e.g. Gupta & Schork (1993) and in order to meet the requirements of the Tayside Committee on Medical Research

Ethics, individuals with dementia, learning disabilities or a chronic mental health problem (e.g. schizophrenia) were excluded from the study, as these criteria would maximise the likelihood of informed consent and avoid exposing vulnerable individuals to undue challenges. As participation was to be anonymous,

distributors of the questionnaires were asked to refrain from recruiting any individual who they believed met any of the exclusion criteria. It was decided that direct screening of participants (e.g. by additional questions relating to mental health status, dementia and learning disabilities) would be unlikely to increase the sensitivity of this screening and might prove distressing to those thereby excluded.

3.3 Measures

The questionnaires collected information about age, gender weight, desired weight, height, number of physical complaints and dieting behaviours (medical or participants choice). They also included standardised measures, which related to issues surrounding the concept of body image; psychological distress; self-esteem and healthy behaviour.

3.3.1 Issues of Using Self Report Measures

Self report and subjective measures demand that the issues of accuracy and response bias be addressed. Accuracy of measures would have been improved by direct measurement of participants' weight and height. However, Gupta, Schork & Dhaliwal (1993) report only small discrepancies between self-report and direct measures of height and weight and concluded that such self-report measures are valid and reliable for research purposes.

Moreover, direct measurement would have necessitated direct contact with the participants, with the obvious implications for anonymity and flexibility of questionnaire completion.

3.3.2 Number of Illnesses

In the absence of a readily available standardised measure of physical dysfunctions, the creation of such was considered to be beyond the scope of the project. As a

rough approximation of the range of impairments experienced, participants were asked to indicate by ticking the relevant item(s), whether or not they suffered any of the following physical health complaints in the past year: *arthritis, bladder problems, bowel problems, brain injury, cancer, chronic pain, diabetes, hearing problems, heart problems* and *sight problems* (Items 8-17, Appendix 3). These major illness categories were derived from the major problem areas cited in a standard medical reference text (Bennett & Ebrahim, 1995). Clearly the experience of one of these conditions alone may have more of an impact on a given individual than several of the others combined but deriving a measure of relative impact would have been a study in itself. The current scale was felt to be sufficient to capture the desired information i.e. the range of physical systems, which might be failing as a consequence of ageing.

3.3.3 Body Mass Index and Desired Body Mass Index

Body Mass Index (BMI) is the parameter used routinely in health care settings to categorise an individual's body size, by taking into account height and weight. It is calculated by dividing an individual's weight in kilograms by their height in meters squared (BMI=kg/m^2). The BMI scores are categorised into *underweight, normal, overweight* and *obese* and are utilised to assess potential risk of medical conditions associated with increased weight such as heart disease and the potential risk of malnutrition in under weight individuals.

Table 2 BMI Categories and Risk of Disease

BMI	Category	Risk of Associated Disease
18.5 or less	Underweight	High
18.5 – 24.9	Normal	N/A
25.0 – 29.9	Overweight	High
30.0 or greater	Obese	Very High

Allaz et al. (1998), assessing the desire for weight loss, defined a *dissatisfaction index* (DI).

$$DI\ (\%) = (BMI_{current} - BMI_{desired}) / BMI_{current}$$

In order to calculate participants' BMI and desired BMI (and therefore DI) they were asked their height, current weight and desired weight in replication of Allaz et al (1998) (Items 3-5, Appendix 3). For the convenience of the participants, no units were specified: heights and weights given in Imperial measures were converted to Metric measurements before calculation.

3.3.4 Dieting Behaviour

Allaz et al (1998) asked participants if they had ever dieted and the number of diets they have been on in the last five years. No distinction was made between medically recommended dieting and diets of an individual's own choosing, thus potentially risking confusion between diets aimed at weight loss and diets aimed at stabilising a medical condition e.g. gluten free or lactose intolerance. In addition, without

determining the length of a given diet, interpretation of the number and length of diets would be problematic even given accurate reporting.

For the purposes of this study it was deemed sufficient to determine each participant's current diet status as indication of determination to change weight over and above desire to change weight reflected in the DI (qv). Allaz et al's (1998) questions relating to dieting were therefore modified for the current study. Participants were asked to indicate whether they were currently on a medically recommended diet and on a diet of their own choosing (Items 6-7, Appendix 3).

3.3.5 General Health Questionnaire

The General Health Questionnaire (GHQ) was designed as a self-administered screening tool for the detection of psychiatric symptoms in community samples across the age span (Goldberg, 1981). As a UK derived measure, it is routinely used as a measure of severity of psychological distress in British studies.

The GHQ is available in several forms: the 60, the 30, the 28 and the 12 item versions. Given the lengths of other measures such as the Beck Depression Inventory, a shorter form was felt to be desirable for this study: the 28 item version (GHQ-28) was chosen over the 12 item version as it had the added advantage of offering four subscales: *somatization* (Items 96-102, Appendix 3), *anxiety* (Items 103-109, Appendix 3), *depression* (Items 110-116, Appendix 3) and *suicidality* (Items 117-123, Appendix 3), facilitating more detailed investigation of relationships between other variables and psychological distress. The GHQ-28 was developed with a sample of London patients (n=552) and Manchester patients (n=523). Patterson & Bell (2000) surveyed a sample of NHS staff (n=288) and demonstrated that 32.9% of participants attained scores indicating caseness.

The GHQ-28 is scored in two ways: for a total score the *GHQ scoring* is used (0 0 1 1) and for subscale scores the *Likert scoring* is used (0 1 2 3), as a better correlation with independent clinical measures has been demonstrated. The caseness threshold for a total scale score is five (Goldberg, 1978). It has been extensively used and has been proven to have both test-retest and split test reliability (Goldberg, 1981).

3.3.6 Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSE scale) (Rosenberg, 1965, 1989) was developed in an adolescent sample but has been extensively used, particularly in health psychology settings. The RSE scale does not differentiate state and trait aspects of self-esteem, but Johnson, Wright & Weinman (1995) report that the RSE scale is the most widely used measure of self-esteem, which therefore presents difficulties when attempting to identify tests for comparison.

The RSE scale has 10 items with a four point response scale. The items are scored from one to four, with higher scores predicting negative self-esteem. (Items 86-95, Appendix 3) There is a lack of data available with regard to the reliability and validity of the scale. Johnson et al, (1995) reported normative data with mean scores of 35.01 (SD 4.78) for a group of men (n=949) and 34.45 (SD 4.91) for a group of women (n=1345) age range 18 to 65 years.

3.3.7 General Preventative Health Behaviours Checklist

The General Preventative Health Behaviours (GPHB) checklist was developed by Amir (1987) to be a health behaviour scale relevant to the British population. Items cover behaviours, which either protect or enhance health and also covers adherence with medical treatment. As one of the more recent examples of such a scale, it has

the advantage of omitting now out-dated practices included in earlier scales (Johnson, Wright & Weinman, 1995).

Responses are categorised as *no* (scored 0) *sometimes* (scored 0) and *yes* (scored 1). (Items 124-151, Appendix 3). Unfortunately, there is little data regarding the validity or reliability of the scale. However, in a Scottish community sample (n=115) age range 65 to 75 years the mean GPHB index was 21 (2.8 SD), range 11 to 26 (Johnson, Wright & Weinman, 1995). At present the scale has only been used with an older adult sample but given the age range of the participants in the current study this is unlikely to represent a liability.

3.3.8 Ageing Related Concerns

In the absence of any instrument specifically measuring concerns related to ageing, Gupta & Schork (1993) developed a six item ageing related body image measure. Each item is a ten point scale from agreeing 'not at all' to 'very markedly' with the item. Each item stands alone and there is no overall total (Items 161-166, Appendix 3). Gupta & Schork (1993) compared men (n=71) and women (n=102) in four age categories: 30 years or less; 31 to 45 years; 46 to 65 years and 66 years and older. The mean scores (SD) for the older adults are provided in Table 3.

Table 3 Ageing Related Concerns: Means (SD) from Gupta & Schork (1993)

Item	46 to 65 years		66 years and Older	
	Women (n=38)	Men (n=18)	Women (n=9)	Men (n=7)
I am quite satisfied with my physical appearance	4.3 (2.5)	6.1 (2.1)	4.3 (1.6)	3.9 (3.9)
I am worried about the effect of ageing upon my appearance	4.1 (3.2)	2.8 (2.9)	3.5 (2.5)	1.0 (1.5)
Losing weight is one sure way of looking younger	5.4 (3.1)	5.6 (3.0)	5.0 (2.2)	4.4 (3.9)
I look younger when I lose weight	4.1 (3.5)	4.1 (3.2)	5.0 (3.6)	2.3 (2.6)
Having young looking skin is a prerequisite for good looks	6.5 (2.7)	4.3 (3.3)	7.3 (1.9)	4.1 (4.2)
I try very hard to prevent my body from ageing	4.4 (3.0)	3.2 (2.5)	5.0 (3.2)	3.1 (4.1)

In the interests of compatibility with prior research it was decided to utilise Gupta and Schork's (1993) measure. As this would appear to be the only other use of the measure, however, no data on the psychometric properties of the measure are available.

3.3.9 Body Image Questionnaire

The Body Image (BI) questionnaire was developed for both practical and conceptual reasons (Reboussin et al, 2000). It was devised to be short in order to minimise participant burden; can be used to make comparisons between genders, unlike the commonly used Body Esteem Scale (Franzoi & Shields, 1984), and facilitates the exploration of two components of body image *function* and *appearance*, unlike the frequently used Eating Disorder Inventory (Garner & Olmsted, 1984), (Reboussin et al, 2000). The *function* and *appearance* items were determined by maximum

likelihood factor analysis, although the *appearance* subscale has only three items and does not have convergent validity with other body image measures.

The BI questionnaire has 12 items: 9 items relating to *function* (Items 152-157, Appendix 3) and 3 items relating to *appearance* (Items 158-160, Appendix 3). Each item is rated on a seven point scale from -3 to 3. Negative scores are indicative of a negative body image. The mean scores are provided in Table 4.

Table 4 Body Image Questionnaire: Means (SD) from Reboussin et al. (2000)

Subscale	Women (n=383)	Men (n=471)	55 to 64 years (n=175)	65 years and Older (n=99)
Function	-0.91 (1.56)	-0.45 (1.54)	-0.32 (1.67)	0.31 (1.66)
Appearance	-1.42 (1.62)	-0.69 (1.63)	-0.81 (1.78)	-0.19 (1.85)

3.3.10 Body Image and Body Change Questionnaire

The Body Image and Body Change (BIBC) questionnaire developed for an adolescent population (McCabe & Ricciardelli, 2000b) has demonstrated high levels of reliability (α<0.77 for all scales) and has been subjected to both confirmatory and exploratory factor analyses (McCabe & Ricciardelli, 2001). It has not been used on an older adult sample but, in the absence of a more appropriate questionnaire, was deemed to be a more acceptable alternative to a 'home grown' instrument.

The BIBC questionnaire is scored by rating items on a five point Likert scale. High scores indicate high endorsement of the items. The BIBC has eight subscales: *Body Image Concern* (Items 21-27, Appendix 3), *Body Image Importance* (Items 28-37, Appendix 3), *Eating Practices* (Items 38-46, Appendix 3), *Food Supplements* (Items 47-55, Appendix 3), *Body Change Strategies to Lose Weight* (Items 56-64, Appendix 3),

Body Change Strategies to Increase Weight (Items 65-73, Appendix 3), *Body Change Strategies to Increase Muscle Tone* (Items 74-79, Appendix 3) and *Body Change Strategies to Increase Muscle Strength* (Items 80-85, Appendix 3). A total questionnaire score is not calculated, rather scores are determined for each subcategory. As the measure has been used exclusively with an adolescent population there are no norms available for older adults.

3.4 Statistical Analysis

The data were analysed using the Statistical Package for the Social Sciences (SPSS) for Mac OS X, version 11.

3.5 Power Analysis

After Clark-Carter (1997), the requisite sample size for the analyses to be performed was determined by calculating the effect sizes of similar comparisons from previously published research and from the pilot study (Court, 2002). Actual power calculations were performed using 'Power on X' by MMI Software.

Operationalising the main hypotheses gives rise to 11 distinct comparisons. Utilising a significance level of $p<0.05$ yields only a 57% probability of avoiding a type I error in all cases. Utilising a significance level of $p<0.01$ yields a 89% probability of total avoidance of type I errors in the main analyses.

Similarly accepting an 80% likelihood of a type II error (i.e. a power of 0.8) for a single comparison yields only a 9% probability of avoiding a type II error in all cases. Utilising a power of 0.98 yields an 80% probability of total avoidance of type II errors in the main analyses.

Given one tailed tests for difference (all hypothesised differences are defined with direction) with significance set at $p<0.01$ and power of 0.98, the sample sizes

required to replicate previous findings were in the range 80 to 120 participants in the total sample, as large effect sizes were expected.

Overall 50 comparisons were performed yielding a 60% chance of avoiding a type I error and 20% chance of avoiding a type II error. Accordingly, post hoc power analyses were performed where comparisons yielded results which were inconsistent with previous findings in the literature, in order to establish whether the actual effect size would have been detected by the previous researchers.

3.6. Operationalised Initial Questions and Hypotheses

3.6.1 Initial Questions

I. **Do Older Women have more Negative Attitudes towards Ageing and Appearance than Older Men?**

Attitudes towards ageing and appearance in the sample will be measured by comparing between genders individual item mean scores of the Age Related Concerns questionnaire developed by Gupta & Schork (1993).

II. **Is Physical illness Associated with Psychological Symptoms in Older Adults?**

Scores on the GHQ-28 and RSE scale will be compared with number of physical illnesses for each gender.

III. **Are Psychological Symptoms Associated with Body Image Concerns in Older Adults?**

The *body image concern* subscale of the BIBC questionnaire, which was designed and used extensively by McCabe & Ricciardelli (2001) as a measure of body image concern in adolescents and younger adults, will be compared to GHQ-28 and RSE scale scores for each gender.

3.6.2 Hypotheses

I. Older women will have more body image concerns than older men

The *body image concern* subscale of the BIBC questionnaire will be used as the measure of body image concern in this study. It is predicted that the median score on the *body image concern* subscale of the BIBC questionnaire will be significantly higher for female participants than the median score for male participants. To further strengthen this prediction the Body Image questionnaire (Reboussin et al., 2000) will also be used to make the same comparisons. For this questionnaire it is predicted that mean scores for both the function and appearance subscales will be lower for women, indicating more negative beliefs regarding body image, than for men in the sample.

II. **Older adults will desire weight loss despite being of normal weight**

As in previous work by Allaz et al. (1998) who demonstrated that 40% of older women of normal BMI category desired weight loss in their sample, it is predicted that, in this sample, a similar proportion of older women of normal BMI category will also present with a desire for weight loss. This will be assessed with the use of the Dissatisfaction Index (DI) score developed by Allaz et al. (1998). If participants in the normal BMI category present with a DI score that is neither zero nor a negative then they desire weight loss. It is predicted that older men will also desire weight loss despite being of normal weight as literature demonstrates that males also have concerns relating to weight (McCabe & Ricciardelli, 2003). However, as Allaz et al (1998) did not assess older men, the actual proportion of desired weight loss can not be predicted in this sample.

III. **Older women's body image concerns will positively correlated with *BMI***

McCabe & Ricciardelli (2003) observed that body concern was associated with BMI scores in adolescent females. It is predicted that there will be an association between body image and BMI for females in this older adult sample. Body image will be measured by the *body image concern* subscale of the BIBC questionnaire. Thus as BMI scores increase then scores on the *body image concern* subscale of the BIBC questionnaire will increase.

IV. **Older men's body image concern will be positively correlated with *BMI* (McCabe & Ricciardelli, 2003), *Muscle Strength* (McCabe & Ricciardelli, 2003) and *Physical Health* (Court, 2002)**

McCabe & Ricciardelli (2003) demonstrated that that body image was associated with BMI scores and strategies to increase muscularity in adolescent males. Court (2002) demonstrated an association between number of physical illnesses and body image in an older adult male sample. In the light of the literature, it is predicted that body image as measured by the *body image concern* subscale of the BIBC questionnaire will be positively correlated with *BMI*, scores on the *strategies to increase muscle strength* subscale of the BIBC questionnaire and *physical health* (as measured by the number of physical illnesses presented).

V. **Body image concerns will be negatively correlated with health controlling behaviours (Wilcox, 1997)**

Wilcox (1997) demonstrated that older women were more satisfied with their bodies if they engaged in exercise. In addition, healthy eating strategies and non-smoking were also found to have a positive impact on body image (Whitbourne & Skultety, 2002). It is predicted therefore that individuals in the sample who engaged in more health controlling behaviours would have more

positive attitudes to their body image. The GPHB checklist, which includes items relating to smoking, exercise and healthy eating, will be used as a measure of health controlling behaviours. The *body image concern* subscale of the BIBC questionnaire will be used as the measure of attitudes to body image. It is predicted that there will be a negative association between scores on the GPHB checklist and the *body image concern* subscale of the BIBC questionnaire.

4. Results

4.1 Statistical Tests Used

Distributions were plotted and examined for outliers but no data points were removed as a result of this procedure. Data were tested for skew and kurtosis: where distributions deviated significantly from the Normal, median and interquartile range were reported instead of mean and standard deviation and non-parametric tests were used in any subsequent analysis.

Comparisons of group means were performed using independent t-tests where the data were distributed Normally and Mann-Whitney tests where the assumptions underlying the t-test data were not supported by the data.

Correlation co-efficients were calculated using Pearson's method where the data were distributed Normally and Spearman's method where the assumptions underlying Pearson's method were not supported by the data.

Level of agreement was determined using the Chi-squared test. All tests performed were two-tailed except where stated otherwise: the Chi-squared test is inherently two-tailed.

4.2 Demographics

Of the 200 questionnaires handed out by the distributors, 169 questionnaires were returned, for an overall return rate of 84.5%. nine of the respondents (5.3%) did not report their weight and, as a consequence, they were removed from the data set. A further seven (4.1%) respondents omitted one or two items from the standardised measures, in which case the mean score for the relevant scale was calculated in order to estimate their likely response without affecting the overall distribution of

the data. A total of 160 completed questionnaires (80.0% of the questionnaires distributed) were available for analysis.

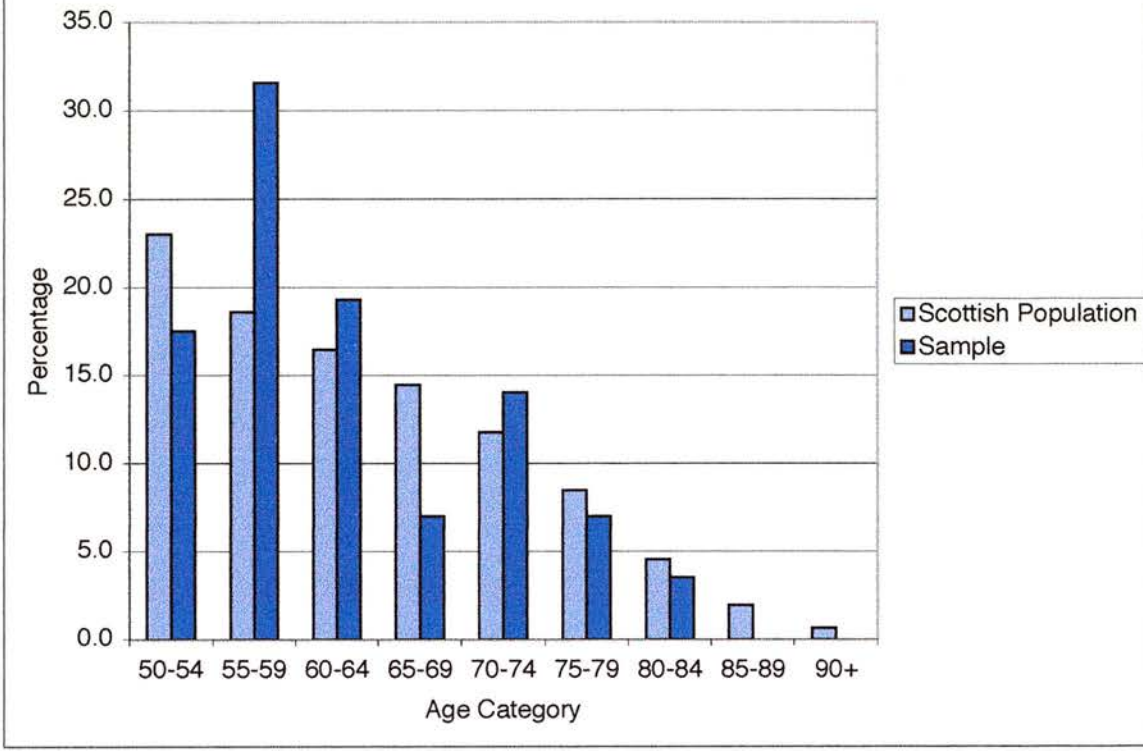
4.2.1 Comparison of Median Age between Older Women and Older Men

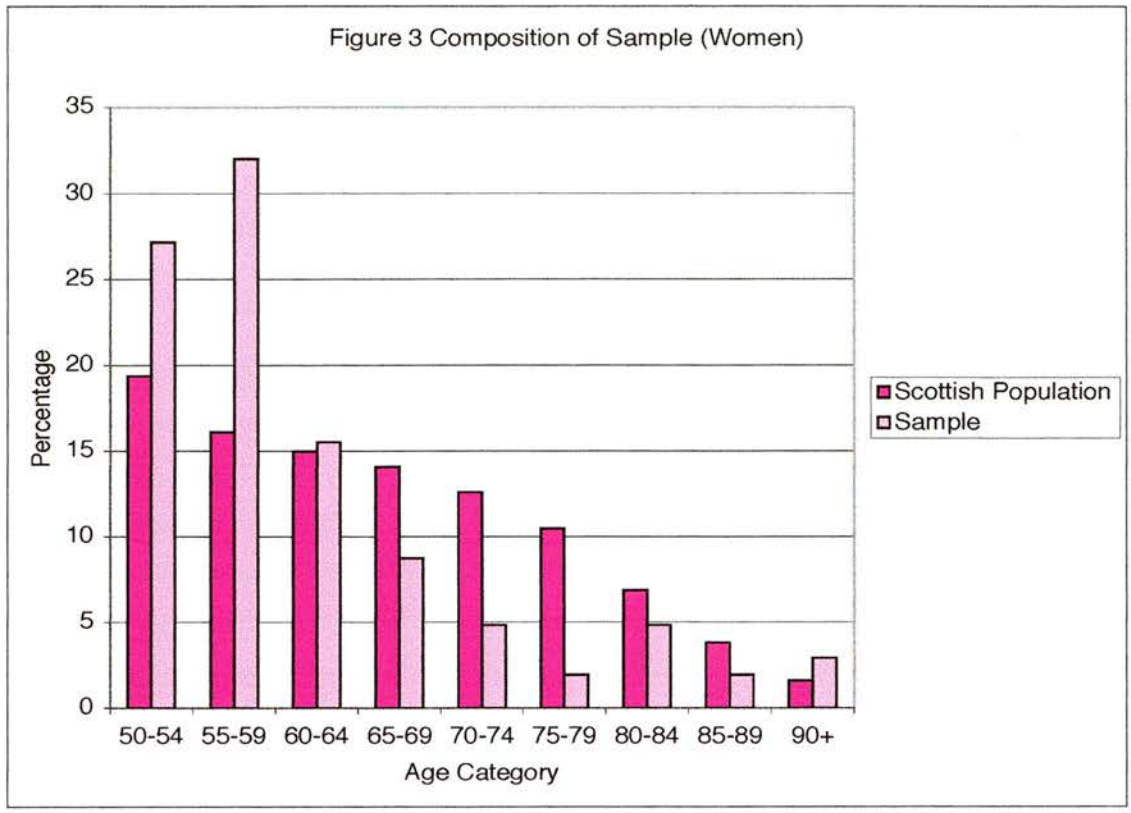
Table 5 Age-Median, Interquartile Range and Range in Older Women and Older Men

	Women	Men
N	103	57
Median	58	60
Interquartile Range	54-66	56-69
Range	50-96	50-84

The median ages of female and male participants did not differ significantly (Mann-Whitney, z=-1.427, NS) (Table 5). Age and gender distributions were derived from the Scottish Census (2001) in order to confirm that the sample population was representative of the general population of Scotland (Appendix 1). The male sample does not differ significantly in terms of age distribution from the Scottish male population (χ=9.58 df=6, NS) (Figure 2). However, there are significantly more women in the 50 to 60 years age band and significantly fewer women in the 70 to 80 age band when compared to the Scottish population (χ=36.33, df=8, $p<0.001$) (Figure 3). This suggests that, in general, the sample population consists of younger "older adult" women than the Scottish population.

Figure 2 Composition of Sample (Men)





4.2.2 Comparison of Actual BMI Scores between Older Women and Older Men

Table 6 BMI- Mean, SD and Range in Older Women and Older Men

	Women	**Men**
N	103	57
Actual BMI Mean	25.9	26.0
Actual BMI SD	3.4	3.9
Actual BMI Range	17.0 to 38.0	21.0 to 37.0

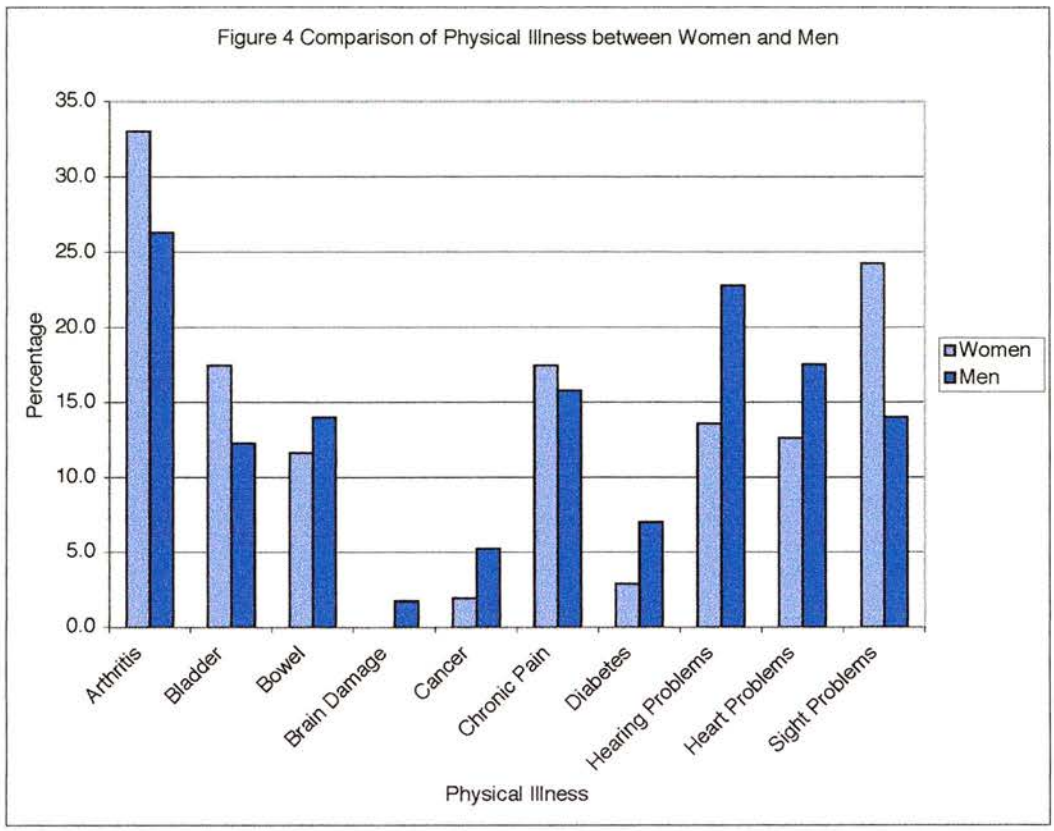
The mean *actual* BMI values of female and male participants did not differ significantly (t=-0.270, df=158, NS) (Table 6).

4.2.3 Comparison of Physical Illnesses Mean Totals Between Older Women and Older Men

Table 7 Physical Illnesses- Mean, SD and Range in Older Women and Older Men

	Women	**Men**
N	103	57
Mean	1.3	1.4
SD	1.4	1.3
Range	0-5	0-5

The mean physical conditions totals of female and male participants did not differ significantly (t=-0.084, df=158, NS) (Table 7). Further, when comparing the individual illnesses, there were no significant differences between the genders (χ=10.194, df=9, NS) (Figure 4).



There were no significant correlations between age and total number of physical illnesses either for men in the sample (Spearman, r=0.221, NS) or for women in the sample (Spearman, r=0.193, NS), nor between age and the *body image concern* sub-scale of the BIBC Questionnaire for either men in the sample (Spearman, r=0.043, NS) or for women in the sample (Spearman, r=-0.148, NS).

4.2.4 Comparison of General Preventative Health Behaviours Checklist Mean Scores between Older Women and Older Men

Table 8 GPHB Checklist - Mean, SD and Range in Older Women and Older Men

	Women	Men
N	103	57
Mean	13.6	12.8
SD	4.7	4.6
Range	3-24	3-22

The (GPHB) checklist (Amir, 1987) mean scores of female and male participants did not differ significantly (t=0.940, df=158, NS) (Table 8). Further, number of physical illnesses did not correlate with number of health control behaviours for either older women (Pearson, r=0.019, NS) or older men (Pearson, r=0.164, NS).

In a Scottish community sample (n=115) age range 65 to 75 years the mean GPHB index was 21.0 (2.8 SD), range 11 to 26 (Johnson, Wright & Weinman, 1995). The level of preventative health behaviours reported in the current study is markedly lower than the suggested norm. The current sample engaged in significantly fewer preventative health behaviours than the normative sample (t=10.82, df=273, $p<0.001$).

4.2.5 Comparison of GHQ-28 Sub-category and Total scores between Older Women and Older Men

Table 9 GHQ-28 - Median, Interquartile Range and Range in Older Women and Older Men

	Women	**Men**
N	103	57
GHQ-28 Somatization Median	5	4
GHQ-28 Somatization Interquartile Range	2 to 8	2 to 7
GHQ-28 Somatization Range	0-14	0-16
GHQ-28 Anxiety Median	5	4
GHQ-28 Anxiety Interquartile Range	2 to 7	1 to 7
GHQ-28 Anxiety Range	0-16	0-13
GHQ-28 Depression Median	7	7
GHQ-28 Depression Interquartile Range	7 to 8	7 to 8
GHQ-28 Depression Range	2-13	4-14
GHQ-28 Suicidality Median	0	0
GHQ-28 Suicidality Interquartile Range	0 to 1	0 to 1
GHQ-28 Suicidality Range	0-12	0-10
GHQ-28 Total Median	1	1
GHQ Total Interquartile Range	0 to 4	0 to 4
GHQ-28 Total Range	0-24	0-21
GHQ-28 Total Caseness (N)	23	12
GHQ-28 Total Caseness (%)	22.3	21.1

There is no significant difference between female and male participants in terms of *GHQ-28 totals* (Mann-Whitney, z=-0.295, NS), *somatization* (Mann-Whitney, z=-1.122, NS, *anxiety* (Mann-Whitney, z=-1.201, NS), *suicidality* (Mann-Whitney, z=-1.871, NS)

and *depression* (Mann-Whitney, z=-0.269, NS) (Table 9). The current sample has a significantly lower frequency of caseness than that of Patterson & Bell (2000) (χ=7.359, df=1, p<0.01).

4.2.6 Comparison of RSE Scale Mean Scores between Older Women and Older Men

Table 10 RSE Scale - Mean, SD and Range in Older Women and Older Men

	Women	**Men**
N	103	57
Mean	19.6	18.9
SD	4.9	4.0
Range	10-35	10-28

The mean scores of female and male participants on the RSE scale did not differ significantly (t=0.593, df=158, NS) (Table 10). Johnson et al., (1995) reported normative data with mean scores of 35.0 (SD 4.8) for a group of men (n=949) and 34.5 (SD 4.9) for a group of women (n=1345). Both female and male participants had significantly lower mean RSE scale scores than the normative data. (t'=29.344, df=118, p<0.001 and t'=28.875, df=66, p<0.001 respectively), indicating higher levels of self-esteem in the current study.

4.3 Initial Questions

4.3.1 Do Older Women have more Negative Attitudes towards Ageing and Appearance than Older Men?

The mean score for male participants on all items of the Ageing Related Concerns questionnaire (Gupta & Schork, 1993) did not differ significantly from the mean scores for female participants (Table 11): *satisfied with physical appearance* item (t=-

2.137, df=158, NS); *belief about the negative effect of ageing on appearance* item (t=1.857, df=158, NS); *losing weight is one sure way of looking younger* item (t=2.283, df=158, NS); *I look younger when I lose weight* item (t=2.113, df=158, NS); *having younger looking skin is a prerequisite to good looks* item (t=2.337, df=158, NS); *I try very hard to prevent my body from ageing* item (t=2.422, df=158, NS).

Table 11 Ageing Related Concerns - Mean, SD and Range in Older Women and Older Men

	Women	**Men**
N	103	57
I am quite satisfied with my physical appearance Mean (SD)	4.7 (1.6)	5.4 (1.9)
I am quite satisfied with my physical appearance Range	0 to 8	0 to 9
I am worried about the effect of ageing upon my appearance Mean (SD)	3.6 (2.5)	2.8 (2.7)
I am worried about the effect of ageing upon my appearance Range	0 to 9	0 to 9
Losing weight is one sure way of looking younger Mean (SD)	4.5 (2.6)	3.5 (2.9)
Losing weight is one sure way of looking younger Range	0 to 9	0 to 9
I look younger when I lose weight Mean (SD)	4.1 (2.7)	3.1 (2.8)
I look younger when I lose weight Range	0 to 9	0 to 9
Having younger looking skin is a prerequisite to good looks Mean (SD)	4.8 (2.7)	3.7 (2.5)
Having younger looking skin is a prerequisite to good looks Range	0 to 9	0 to 9
I try very hard to prevent my body from ageing Mean (SD)	3.8 (2.5)	2.8 (2.3)
I try very hard to prevent my body from ageing Range	0 to 9	0 to 8

Of the values on the Ageing Related Concern questionnaire in this sample only the *Having younger looking skin is a prerequisite to good looks* item differed significantly from the norms presented by Gupta & Schork (1993) and then only for the women ($t=3.332$, $df=139$, $p<0.001$) (Table 3, Table 11).

It would appear that both genders have equivalent concerns regarding the impact of ageing on appearance.

4.3.2 Is Physical illness Associated with Psychological Symptoms in Older Adults?

In this sample no significant correlations were found between physical illness and psychological symptoms: RSE scale and number of physical illnesses for older female participants (Pearson $r=0.241$, NS) and for older male participants (Pearson $r=0.181$, NS) (Table 7, Table 10); GHQ-28 total scores and number of physical conditions for older women (Spearman $r=0.239$, NS) and for older men (Spearman $r=0.308$, NS) (Table 7, Table 9).

4.3.3 Are Psychological Symptoms Associated with Body Image Concerns in Older Adults?

There was a significant positive correlation between scores on the RSE scale and scores on the *body image concern* sub-scale of the BIBC Questionnaire in women (Spearman $r=0.409$, $p<0.01$) but not in men (Spearman $r=0.253$, NS) (Table 10, Table 12). Post hoc power analysis indicates that four times as many male participants would have been required to achieve a significant result given this effect size. This result suggests that females with more negative self-esteem will have more concerns about their bodies and *vice versa*.

There was a significant positive correlation between scores on the GHQ-28 total and scores on the *body image concern* sub-scale of the BIBC Questionnaire in women in the sample (Spearman r=0.318, p<0.01) but not men in the sample (Spearman r=0.158, NS) (Table 9, Table 12). Post hoc power analysis indicates that ten times as many male participants would have been required to achieve a significant result given this effect size. This result suggests that females with more negative psychological symptoms will have more concerns about their bodies and *vice versa*.

4.4 Hypotheses

4.4.1 Hypothesis I: Older Women Have More Body Image Concerns than Older Men

The median score for female participants on the *body image concern* sub-scale of the BIBC Questionnaire (McCabe & Ricciardelli, 2001) was significantly higher than the median score for male participants (Mann-Whitney, z=-3.596, p<0.001 one-tailed) (Table 12).

Table 12 BIBC Questionnaire - Median, Interquartile Range and Range in Older Women and Older Men

	Women	**Men**
N	103	57
Body Image Concern Median	13	10
Body Image Concern Interquartile Range	10 to 17	8 to 14
Body Image Concern Range	0 to 28	1 to 19
Body Image Importance Median	16	20
Body Image Importance Interquartile Range	10 to 24	11 to 22
Body Image Importance Range	0 to 40	2 to 31

	Women	Men
N	103	57
Restricted Eating Practices Median	4	3
Restricted Eating Practices Interquartile	2 to 8	1 to 5
Eating Practices Range	0 to 20	0 to 10
Food Supplements Median	0	0
Food Supplements Interquartile Range	0	0
Food Supplements Range	0 to 10	0 to 7
Body Change Strategies to Lose Weight Median	7	4
Body Change Strategies to Lose Weight Interquartile Range	4 to 9	1 to 7
Body Change Strategies to Lose Weight Range	0 to 19	0 to 15
Body Change Strategies to Increase Weight Median	0	0
Body Change Strategies to Increase Weight Interquartile Range	0	0
Body Change Strategies to Increase Weight Range	0 to 4	0 to 7
Body Change Strategies to Increase Muscle Tone Median	0	0
Body Change Strategies to Increase Muscle Tone Interquartile Range	0 to 2	0 to 3
Body Change Strategies to Increase Muscle Tone Range	0 to 10	0 to 8
Body Change Strategies to Increase Muscle Strength Median	0	0
Body Change Strategies to Increase Muscle Strength Interquartile Range	0	0 to 2
Body Change Strategies to Increase Muscle Strength Range	0 to 6	0 to 8

The mean scores on the Body Image Questionnaire (Reboussin et al, 2000) for female participants were significantly lower than the mean scores for male participants on the *appearance* subcategory (t=-3.046, df=158, p<0.01 one tailed) but not the *function* subcategory (t=-2.070, df=158, NS) (Table 13). Post hoc power analysis suggests that twice as many participants would be required to demonstrate a significant difference given the observed effect size (as was in fact the case for Reboussin et al., 2000).

Table 13 BI Questionnaire - Mean, SD and Range in Older Women and Older Men

	Women	**Men**
N	103	57
Function Mean (SD)	-0.9 (9.1)	2.1 (8.0)
Function Range	-18 to 18	-16 to 18
Appearance Mean (SD)	-1.4 (4.2)	0.8 (4.7)
Appearance Range	-9 to 7	-8 to 9

Older women in the current sample did not differ significantly in terms of *appearance (t'=0, df=116, NS)* and *function (t'=0, df=104, NS)* from Reboussin et al. (2000) female sample. Older men in the current sample were significantly less concerned with their body *function (t'=2.397, df=57, p<0.01)* and *appearance (t'=2.243, df=58, p<0.05)* than the males in the Reboussin et al. (2000) sample.

Furthermore, the *body image concern* subscale of the BIBC questionnaire was significantly negatively correlated with the *appearance* and *function* subcategories of the BI questionnaire for older women (Spearman, r=-0.631, p<0.01, Spearman, r=-0.453, p<0.01) (Table 12, Table 13) and older men (Spearman, r=-0.470, p<0.01, Spearman, r=-0.379, p<0.01) (Table 12, Table 13). This indicates that, for both older

men and women, as the scores increase on the *body image concern* subscale of the BIBC questionnaire (i.e. body image becoming more negative), then their scores on the *appearance* and *function* subcategories of the BI questionnaire decrease (i.e. body image becoming more negative). This suggests that the two questionnaires are likely to be tapping into similar concepts.

In this sample there was a significant positive correlation between the *function* and *appearance* subcategories of the Body Image Questionnaire (Pearson r=0.683, $p<0.001$) (Table 13), suggesting that individuals who were dissatisfied with their body appearance were also dissatisfied with their bodies' functional abilities. This finding casts doubt upon the assertion by (Reboussin et al., 2000) that *appearance* and *function* are independent variables.

Support for hypothesis I is indicated as the predicted relationships across the genders are found for the body image subscale of the BIBC and in the *appearance* subscale of the BI questionnaire. Further, female participants' scores on the *function* subscale of the BI were more negative than those of male participants, as predicted by the hypothesis but this difference did not reach the conservative significance level utilised in the study.

4.4.2 Hypothesis II: Older Adults will Desire Weight Loss despite being of Normal Weight

34.0% of female participants in the *normal* BMI category were engaged in a diet of their own choosing as compared with 15.6% male participants in the *normal* BMI category: however this difference was not statistically significant (χ=3.31, df(1), NS) (Table 14). Overall, 41.7% of the total female sample and 24.6% of the male sample were on a diet of their own choosing (Table 14).

Table 14 Comparison of Dieting Behaviours between Older Women and Older Men and BMI Categories

BMI Category		**Women (n=103)**	**Men (n=57)**
Under	N (%)	2 (1.9)	0 (0)
	Medical Diet N (%)	0 (0)	0 (0)
	Diet N (%)	0 (0)	0 (0)
Normal	N (%)	47 (45.6)	32 (56.1)
	Medical Diet N (%)	5 (8.5)	3 (9.3)
	Diet N (%)	15 (34.0)	5 (15.6)
Over	N (%)	44 (42.7)	16 (28.1)
	Medical Diet N (%)	1 (2.2)	0 (0)
	Diet N (%)	23 (52.3)	4 (25.0)
Obese	N (%)	10 (9.7)	9 (15.8)
	Medical Diet N (%)	1 (1.0)	0 (0)
	Diet N (%)	5 (50)	5 (55.6)

83.0% of female participants in the *normal* BMI category desired to lose weight as compared with 50.0% of male participants in the *normal* BMI category: this difference was statistically significant (χ= 9.78, df(1) $p<0.01$) (Table 15). Further, overall 90% of the older women and 67% of the older men in the sample desire to lose weight (Table 15).

Table 15 Comparison of Desire to Lose Weight between Older Women and Older Men and BMI Categories

		Women	Men
	Total N	103	57
Under	N (%)	2 (1.9)	0 (0)
	Want to lose weight N (%)	0 (0)	0 (0)
Normal	N (%)	47 (45.6)	32 (56.1)
	Want to lose weight N (%)	39 (83.0)	16 (50.0)
Over	N (%)	44 (42.7)	16 (28.1)
	Want to lose weight N (%)	44 (100)	13 (81.3)
Obese	N (%)	10 (9.7)	9 (15.8)
	Want to lose weight N (%)	10 (100)	9 (100)

The hypothesis that a proportion of older adults of normal weight would nevertheless desire weight loss is upheld when comparisons are made in terms of desire to lose weight and actual attempts to lose weight. Although, this effect was more prominent in older women than older men. Significantly more older women than older men in the normal BMI range desired weight loss although similar numbers were actually on a diet.

Those individuals who were over weight and obese were likely to desire weight loss and engage in dieting behaviours.

Table 16 Dieting Behaviours in Participants of Normal Weight who Desired Weight Loss and who were Content with Weight Loss

	Desire to Lose Weight (n=55)		**No Desire to Lose Weight (n=24)**	
	N	%	N	%
Medical Diet	3	5.0%	5	20.8%
Diet of own Choosing	17	30.9%	3	12.5%

The numbers of individuals actually dieting were insufficient to meaningfully investigate the dieting behaviours in these groups (Table 16).

Table 17 Sub-Scales of BIBC Questionnaire in Participants of Normal Weight who Desired Weight Loss and who were Content with Weight Loss

	Desire to Lose Weight (n=55)		**No Desire to Lose Weight (n=24)**	
	Mean (SD)	Range	Mean (SD)	Range
Strategies to Lose Weight	7 (4 to 8)	0 to 18	2 (0 to 4)	0 to 9
Restricted Eating Patterns	3 (2 to 6)	0 to 18	1 (0 to 3)	0 to 10
Body Concern	12 (8 to 14)	3 to 28	9 (7 to 14)	1 to 16

Table 18 Physical Illnesses, Preventative Health Behaviours, Self-esteem and GHQ-28 in Participants of Normal Weight who Desired Weight Loss and who were Content with Weight Loss

	Desire to Lose Weight (n=55)		**No Desire to Lose Weight (n=24)**	
	Median (Interquartile Range)	Range	Median (Interquartile Range)	Range
Physical Illnesses	1.1 (1.3)	0 to 4	1.1 (1.0)	0 to 4
Preventative Health Behaviours	12.9 (4.7)	4 to 24	15.2 (5.5)	4 to 22
Self-Esteem	19.3 (4.9)	10 to 35	19.0 (3.9)	11 to 26
GHQ-28 Total	1 (0 to 3)	0 to 16	1 (0 to 3)	0 to 9
GHQ-28 Somatisation	4 (1 to 7)	1 to 14	4 (1 to 7)	0 to 13
GHQ-28 Anxiety	4 (2 to 7)	0 to 14	4 (1 to 7)	0 to 6
GHQ-28 Depression	7 (7 to 8)	2 to 13	7 (7 to 8)	6 to 11
GHQ-28 Suicidality	0 (0 to 1)	0 to 9	0 (0 to 1)	0 to 6

Participants (both genders) of normal weight who indicated that they desired to lose weight presented with significantly higher scores on the *body image concern* sub-scale of the BIBC Questionnaire (Mann-Whitney, $z=-2.571$, $p<0.01$) on the *strategies to lose weight* sub-scale of the BIBC Questionnaire (Mann-Whitney, $z=-4.374$, $p<0.001$, and on the *restricted eating patterns* sub-scale of the BIBC Questionnaire (Mann-Whitney, $z=-2.904$, $p<0.01$) as compared to those participants (both genders) of normal weight who did not desire to lose weight (Table 17).

Participants (both genders) who desired to lose weight did not differ significantly in terms of the mean number of physical conditions ($t=-0.045$, $df=74$, NS); mean scores on the GPHB Checklist ($t=1.815$, $df=74$, NS), mean scores on the RSE Scale ($t=-0.257$,

df=74, NS), median scores on the GHQ-28 total (Mann-Whitney, z=-0.657, NS), median scores on the *somatisation* sub-scale of the GHQ-28 (Mann-Whitney, z=-0.305, NS), median scores on the *anxiety* sub-scale of the GHQ-28 (Mann-Whitney, z=-0.451, NS,), median scores on the *depression* sub-scale of the GHQ-28 (Mann-Whitney, z=-0.349, NS) and median scores on the *suicidality* sub-scale of the GHQ (Mann-Whitney, z=-0.034, NS) as compared to those participants (both genders) who did not desire to lose weight (Table 18).

In the normal BMI range individuals with above average BMI were no more likely than individuals with below average BMI to desire weight loss (χ=0.826, df=1, NS).

Individuals of normal weight who desire to lose weight have significantly more body image concerns and engage in significantly more strategies to lose weight and restrict their diets than those who do not desire weight loss. Moreover, these individuals do not differ significantly in terms of psychological symptoms (GHQ-28 and RSE scale), physical health, preventative health behaviours or range of normal BMI scores.

4.4.3 Hypothesis III: Older Women's Body Image Concern will be Positively Correlated with BMI

The BMI scores for female participants were positively correlated with their scores on the *body image concern* sub-scale of the BIBC Questionnaire (Spearman r=0.258, p<0.01 one-tailed) (Table 6, Table 12).

As predicted, the higher the women's BMI score the more negative their body image concerns were likely to be: the hypothesis was upheld.

4.4.4 Hypothesis IV: Older Men's Body Image Concern will be Positively Correlated with BMI, Muscle Strength and Physical Health

The BMI scores for male participants were positively correlated with their scores on the *body image concern* sub-scale of the BIBC Questionnaire (Spearman r=0.390, p<0.01, one tailed) (Table 6, Table 12).

The older male participant's scores on the strategies to increase muscle strength subscale of the BIBC questionnaire was not correlated significantly with their scores on the body image concern subscale of the BIBC questionnaire (Spearman r=0.266, NS). Post hoc power calculation suggests that for this effect size more than 200 male participants would have been required to demonstrate a significant result: indeed McCabe & Ricciardelli (2003) had 237 male participants in their study.

The mean number of physical conditions reported by male participants showed a significant positive correlation with their scores on the *body image concern* sub-scale of the BIBC Questionnaire (Spearman r=0.346, p<0.01 one-tailed) (Table 7, Table 12).

Although as predicted from the literature older males' body image would be related to BMI and physical illness the corresponding trend for younger men in the literature to be focus on strategies to increase muscle strength was not demonstrated in this older adult male population. Thus there is evidence to support that older men's body image concern is associated with BMI and physical health but the support is insufficient for an association with muscle strength.

4.4.5 Hypothesis V: Body Image Concerns will be Negatively Correlated with Health Controlling Behaviours

In the sample as a whole there was not a significant negative correlation between body image concerns and health controlling behaviours (Spearman r=-0.183, NS).

However, mean scores on the GPHB Checklist were significantly negatively correlated with the b*ody image concern* sub-scale of the BIBC Questionnaire in women (Spearman r=-0.356, p<0.001) but not in men (Spearman, r=-0.088, NS) (Table 8 & Table 12) Post hoc power analysis indicates that at least 2000 male participants would have been required to achieve a significant result given this effect size. For women in the sample, but not the men, the more likely they were to engage in health controlling behaviours, the fewer body image concerns they expressed: equally the more body image concerns they expressed the less likely they were to be engaging in health controlling behaviours. It is interesting that this trend is not the case for older males despite physical illness being associated with their body image concerns.

Hypothesis V is not upheld because the correlation was not demonstrated in men and evidence from post hoc power calculation suggests that it would be a minimal effect if any. As the relation was demonstrated in women it suggests further research.

It is interesting to note that types of body control behaviours differed between the genders: the mean scores for female participants on the *restricted eating patterns* sub-scale and the *strategies to lose weight* sub-scales of the BIBC Questionnaire were significantly higher than the mean scores for male participants (Mann-Whitney, z=-2.918, p<0.01; Mann-Whitney, z=-3.567, p<0.001, respectively) (Table 12). The median score for male participants on the *strategies to increase muscle strength* sub-scale of the BIBC Questionnaire was significantly higher than the median score for female participants (Mann-Whitney, z=-3.763, p<0.001 one-tailed) (Table 12).

4.5 Summary of Initial Questions and Hypotheses

Initial Questions
I. Older women and older men had similar attitudes towards ageing and appearance
II. Physical illness was not associated with psychological symptoms in older adults
III. Psychological symptoms were associated with body image concerns in older women only
Hypotheses
I. Older women had more body image concerns than older men
II. Older adults desired weight loss despite being of normal weight
III. Older women's body image concern was positively correlated with BMI
IV. Older men's body image concern was positively correlated with BMI and physical health but not muscle strength
V. Body image concerns were negatively correlated with health controlling behaviours in women only

5. Discussion

Extension of the literature on adolescents and young adults and further exploration of concepts derived from research on older adults has yielded a number of significant findings relating to gender differences in body image in the general population of older adults.

In the present study, older women were found to have more body image concerns than older men. Older women's body image concern was found to be associated with BMI, whereas older men's body image concern was associated with BMI and physical health. Both older women and older men desired weight loss despite being of normal weight, although this was more common in older women. Body image concerns in older women were associated with fewer age controlling behaviours and more psychological symptoms.

5.1 Initial Questions Discussed

5.1.1 Do Older Women have More Negative Attitudes towards Ageing than Older Men?

'Olay's Special Care range combines performing anti-ageing technologies to essential moisturisation to give you visibly younger looking skin.'

www.olay.co.uk

Older men and women in this sample appear to have equivalent concerns regarding the impact of ageing. This finding corroborates work by Gupta & Schork (1993) that both men and women have concerns about the negative effect of ageing on appearance. Interestingly, this is counter intuitive to the Western social stereotype that the appearance of ageing will have more of a negative impact for women than men, in terms of looking *'distinguished'* as a man ages and the focus of anti-wrinkle

face and hand creams directed at the female ageing market. Of note, a leading face cream manufacturer is now targeting British women in their late twenties as candidates for anti-ageing treatments.

Gupta (1995) highlighted the association between age related concerns and desire for weight loss. Moreover, Gupta (1988 & 1995) emphasised the further connection between desire to lose weight in an ageing sample and the risk of developing of eating disorders, particularly if Western societies continue to espouse the virtues of youthful appearance. In the present sample both women and men demonstrated negative attitudes towards ageing and body image concerns were correlated with BMI, accordingly, there could be a potential vulnerability for eating disorders in an older adult population.

It would be beneficial to explore the impact of current social stereotypes and the attitudes purveyed in the media on attitudes to body image in older men and women. It is likely that older women will be more exposed than older men to youthful ideals and the direct message that wrinkles are to be avoided, as there is a larger volume of advertisements for female beauty products and *'cures'* for the effects of ageing (Figure 4 Henry J Kaiser Family Foundation, 2003).

Figure 4 Themes of Advertisements Targeting Women

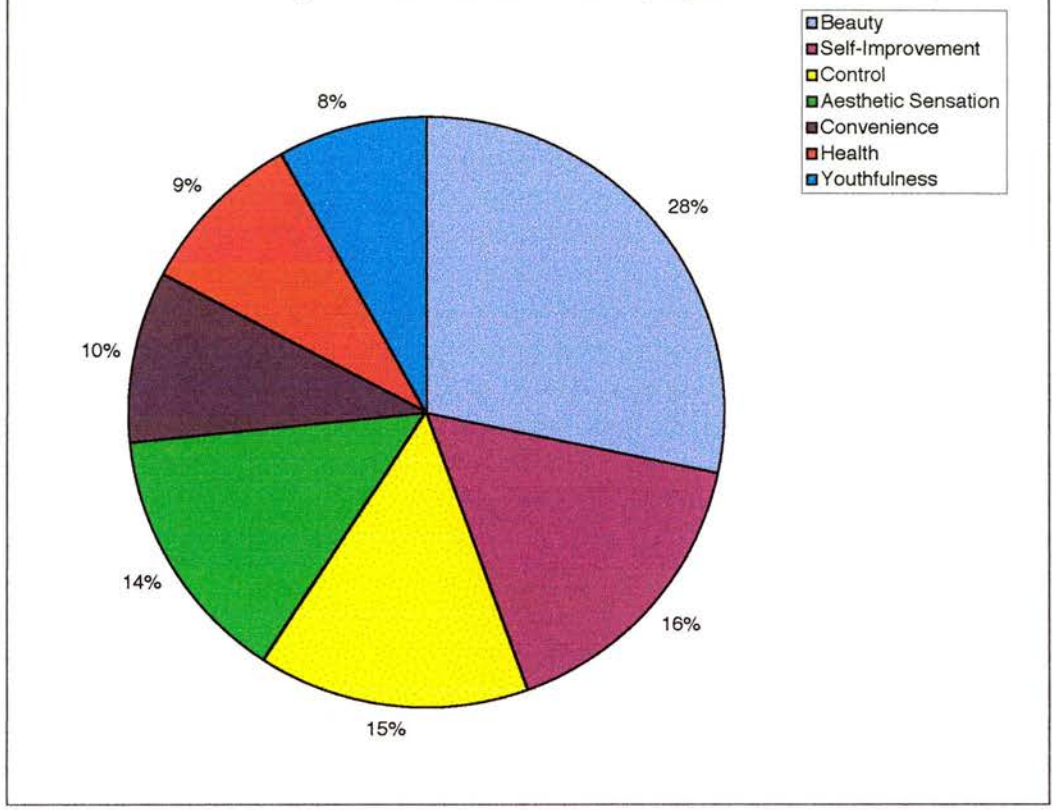
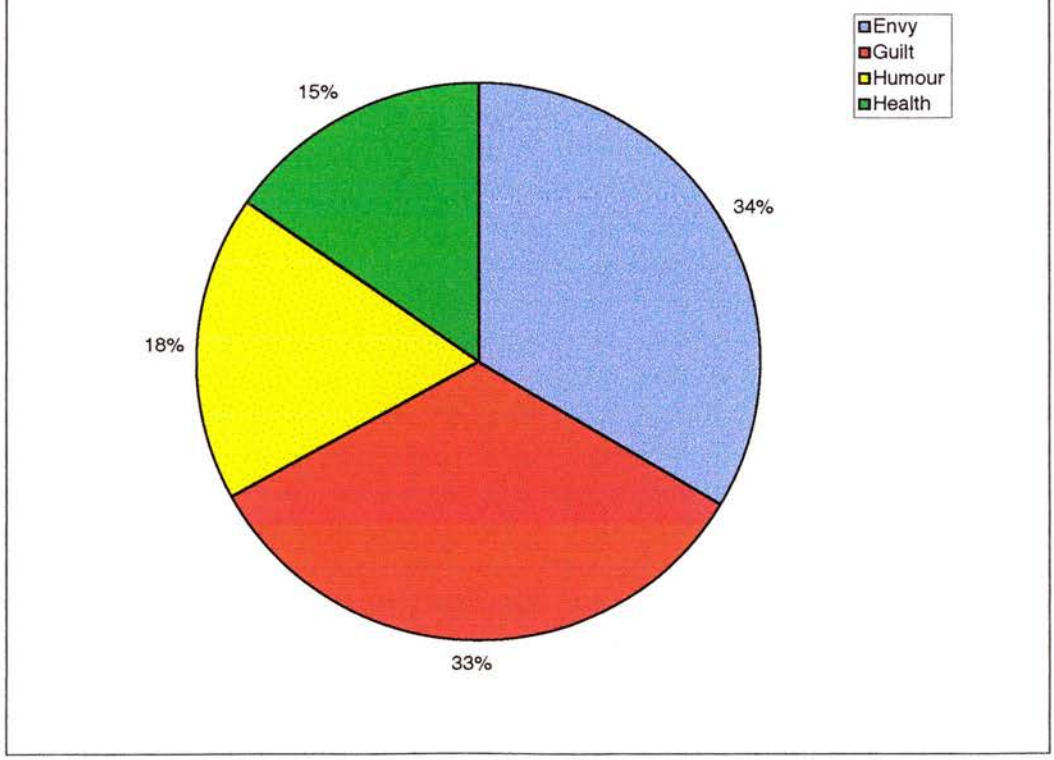


Figure 5 Themes of Advertisements Targeting Men



Anti-ageing creams targeted at the female market are represented as highly technologically advanced and purport to reduce the appearance of ageing of specific areas of the face and body. Leading brands market creams specifically for the areas of the face prone to wrinkling such as the eyes, forehead, cheeks and the mouth and hands and feet. Conversely, men are either not catered for or the focus of creams is on providing the appearance of *healthy* and *strengthened* skin rather than targeting ageing directly (Figure 5). The different attitudes towards ageing depending on gender presented by the media may explain the observation that women have significantly more concerns about ageing than men.

As reported, Gupta & Schork's (1993) Ageing Related Concerns questionnaire has not been rated for validity or reliability and did not have an overall score that would have facilitated usage. However, the present study has replicated their findings, apart from females' responses to the item *Having younger looking skin is a prerequisite to good looks*, which was rated as significantly lower than Gupta & Schork's (1993) sample. This finding may have been due to cultural differences between a Canadian and Scottish sample or the older age range in the current study.

5.1.2 Is Physical Illness Associated with Psychological Symptoms in Older Adults?

Interestingly, for both older men and women the number of physical health problems was not associated with presentation of psychological difficulties. However, for older men only, the number of physical illnesses had a direct relation to concerns with body image. This could be due to the impact of physical illness on a sense of physical wellbeing, which in turn may relate to male body image rather than other psychological symptomatology.

The psychological impact of illness explored in the literature is related to specific illnesses and it is likely that the tally of illnesses used in this study may not be sensitive enough to examine the specific components of the physical illness which has psychological repercussions. The influence of specific illnesses was not explored, but rather the accumulation of physical health complaints. Although the measure of physical illness is merely a list of illnesses, the predictions of the study relating to physical illness in older men have been borne out and are a replication of Court (2002). The accumulative psychological effects of suffering a number of illnesses in combination should be further elucidated in future research. There is a need for a measure to be developed which accounts for the psychological influence of a specific physical illness and the aggregated effects of a number of illness. However, development of a novel measure was beyond scope of this study. Whitbourne & Collins (1998) developed the Physical and Cognitive Change Scale, which assessed appearance (grey hair, body fat and wrinkles), competence (mobility, muscle strength, physical activities, joint pain, housework and driving) and basic functions (shortness of breath, bladder control, dentures, eating discomfort, constipation and sexuality). Participants were required to rate the importance of each item: the total was found to be related it to self-esteem and self-identity; this might well be a suitable measure for future investigations, but was not made available in time to be used in the current study.

5.1.3 Are Psychological Symptoms Associated with Body Image Concerns in Older Adults?

In older women only, greater psychological symptomatology (in terms of lower self-esteem and the higher scores on the GHQ-28 total) were associated with more body image concerns. This result is consistent with evidence from the literature in relation

to adolescents (McCabe, Ricciardelli & Banfield, 2001 and Mendelson et al., 2002). This suggests that negative attitudes towards body image may be part of a global negative belief system held by the individual. Alternatively, adhering to a negative body image may in turn lead to feelings of inadequacy in other areas of your life. Although, this sample of older men presented with similar concerns relating to ageing appearance, it could be postulated that this did not have wider implications to their general psychology health and self-esteem unlike women. It would be beneficial to explore the relative impact of these factors in terms of gender difference.

5.2 Hypotheses Discussed

5.2.1 Hypothesis I: Older Women will have Significantly more Body Image Concerns than Older Men

As predicted, it was demonstrated that, in this non-clinical sample of older adults, older women had more concerns about their body image than older men. This finding was observed across the majority of measures of body image utilised in this study. This result is consistent with the limited evidence from the literature in relation to men (Tiggemann & Lynch, 2001) and ageing (Gupta & Schork, 1993) which suggests, in combination with studies investigating children, adolescents and young and middle aged adults, that this gender difference spans the lifetime and is thus independent of age (Tiggemann & Lynch, 2001).

Older adults in their 60's and 70's were adolescents in the 1940's and 1950's when the ideal bodies, particularly women's, were fuller figures such as Marilyn Monroe and Jane Mansfield (Tiggemann & Lynch, 2001). Men and women in their 50's will be have been adolescents in the 1960's, when the thinner ideal body was more prevalent (Rand & Wright, 2000), particularly women such as Twiggy and Audrey

Hepburn. Although cultural *ideals* of body image have varied over the years, female discontent with body image remains stable: any possible cohort differences do not explain the observation of stable female dissatisfaction with body image across the life span. A longitudinal study, perhaps over 50 years, assessing the impact on individuals of changing attitudes towards body shape across their lifespan would be extremely enlightening, although probably highly impractical due to issues of participant and researcher retention and funding.

It would be interesting to further explore the possible reasons for this gender difference. In the current study, physical health status, BMI, age, self-esteem and psychological symptoms as measured by the GHQ-28 were not found to be significant variables in this gender difference. In future research, it may be useful to target other possible factors such as issues of actual and ideal self and the influence of media (Pliner, Chaiken & Flett, 1990).

5.2.2 Hypothesis II: Older Women and Older Men will Desire Weight Loss Despite Being of Normal Weight

The hypothesis that older women of normal weight would nevertheless desire weight loss is upheld when comparisons are made in terms of both desire to lose weight and actual attempts to lose weight. Further, these relationships were also observed in men, although to a lesser degree as significantly fewer older men of normal weight than older women of normal weight desired weight loss. This result replicates the finding demonstrated in adolescents that both genders of normal weight desire to lose weight (Rolland, et al., 1996) and that this is more pronounced in females. Further, this finding corroborates work by Allaz et al. (1998) and Hetherington & Burnett (1994) in female older adult populations only. The current study extends this finding to older adult males. In comparison with Allaz et al.

(1998) who observed that 62% of the women over 65 years in their sample desired to lose weight, in this sample 67% of the men and 90% of women aged over 50 years desired to lose weight.

5.2.2.1 Desire for Weight Loss in the *Normal* BMI Range

In this sample, individuals of normal weight who desire to lose weight have significantly more body image concerns. This is consistent with the suggestion made by Platte, Zelten & Stunkard (2000), although they offered no data to support this opinion. Further, the normal weight individuals who desired weight loss in the current sample engage in significantly more strategies to lose weight and are more restrictive in their food intake than those who do not desire weight loss. Moreover, these individuals do not differ significantly from those content to be of normal weight in the sample in terms of psychological symptoms (GHQ 28 and RSE scale), physical health or preventative health behaviours. Further, the BMI *normal* weight category has a range of some 20% of the *ideal* body mass for a given individual: it is therefore possible to be within the *normal* range and lose up to a stone of weight and remain within the *normal* range. Nevertheless, individuals in the *normal* weight category who desired weight loss were no more likely to be in the upper half of the *normal* range than in the lower half, which suggests that this observation is unlikely to be an artefact of the BMI category system utilised in the current study.

5.2.2.2 Future Research

The reason behind individuals' desire to lose weight despite being of normal weight therefore remains open to further investigation. Potential avenues for exploration could include the use of ideal size silhouettes (Platte, Zelten, & Stunkard, 2000) to determine whether the ideal body size for those desiring weight loss was less than for those content with their weight and the influence of the media in presenting as role models individuals within the underweight category.

5.2.2.3 Impact of Dieting in Individuals of Normal BMI

The individuals who desire weight loss despite being of normal weight engage in restricted eating and strategies to lose weight. There are negative physical health risks for individuals who are of normal weight but who are also dieting chronically. Many individuals engage in unhealthy dieting behaviours such as fasting and utilise appetite suppressants (Ackard, Croll & Kearney-Cooke, 2002). Furthermore, a restricted diet hinders essential micronutrient intake (e.g. calcium, iron, magnesium, zinc, and B complex vitamins), which in turn leads to compromised energy production, haemoglobin synthesis, maintenance of bone health and strength and inadequate immune function (Manore, 1996). Moreover, long-term psychological consequences of chronic dieting have been reported, such as depression and a future vulnerability to eating disorders (Cohen-Tovee, 1993). Further, Ackard, Croll & Kearney-Cooke (2002) also observed a positive correlation between dieting frequency in normal weight young women and depressive symptomatology and expression of eating disorder behaviours. They emphasise the need to discourage individuals of normal weight from engaging in dieting behaviours. Goodwin, et al (2003) observed that a restricted diet post cancer surgery was a vulnerability factor for increased likelihood of mortality.

Dieting despite being of normal weight has detrimental consequences, particularly in the older adult population where malnutrition is likely to lead to compromised health and admission to hospital. Fallaz et al. (1999) recommended an increased awareness of older women's eating habits and attitudes to weight. The findings of the current study imply that health promotion strategies targeting the screening of possible body image concerns in normal weight individuals and the subsequent psychological treatments of these concerns (Wenninger, et al., 2003) may indirectly

reduce dieting behaviours and therefore the likelihood of physical and psychological difficulties.

The findings on dieting behaviours and attitudes to losing weight in the over weight and obese are not consistent with Manore (1996) who reported a health paradox in America: normal weight individuals were dieting and overweight and obese individuals were not. In the current study, 100% of females who were overweight and obese and 83% of overweight and 100% of obese males desired to lose weight and of them approximately 50% were actually on diets of their own choosing as compared to approximately 30% of normal weight individuals who were on diets of their own choosing. This may be a reflection of cultural differences between the United States of America and the United Kingdom, either in terms of general attitudes to health or the efficacy of health promotion interventions e.g. Health Education Board of Scotland (HEBS). Encouragingly, Ackard, Croll & Kearney-Cooke (2002) advocated the positive benefits of weight loss in individuals who are over weight and obese in terms of physical and psychological health status.

5.2.3 Body Images in Older Adults-Gender Differences

The present study has demonstrated not only that older women have more negative attitudes to body image than older men but also that body image in older adulthood is associated with gender specific variables.

As predicted from evidence in children and adolescent populations (McCabe & Riccidelli, 2003), older women's body image is primarily focused on their BMI or more specifically, their weight related appearance (Hypothesis III) and they engage in more behaviours to control weight than older men. 90% of the older adult female sample desired to lose weight: 83% of females of normal weight desired weight loss

and had more body image concerns when compared to the females who were content with their normal weight status.

Once more, as observed in younger samples (McCabe & Riccidelli, 2003), older adult males' body image is associated with BMI (Hypothesis IV). This association is given further credence in the current sample as 67% of the older adult male sample desired to lose weight: 50% males of normal weight desired weight loss and had more body image concerns when compared to males who were content with their normal weight status. Further, as predicted from a pilot study (Court 2002) older men's body image was also associated with number of physical illnesses experienced (Hypothesis IV). Banks (2002) stated that men are significantly less likely to attend the GP's surgery than women, therefore presenting late with symptoms, which considerably increases the risk of mortality. The current result in combination with findings from Banks (2002) suggests that body image concerns associated with physical illness, could be undetected for longer in men.

However, unlike in the case of younger male samples (McCabe & Riccidelli, 2003), older adult males body image does not appear to be focused on strategies to increasing their muscle strength (Hypothesis IV). Placing the current result with older adult males in the context of the adolescent literature, appears to suggest that desire for muscle strength could well be a more recent phenomenon and perhaps related to the current trend of gym usage over the past 20 years. This suggests that for the current older adult male cohort (aged 50 years and over) muscularity may be less pertinent than simple fitness. Further, it would be important to further explore the differing concepts of desire for muscle strength and engagement in physical exercise for health reasons. Correspondingly, the older males in the current study did present with concerns relating to physical health status.

In a student population (under 30 years), Hausenblas & Fallon (2002) demonstrated that males had a more positive body image if they engaged in more physical exercise and females had a more positive body image if they had lower BMI. This finding corroborates work by Whitbourne & Collins (1998), who suggested that older adult men's body identity is focused on competence. It could be advocated that male body image adheres to Western stereotypes of masculinity, namely that of strength, endurance and stamina. Conversely, female body image is related with gender stereotypes advocated in Western culture, namely appearance of skin and body form.

These results also emphasise the need to utilise measures of body image that encompass a range of different components such as BMI, fitness and physical health factors. Further, this gives further credence to the notion that body image is not a unitary entity, rather a multidimensional concept that differs between genders, age cohorts, cultures and also differ between individuals.

The current study did not replicate work by Reboussin et al (2000): women had more concerns relating to only appearance but not function on the BI questionnaire when compared to men which could be due to smaller sample size and corresponding lack of power thus not entirely negating evidence for Hypothesis I, that older women would have more body image concerns than older men. Alternatively, older men in this sample may have similar concerns relating to body function to the older women in this sample. However, physical illness appears to be a more pertinent concept in older adult male body image than older adult female body image in this sample: this suggests that physical illness and function measures are not evaluating the same concept.

Interestingly, the current study did not replicate Reboussin, et al.'s (2000) finding that appearance and function sub-categories in their Body Image Questionnaire were independent entities. This may well have been due to the limitations of their study in terms of their sample, which consisted of sedentary individuals, or the questionnaire design. The *function* subcategory had twice as many items as the *appearance* subcategory which permits more variability in *function* scores than in *appearance* scores.

It could be considered that the use of the Body Image & Body Change Questionnaire which was developed in child and adolescent populations from Australia may have been inappropriate in older adult populations in Britain. However, upon examination of the specific items of the questionnaire, there appeared to be no items specific to younger populations. The present study has replicated the trends demonstrated in younger samples in an older adult population with the aforementioned exception of muscularity.

5.2.4 Hypothesis V: Body Image Concerns will be Negatively Correlated with Health Controlling Behaviours

It was observed that women who engaged in more health controlling behaviours had more positive attitudes to their body image. This result confirms previous research which asserted that engaging in healthy behaviours, which prevent illness, provided the individual with a sense of control over the ageing process (Whitbourne & Skultety, 2002). Alternatively, individuals with psychological symptomatology (which is likely to lead to a lack of motivation for change and negative beliefs about themselves) may not engage in healthy behaviours and are therefore likely to exacerbate their current situation, as they are then vulnerable to illness, which was found to be associated with psychological distress and body

image concerns. Interestingly, these results were not demonstrated in men and this may be due to the sample size or differing styles of adaptation relating to ageing between genders. A larger sample size may elucidate this finding.

Ultimately, number of illnesses did not correlate with health behaviours in this sample, suggesting that it may be a more complex association than experience of illness, including issues of gender and attitudinal beliefs relating to illness and control that may influence engagement in health behaviours. Future research might focus upon these potential interactions.

Further, there appeared to be differences in other body control behaviours between the genders: older females tending to utilise restricted eating strategies and older men being more likely to engage in exercise.

Ageing is a modifiable process (selection, optimization and compensation) (Baltes, 1991). The effects of ageing can be modified in terms of engagement in healthy behaviours (compensation) including exercise and a nutritious and well-balanced diet. However, there should also be an acceptance of the physical changes in appearance away from 'youthful features' and perhaps an optimization of other attributes of the individual. Alternatively, body image in older adults could be based on new role models not focused on the unattainable 'youth role', with the positive attributes of the aged body explored. This view was advocated by Tiggemann & Lynch (2001) who suggested that women may shift their body ideal to age matched role models.

5.3 Additional Limitations of the Study

In addition to the limitations of the study that have been discussed above, further considerations are described below.

5.3.1 Demographic Details

Demographic details such as occupation, nationality, educational attainment and socio-economic status were not gathered in the present study, as it was considered that this would undermine the anonymity of the sample and increase questionnaire completion burden, thereby deterring participants from opting-in to the study. Moreover, these demographic variables were not planned to be used in the analysis of the data, so were viewed as surplus to requirements as the focus was on gender comparisons only. However, as a consequence of the collection of minimal demographic details, the current sample can only be considered in terms of age, psychological symptomatology (self-esteem and GHQ-28 scores), BMI and physical illness. In this field, comparison of samples with an equivalent distribution of BMI is of particular relevance (Ackard, Croll & Kearney-Cooke, 2002) and is considered a strength of the current study. Other researchers in the field have matched education level (Hetherington and Burnett, 1994 and Allaz et al., 1998) and ethnic origin (Reboussin et al., 2000 and Franko & Strigel-Moore, 2002); in the future samples matching for BMI would permit clearer investigation of other variables such as gender differences. Ultimately, if questionnaires had been administered by the researcher in person, then this may have facilitated gathering more in-depth demographic details as a rapport could have been built up between researcher and participant, although potential disadvantages of such an approach are described below.

5.3.2 Social Desirability in Questionnaire Completion

It maybe the case that, rather than describe their actual beliefs or behaviours participants may be tempted to give the socially desirable response. Paulhus & Reid (1991) suggested that this might be due to 'impression management' (i.e. trying to put oneself in a good light with the interviewer) and 'self deception' (i.e. preserving

one's own self-esteem). These biases might lead to over- and under-reporting of desirable and undesirable behaviours and attitudes respectively: moreover relationships between variable may be distorted by this bias. Nancarrow & Brace (2000) review a number of ways of determining the degree of Social Desirability Bias and concluded that, in the absence of a valid data set against which responses can be checked, impression management is best reduced by 'distancing the interviewer from the participant' e.g. using a self-report questionnaire and providing 'demonstrable anonymity', as is the case in the current study. As can be seen from the copy of information leaflet (Appendix 2) and the questionnaire (Appendix 3), there were no codes or other identifying marks that participants could interpret as potential identifiers, therefore participants could be assured of anonymity when opting in to the study. With regard to self-deception, Nancarrow & Brace (2000) conclude that there is no certain way of eliminating this type of response, nor even anyway of testing for it. As a consequence, no lie-scale was included in the current study.

5.3.3 Correlations

A characteristic of the study was that many comparisons of the data were correlational. As a consequence, the specific direction of the causal relationships between factors was not established. The aim of the study was to confirm associations in older adults, which had been demonstrated in younger or restricted populations. Future research might now focus upon the strength and causality of the identified relationships as components of a formal model of the origin and maintenance of body image disturbance across the age range e.g. the Cognitive Model advocated by Kearney-Cooke, 2002).

5.3.4 Definition of Dieting

It would be useful for future investigations to further clarify the definition of dieting for participants. This would enable the exploration of the implications of healthy (reduction in fat and sugar intake) and unhealthy (fasting and purging, which may be more associated with vulnerability to eating disorders) forms of dieting. Although this study did distinguish between dieting for medical reasons and choosing to diet, the specific reason for the diet was not elucidated. Medical diets may be for control of glucose intake (e.g. as in type II diabetes) or aimed at weight loss. Further, exercise behaviours were not examined in detail and it is conceivable that individuals may exercise in order to lose weight and or to change body shape.

The sample ranged in age from 50 years to 96 years and, although between the genders they did not differ in terms of mean age, psychological symptoms, physical health symptoms and BMI, they are likely to have experienced a variety of different life events and social influences as a consequence of the almost 50 years between the youngest and oldest participants. For example, the participants were adolescents at some time from the 1920's to 1960's: social trends in ideal body shape, nutrition and exercise and the effects of World War I and II, particularly rationing in the 1940's, may have impacted upon individuals' notion of an ideal body image and corresponding behaviour.

In addition, more recently, old age has been sub-categorised in the literature into middle aged (55-64 years), the young old (65-74 years), the old (75-84 years), and the oldest old (85+ years). (Seccombe, Ishii-Kuntz & Dinan, 1991 and Young & Malbut, 2002). It is considered that there may be differences in terms of physical illnesses between young-old, old-old and oldest-old (Duggleby, Bateman & Singer, 2002). However, in this sample age was not associated with physical illness. Unfortunately, the number of participants in this sample precluded the possibility

of analysing the data, as has been done in other studies, in 10 year age groups, (Allaz, et al., 1998 and Reboussin et al., 2000) or by old age categories (Seccombe, Ishii-Kuntz & Dinan, 1991).

Future research could compensate for the current study not specifically assessing attitudes to the direct signs of ageing such as wrinkles, grey and thinning hair. Of note, Franzoi, Anderson & Frommelt (1989) assessed attitudes to balding in men (n=91) ranging in age from 23-66 years but demonstrated that onset of balding did not appear to effect an man's public self-consciousness (tendency to be concerned about one's public appearance).

5.3.5 Problems with Self-Report Questionnaires

The use of self-report questionnaires raises certain methodological concerns. Particularly in an anonymous study, the accuracy of data such as BMI is difficult to assess. Other researchers in the field used the method of semi-structured interview either in person in the researcher's office, in the participant's home or in a neutral setting i.e. shopping centre or over the phone (Allaz et al., 1998 and Reboussin et al., 2000). The use of semi-structured interviews facilitates validation of the data and clarification of the questionnaire items for the participants. Allaz et al., (1998) obtained a 70% response rate by contacting individuals on the official residence list by mail to organize a meeting in a mobile epidemiology unit and then a follow up telephone call up to seven times if the individuals did not response to up to three letters.

However, the use of a self-report measure in the current study yielded a response rate of 80%. This higher response rate and the benefits of self-report were considered to outweigh the possible costs of direct interviewing:

- Burden on the participant

-Participants were able to choose when and where to fill out questionnaire, thus fitting more naturally into their day

-Participants could select where to complete the questionnaire to avoid any possible embarrassment and retain anonymity

- Burden on the researcher

-The financial and time constraints of traveling to 160 participants' homes was a restraint, particularly as the researcher had health problems, which rendered transport problematic.

5.3.6 Representativeness of the Sample

The sample has been found to be over represented in the female 50-60 years age range and under represented in the female 70-80 year age range as compared to the Scottish population. Further, it was observed that both older men and older women did not engage in as many preventative health behaviours when compared to normative data. The normative sample ranged in age between 65 and 75 years: in comparison the current sample ranged in age from 50 to 96 years. Older adults have been reported to engage in more preventative health behaviours than younger and middle aged adults (Prohaska et al., 1985); particularly as the younger age range was over represented in the current sample, this may have affected the presentation of preventative health behaviours. Moreover, the current sample was observed to have significantly higher self-esteem and lower psychological symptoms than normative samples. This may have been due to the wide age range in the RSE scale normative sample (18 to 65 years) and that the sample providing the comparative GHQ-28 scores was derived from a population that was working in NHS psychiatric wards, i.e. under the retirement age and working in a potentially stressful environment. In the present study, male attitudes towards function and appearance

was significantly more positive than for males in the Reboussin et al. (2000) sample. This finding is relatively unsurprising, given that the Reboussin et al. (2000) sample consisted of sedentary adults. Interestingly, however, females from both samples did not differ in terms of their attitudes to function and appearance, this gives further credence to the notion of normative body discontent in female populations, irrespective of physical fitness.

It was considered that the sample represented an adequate cross section of the general population: hospital staff ranged from administrators through nurses and medics to porters, and church attenders were drawn from a variety of religious denominations (Catholic, Church of Scotland, Church of England and Society of Friends-Quakers) and a wide range of social and economic backgrounds.

Ethnicity was not assessed in the current study and it was deemed that this may limit the generalisability of the results. For instance, Reboussin et al. (2000) reported that younger & older adult African-Americans had more positive body images than younger & older adult Caucasians. It was considered that the sample from the current study was not likely to be particularly ethnically diverse, so that ethnic comparisons would have been impossible to explore; however further research should explore this variable in a British sample.

50 years and over is regarded in the literature as a transitional period in life where, in general, physical signs of ageing are observed and individuals begin to focus on the potential emotional and physical impact of the ageing process (Jamjan & Jerayingmongkol, 2002). Further, individuals in their 50's are the post-war 'baby boomer' cohort. It was considered important to assess any potential vulnerabilities in terms of the ageing process and body image in this age group as this may elicit

potential areas of focus for future health promotion in this over represented age cohort.

5.3.7 Likelihood of Opting Out

Questionnaires were given to participants by people in positions of power such as religious leaders, which may have led to feelings of obligation to opt-in to the study. However, participants were aware that to opt-in to the study required completing the questionnaire in their own time and returning it, not to the person who gave it to them, but to the researcher via the post.

Ultimately, it was impossible to gauge the demographic details of the participants who did not complete the questionnaire, so it is difficult to speculate as to the reasons behind individuals opting out of the study, which may have facilitated future study design to maximize response rate.

5.4 Additional Strengths of the Study

Despite the limitations of the current study, it has several conceptual and methodological strengths: it investigates both women and men's body image in older adulthood and it evaluates body image in terms of the following factors: BMI, appearance and physical & psychological health status. An additional strength of the study is the use of a non-clinical sample (Ackard, Croll & Kearney-Cooke, 2002), as this facilitates a broader understanding of normative attitudes to body image, weight and body function, which is not restricted by psychological or physical health status such as in the sample utilised by Reboussin et al (2000). Further, the use of an older adult population increases the knowledge of attitudes to body image across a human life span, in comparison to the wealth of literature in this field focused on adolescent and young adult populations. An important feature of this study was that it investigated an under researched group, integrating previous

findings from both young and old adult populations, therefore expanding psychological knowledge of human attitudes and behaviour in older adulthood.

5.5 Further Potential Research

In addition, to the future research previously discussed further potential areas of investigation are outlined below.

The influence of social and media factors on body image would have been useful variables to explore as they may have further elucidated the differences between gender's attitudes to body image. Investigations have been conducted into the effect of media and society influences on body image in adolescent samples (McCabe & Ricciardelli, 2001b and Durkin & Paxton, 2002) and this work could be extended to include older adult age groups. It would be interesting to explore both the effect of current media trends on older adults and also the cohort effects on body image, accounting for the changing social and cultural influences experienced by the older adult from differing cultural background across their life span.

It would be of benefit to develop a body image measure that included items relating to individuals' attitudes towards appearance, BMI, function, competence, physical health, their dieting and eating behaviours and social influences. Moreover this measure could be utilised across the age span or with differing physical health groups.

Exploration of the components of body image(s) would hopefully further elucidate both gender differences, particularly in older adult populations but also provide a more detailed understanding of the constituents of body image. This would be of particular benefit in a field which has been previously dominated by issues of weight. New emphasis needs to be placed on the impact of accumulation of physical illnesses in male populations.

Further investigation is warranted of the group of both older men and women who are of normal weight but desire to lose weight, as they might be particularly vulnerable to development of eating disorders as they engage in restricted eating and strategies to lose weight, particularly as there are well documented health risks to dieting whilst being of normal weight. Ultimately, weight loss in the older adult population is of particular detriment to physical health.

6. Summary

The current study demonstrated that the associations relating to body image in younger populations are also present in older adults. Older women have in general more concerns about body image and ageing than older men. This appears to lead older women to engage in restricted eating but also to engage in preventative health behaviours in order to control the ageing process. This substantiates Cash & Fleming's (2002) opinion that *'the prevailing perspective on women's body image is that it is a ubiquitous experience of 'normative discontent' and reinforced by gender-biased cultural socialization'*. Notably, a proportion of both older women and older men of normal weight desired weight loss, which could have negative implications for physical health in terms of inappropriate dieting. Interestingly, multiple illnesses were associated with negative body image for males only. The notion of *body images* was also supported by the present study, as there were gender specific associations in the components of body image. Older women who have experienced weight gain, perhaps as a consequence of ageing, and older men who have experienced physical illness, particularly in combination with weight gain, are at risk of having body image concerns which in turn may make them vulnerable to the development of an eating disorder.

Clearly, the current sample has minimal psychological symptomatology but does present with body image concerns. These results, in combination with literature on the aetiology of eating disorders which emphasises the association with body image discontent, provides sufficient justification for future research: epidemiological work to establish the prevalence of eating disorders in older adults; psychometric work to validate a measure of physical illness and body image; and inclusion of

older adults in any research investigating the onset and maintenance of eating disorders.

Ultimately, body image should be included in any assessment of older adults presenting with other physical and psychological symptoms, fither by eliciting attitudes towards ageing relating to body appearance, competence and function or by utilising a standardised measure, which is currently not adequately provided for by the current literature. Although Rybarczyk & Behel (2002) suggested that focus on body image changes in older adulthood may serve a diversion for more anxiety-provoking concerns about purpose of life, experiencing negative attitudes to body image is not only a distressing circumstance in itself, but assessment of body image may prevent the potential development of eating disorders. In terms of treatment, Smith et al. (2001) demonstrated that Cognitive Behavioural Therapy (CBT) facilitated significant improvement to body image compared to a waiting list control group. Further, Nicholson & Balance (1998) advocated the use of CBT for older adults with eating disorders.

Ultimately, the current study serves a staging point between the vast literature on body image in younger populations & the limited literature on body image in older adults and future research investigating gender differences in the components of *body images* and prevalence of eating disorders in older adults in more depth.

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8. Appendices

8.1 Appendix 1 Population Data in Scotland

	Females	Males	Total
50-54	176309	172943	349252
55-59	146516	139740	286256
60-64	136380	123559	259939
65-69	128094	108771	236865
70-74	114860	88380	203240
75-79	95451	63824	159275
80-84	62609	34216	96825
85-89	34725	14696	49421
90 and over	14666	4886	19552

Scottish Census 2001 General Register Office for Scotland

8.2 Appendix 2 Volunteer Information Sheet

Health, Ageing and Body Image

VOLUNTEER Information Sheet

I invite you to participate in a research project. I believe it to be of potential importance. However, before you decide whether or not you wish to participate, I need to be sure that you understand firstly why I am doing it and secondly what it would involve if you agree. Read it carefully and be sure to ask any questions you have, and, if you want, discuss it with outsiders. I will do my best to explain and to provide any further information you may ask for now or later. You do not have to make an immediate decision.

What I Am Doing?

There has been lots of research investigating younger women's body image. In this project, I am aiming to gain a clearer understanding of how older men and older women feel about their appearance, particularly if they are suffering from physical health difficulties, as there is little research in this area. A small body of research has demonstrated that suffering from physical health conditions and noticing physical signs of ageing, can change the way people feel about their bodies, which can in turn, affect their mood and physical symptoms.

I believe the results of this study could be important. The information you provide is part of research that will enable me to complete my Doctorate in Clinical Psychology.

What It Will Actually Involve for You?

You will just need to complete this questionnaire, which should take no longer than 15 minutes. When you have completed the questionnaire please return it in the Stamped Addressed Envelope provided. As you can see the questionnaire is detailed and has items relating to body appearance and function and also your mood.

All your answers will be treated as **strictly confidential**: no one will have access to them apart from the researchers, who will keep the information that you provide secure. As you can see you will not need to give any information that could identify you (i.e. your name or address).

I would ask that you do not compare answers with anyone until you have finished the questionnaire (no conferring please!).

What Are Your Rights?

Participation in this study is entirely voluntary and you are free to refuse to take part or to withdraw from the study at any time without having to give any reason.

Ethics Approval

The Tayside Committee on Medial Research Ethics, which has responsibility for scrutinising all proposals for medical research in Tayside, has examined the proposal and has raised no objections from the point of view of medical ethics. The committee will also receive regular reports from NHS Tayside monitors who will examine the records of the research while it is in progress.

If you have any queries please contact:
Gudrun Court Trainee Clinical Psychologist
☎(01382) 425612

8.3 Appendix 3 Questionnaire

The Questionnaire

Many thanks for helping me with my thesis project

The following questions should take approximately 15 minutes to complete

Please return the questionnaire to the box provided or to the person that gave you the questionnaire

If you have any queries about the questionnaire or the project please contact me on ☎(01382) 425612

Gudrun Court

Trainee Clinical Psychologist

Thank you very much for your co-operation

1. Are you male or female?
2. How old are you?
3. What height are you?
4. What weight are you?
5. What weight **would you like** to be?
6. Currently, are you on a medically recommended diet?
7. Currently, are you on a diet of your own choosing?

Please tick if you have suffered from any of these physical health problems in the last year
8. Arthritis
9. Bladder problems
10. Bowel problems
11. Brain injury
12. Cancer
13. Chronic pain
14. Diabetes
15. Hearing problems
16. Heart problems
17. Sight problems

Please complete each question by putting a circle around the answer which most closely applies to you					
18. How satisfied are you with your weight?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
19. How satisfied are you with your body shape?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
20. How satisfied are you with your muscle size?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
21. How satisfied are you with your hips?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
22. How satisfied are you with your thighs?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
23. How satisfied are you with your chest?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
24. How satisfied are you with your stomach?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
25. How satisfied are you with the width of your shoulders?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
26. How satisfied are you with your legs?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied
27. How satisfied are you with your arms?	Extremely satisfied	Fairly satisfied	Neutral	Fairly dissatisfied	Extremely dissatisfied

28. How important to you is what you weigh compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
29. How important is the shape of your body compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
30. How important is the size and strength of your muscles compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
31. How important is the look of your hips compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
32. How important is the look of your thighs compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
33. How important is the look of your chest compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
34. How important is the look of your stomach compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
35. How important is the look of your width of your shoulders compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
36. How important is the look of your legs compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
37. How important is the look of your arms compared to other things in your life?	Extremely important	Fairly important	Neutral	Fairly unimportant	Not important at all
38. How often do you quickly eat a large amount of food?	Always	Almost always	Frequently	Sometimes	Never
39. How often do you eat to the point of stuffing your self?	Always	Almost always	Frequently	Sometimes	Never
40. How often do you eat a lot of food when you're not even hungry?	Always	Almost always	Frequently	Sometimes	Never
41. How often do you experience urges to eat and eat?	Always	Almost always	Frequently	Sometimes	Never
42. How often do you find that all you can think about is food?	Always	Almost always	Frequently	Sometimes	Never
43. How often do you think about eating a large amount of food?	Always	Almost always	Frequently	Sometimes	Never

44. How often do you think about food when you're not even hungry?	Always	Almost always	Frequently	Sometimes	Never
45. How often do you feel like stuffing yourself with food?	Always	Almost always	Frequently	Sometimes	Never
46. How often do you eat a lot when you are feeling anxious?	Always	Almost always	Frequently	Sometimes	Never
47. How often do you take food supplements (e.g. diet pills) to lose weight?	Always	Almost always	Frequently	Sometimes	Never
48. How often do you feel like taking food supplements (e.g. diet pills) to lose weight?	Always	Almost always	Frequently	Sometimes	Never
49. How often do you worry about taking food supplements (e.g. diet pills) to lose weight?	Always	Almost always	Frequently	Sometimes	Never
50. How often do you take food supplements to increase your muscles?	Always	Almost always	Frequently	Sometimes	Never
51. How often do you feel like taking food supplements to increase your muscles?	Always	Almost always	Frequently	Sometimes	Never
52. How often do you think about taking food supplements to increase your muscles?	Always	Almost always	Frequently	Sometimes	Never
53. How often do you take steroids?	Always	Almost always	Frequently	Sometimes	Never
54. How often do you feel like taking steroids?	Always	Almost always	Frequently	Sometimes	Never
55. How often do you think about taking steroids?	Always	Almost always	Frequently	Sometimes	Never
56. How often do you think about eating less so that you can lose weight?	Always	Almost always	Frequently	Sometimes	Never
57. How often do you eat less to lose weight?	Always	Almost always	Frequently	Sometimes	Never
58. How often do you worry about eating less to lose weight?	Always	Almost always	Frequently	Sometimes	Never
59. How often do you think about doing more exercise to lose weight?	Always	Almost always	Frequently	Sometimes	Never
60. How often do you do more exercise to lose weight?	Always	Almost always	Frequently	Sometimes	Never
61. How often do you worry about doing more exercise to lose weight?	Always	Almost always	Frequently	Sometimes	Never

62. How often do you change the amount of food supplements you use to lose weight?	Always	Almost always	Frequently	Sometimes	Never
63. How often do you think about changing the amount of food supplements you use to lose weight?	Always	Almost always	Frequently	Sometimes	Never
64. How often do you worry about changing the amount of food supplements you use to lose weight?	Always	Almost always	Frequently	Sometimes	Never
65. How often do you think about eating more to put on weight?	Always	Almost always	Frequently	Sometimes	Never
66. How often do you eat more to put on weight?	Always	Almost always	Frequently	Sometimes	Never
67. How often do you worry about eating more to put on weight?	Always	Almost always	Frequently	Sometimes	Never
68. How often do you think about doing more exercise to put weight on?	Always	Almost always	Frequently	Sometimes	Never
69. How often do you exercise to put weight on?	Always	Almost always	Frequently	Sometimes	Never
70. How often do you worry about exercising to put on weight?	Always	Almost always	Frequently	Sometimes	Never
71. How often do you change the amount of food supplements you use to put on weight?	Always	Almost always	Frequently	Sometimes	Never
72. How often do you think about changing the amount of food supplements you use to put on weight?	Always	Almost always	Frequently	Sometimes	Never
73. How often do you worry about changing the amount of food supplements you use to put on weight?	Always	Almost always	Frequently	Sometimes	Never
74. How often do you worry about changing your eating to increase your muscle tone?	Always	Almost always	Frequently	Sometimes	Never
75. How often do you change your eating to increase your muscle tone?	Always	Almost always	Frequently	Sometimes	Never
76. How often do you think about changing your eating to increase your muscle tone?	Always	Almost always	Frequently	Sometimes	Never

77. How often do you think about exercising to increase your muscle tone?	Always	Almost always	Frequently	Sometimes	Never
78. How often do you exercise more to increase your muscle tone?	Always	Almost always	Frequently	Sometimes	Never
79. How often do you worry about exercising more to increase your muscle tone?	Always	Almost always	Frequently	Sometimes	Never
80. How often do you worry about changing your eating to make your muscles bigger?	Always	Almost always	Frequently	Sometimes	Never
81. How often do you change your eating to make your muscles bigger?	Always	Almost always	Frequently	Sometimes	Never
82. How often do you think about changing your eating to make your muscles bigger?	Always	Almost always	Frequently	Sometimes	Never
83. How often do you think about exercising more to make your muscles bigger?	Always	Almost always	Frequently	Sometimes	Never
84. How often do you exercise more to make your muscles bigger?	Always	Almost always	Frequently	Sometimes	Never
85. How often do you worry about exercising more to make your muscles bigger?	Always	Almost always	Frequently	Sometimes	Never

Here is a list of statements dealing with your general feelings about yourself	If you strongly agree circle 1, if you agree circle 2, if you disagree circle 3 and if you strongly disagree circle 4			
	Strongly agree	Agree	Disagree	Strongly disagree
86. On the whole, I am satisfied with myself	1	2	3	4
87. At times I think I am no good at all	1	2	3	4
88. I feel that I have a number of good qualities	1	2	3	4
89. I am able to do things as well as most other people	1	2	3	4
90. I feel I do not have much to be proud of	1	2	3	4
91. I certainly feel useless at times	1	2	3	4
92. I feel that I'm a person worth, at least on an equal plane with others	1	2	3	4
93. I wish I could have more respect for myself	1	2	3	4
94. All in all, I am inclined to feel that I am a failure	1	2	3	4
95. I take a positive attitude towards myself	1	2	3	4

96. Been feeling perfectly well and in good health?	Better than usual	Same as usual	Worse than usual	Much worse than usual
97. Been feeling in need of a good tonic?	Not at all	No more than usual	Rather more than usual	Much more than usual
98. Been feeling run down and out of sorts?	Not at all	No more than usual	Rather more than usual	Much more than usual
99. Felt that you are ill	Not at all	No more than usual	Rather more than usual	Much more than usual
100. Been getting any pains in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
101. Been getting a feeling of tightness or pressure in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
102. Been having hot or cold spells?	Not at all	No more than usual	Rather more than usual	Much more than usual
103. Lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
104. Had difficulty in staying asleep once you are off?	Not at all	No more than usual	Rather more than usual	Much more than usual
105. Felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
106. Been getting edgy and bad-tempered?	Not at all	No more than usual	Rather more than usual	Much more than usual
107. Been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
108. Found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual

109. Been feeling nervous and strung-up all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
110. Been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less than usual
111. Been taking longer over things you do?	Quicker than usual	Same as usual	Longer than usual	Much longer than usual
112. Felt on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
113. Been satisfied with the way you've carried out task?	More satisfied	About the same as usual	Less satisfied than usual	Much less satisfied
114. Felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
115. Felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
116. Been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
117. Been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
118. Felt that life is entirely worthless?	Not at all	No more than usual	Rather more than usual	Much more than usual
119. Felt that life isn't worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual

120. Thought of the possibility that you might make away with yourself?	Definitely not	I don't think so	Has crossed my mind	Definitely have
121. Found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual
122. Found yourself wishing you were dead and away from it all?	Not at all	No more than usual	Rather more than usual	Much more than usual
123. Found that the idea of taking your own life kept coming into your mind?	Definitely not	I don't think so	Has crossed my mind	Definitely have

Which of the following activities do you generally engage in?	Please circle the number which best represents the extent to which you engage in this activity		
	No	**Sometimes**	**Always**
124. Avoid drink driving	0	1	2
125. Wear a seat belt when in a car	0	1	2
126. Do things in moderation	0	1	2
127. Check safety of electrical appliances	0	1	2
128. Avoid overworking	0	1	2
129. Fix broken things at home	0	1	2
130. Eat sensibly	0	1	2
131. Maintain contact with friends and relatives	0	1	2
132. Destroy old or unused medicines	0	1	2
133. Regularly eat breakfast	0	1	2
134. Avoid getting chilled	0	1	2
135. Avoid crossing the street against the traffic lights	0	1	2
136. Keep a first aid kit at home	0	1	2
137. Get enough sleep	0	1	2
138. Keep emergency phone numbers	0	1	2
139. Avoid over the counter medicines	0	1	2
140. Spend time out of doors every day	0	1	2
141. Do not smoke	0	1	2
142. Get enough exercise	0	1	2
143. Pray or live by the principles of religion	0	1	2
144. Avoid letting things get me down	0	1	2
145. Avoid eating snacks	0	1	2
146. Limit alcohol intact	0	1	2
147. Limit certain foods e.g. fat, sugar	0	1	2
148. Control weight	0	1	2
149. Get a regular medical checkup	0	1	2
150. Get a regular dental checkup	0	1	2
151. Take dietary supplements or vitamins	0	1	2

In the past 4 weeks, how satisfied have you been with...							
152. your overall level of physical fitness?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
153. the muscle strength in your legs?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
154. your level of endurance or stamina?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
155. your muscle tone?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
156. your overall level of energy?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
157. your physical ability to do what you want or need to do?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
158. your weight?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
159. your shape?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied
160. your overall physical appearance?	Very dissatisfied	Somewhat dissatisfied	A little dissatisfied	Neither satisfied nor dissatisfied	A little satisfied	Somewhat satisfied	Very satisfied

Please answer the question by circling the answer (number) that most applies to you

	Not at all									Very markedly
161. I am quite satisfied with my physical appearance	0	1	2	3	4	5	6	7	8	9
162. I am worried about the effect of ageing upon my appearance	0	1	2	3	4	5	6	7	8	9
163. Losing weight is one sure way of looking younger	0	1	2	3	4	5	6	7	8	9
164. I look younger when I lose weight	0	1	2	3	4	5	6	7	8	9
165. Having younger looking skin is a prerequisite to good looks	0	1	2	3	4	5	6	7	8	9
166. I try very hard to prevent my body from ageing	0	1	2	3	4	5	6	7	8	9

Thank you for Completing the Questionnaire