Université de Montréal

A life course study of body dissatisfaction in middle-aged women

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Sommaire

Problème: Il y a peu d'informations dans les écrits en ce qui a trait à l'insatisfaction corporelle chez les femmes d'âge mûr, bien que ces femmes puissent être particulièrement vulnérables à l'insatisfaction corporelle et ses conséquences.

Objectif: Étudier la prévalence, les déterminants et les trajectoires de vie qui sont associés à l'insatisfaction corporelle dans un grand échantillon des femmes britanniques âgées de 54 ans.

Cadre conceptuel: Le cadre conceptuel est l'épidémiologie de type 'life course', soit un modèle de la maladie chronique chez l'adulte qui intègre les impacts indépendants, cumulatifs et interactifs des facteurs de risque et de protection en fonction des trajectoires de vie.

Méthodes: Les données viennent du MRC National Survey of Health and Development, une étude prospective de cohorte qui a débuté en 1946. Les données ont été recueillies par le biais d'enquêtes postales ou de mesures prises à la maison.

Résultats: Article 1. L'insatisfaction par rapport au corps et au poids était très commune parmi les femmes de cette cohorte, et était associée à une santé perçue plus faible et le fait d'éviter des activités quotidiennes. Une proportion importante de femmes de poids normal étaient insatisfaites avec leur corps et souhaitaient perdre du poids. Article 2. Celles qui étaient insatisfaites à l'âge de 54 ans étaient plus lourdes comme enfants (soit à l'âge 7 ans) et avaient eu une croissance plus rapide de leur indice de masse corporelle (IMC) avec l'âge. Le fait d'avoir eu une puberté plus tardive était associé à un niveau plus élevé d'insatisfaction corporelle. Article 3. L'estime corporelle de la femme était associée au souvenir que la femme avait des commentaires formulés par le conjoint et tout au long de l'enfance et de l'adolescence. Celles qui étaient plus minces comme adultes, et celles qui se souvenaient d'avoir reçu des commentaires positifs lors de l'enfance et l'adolescence, semblaient

particulièrement sensibles aux commentaires de leur conjoint. Article 4. Pour un IMC donné, les femmes qui étaient de classe sociale 'non manuelle' comme adultes étaient plus insatisfaites avec leur poids (mais pas avec leur apparence générale). Les femmes ayant vécu leur enfance dans une famille de classe sociale 'non manuelle' étaient satisfaites de leur poids à l'âge de 54 ans parce qu'elles étaient plus minces tout au long de leur vie. La mobilité intergénérationnelle d'une classe sociale plus élevée vers une classe sociale moins élevée était associée à une satisfaction corporelle plus élevée.

Conclusions: L'insatisfaction corporelle s'est avérée plus commune que précédemment documenté parmi les femmes d'âge mûr et semble être associée à des conséquences négatives pour le bien-être. Un modèle épidémiologique de type 'life course' a fourni un cadre conceptuel utile et est recommandé pour la recherche future sur cette problématique. Les résultats de cette série d'études appuient la nécessité de développer des interventions de type populationnel plutôt des interventions de type haut risque afin d'alléger le fardeau de ce problème de santé des femmes.

Mots clés: image corporelle, femmes d'âge mûr, trajectoire, cohorte, prospective, épidémiologie de type 'life course'

Summary

Background: Little is known about body dissatisfaction among middle-aged women, although women of this age group may be particularly vulnerable to dissatisfaction and its consequences.

Objective: To investigate the prevalence, correlates, and lifetime pathways underlying body dissatisfaction in a large sample of middle-aged British women.

Theoretical framework: Life course epidemiology, a 'pathways' model of adult chronic disease that emphasises the independent, cumulative, and interactive impact of risk and protective factors across the life span.

Methods: The data source is the MRC National Survey of Health and Development, a prospective cohort study that began in 1946. Data were gathered by inquiry or measurement at home interviews, and midlife body dissatisfaction was assessed by postal survey at age 54.

Results: Article 1. Body and weight dissatisfaction were very common among women from this birth cohort, and were associated with poorer self-rated health and avoidance of daily activities. A substantial proportion of normal weight women were dissatisfied and wished to lose weight. Article 2. Those who were dissatisfied at age 54 were heavier as children (age 7 years) and showed a more rapid increase in BMI with age throughout their life span, relative to women who were satisfied at midlife. Having experienced puberty relatively late was associated with more body satisfaction. Article 3. Midlife body dissatisfaction was associated with reports of body-related comments from partner and while growing up. There was no evidence that the effect of negative comments while growing up could be cancelled out by compliments from one's partner. Women who were thinner as adults, and those who recalled receiving positive comments while growing up, were especially sensitive to comments from their partner. Article 4. Women from the non manual social class as adults were more

dissatisfied with their weight (but not with their general appearance) than women from the adult manual classes, for a given BMI. Women from the non manual classes in childhood were more satisfied with their weight at midlife because they were thinner throughout life. Downward intergenerational mobility was associated with highest levels of midlife appearance satisfaction.

Conclusions: Body dissatisfaction was found to be more common than previously documented among middle-aged women, and to carry negative consequences for well being. A life course model provided a useful framework and is recommended for future research on this topic. Findings underscore the need for population-level interventions to alleviate this women's health issue rather than a traditional high-risk intervention approach that aims to change attitudes in young girls.

Key words: body image, middle-aged women, trajectory, prospective cohort, life course epidemiology

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List of abbreviations

A-level	Advanced secondary qualifications or equivalent (education)
O-level	Ordinary secondary qualifications or equivalent (education)
BMI	Body mass index
CI	Confidence interval
GRIS	Groupe de recherche interdisciplinaire en santé
HLM	Hierarchical linear modelling
HRT	Hormone replacement therapy
M	Mean
MRC NSHD	Medical Research Council National Survey of Health and Development
OR	Odds ratio
SD	Standard deviation
SPSS	Statistical package for the social sciences
WHO	World Health Organisation

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Introduction

Overview. Body dissatisfaction is a common problem for women in industrialised countries, and has a number of negative correlates related to health and well-being. The existing literature on body dissatisfaction reveals two common features: first, the research is conducted almost exclusively by psychologists, and second, the samples used typically consist of adolescent girls or young adult women. These tendencies probably reflect a view of body dissatisfaction as a risk factor for the clinical eating disorders (anorexia, bulimia); illnesses that are generally viewed as psychological in nature and that have a relatively young age of onset. Towards the goal of broadening the disciplinary scope of research on body dissatisfaction, an underlying theme of this dissertation is to recast women's body dissatisfaction as a public health problem. This task is undertaken by studying body dissatisfaction among a sample of middle-aged women, an age group that has been relatively unstudied to date yet who were hypothesised to report high levels of this problem.

Body dissatisfaction: a public health problem? Women's body dissatisfaction is both common and detrimental to health and well-being. Among diverse samples of girls and women, research has consistently shown that a large proportion if not a majority of females are dissatisfied (Allaz et al., 1998; Kostanski & Gullone, 1998; Ledoux & Rivard, 2001; Tiggemann, 1992; Wardle & Beales, 1986), with estimates reaching nearly 80% in some younger age groups (Grigg et al., 1996). In terms of health correlates, dissatisfaction has been linked with greater depressive affect, lower overall quality of life, fewer pleasant feelings (e.g., energetic, happy, upbeat), and more unpleasant feelings (e.g., fatigued, tired, worn-out) (Reboussin et al., 2000), diminished sexual interest and less enjoyment of sex (Fooken, 1994) and with marital dissatisfaction, independent of the woman's body size (Friedman et al, 1999). Regarding health behaviours, body dissatisfaction has been hypothesised to prevent participation in physical activity (Ransdell et al., 1998) due to anxiety about one's appearance while exercising or while wearing certain exercise clothing (e.g., swimsuit, aerobics outfit). Dissatisfaction has been linked with reluctance to quit cigarette

smoking; due to fear of weight gain that often accompanies smoking cessation (King et al., 2000). Dissatisfaction has also been implicated in decisions about hormone replacement therapy at menopause, with women citing factors such as perceived cosmetic benefits and anti-ageing effects of hormone therapy as reasons for choosing or not choosing this therapeutic option (Hunter et al., 1997; Fauconnier et al., 2000). Finally body dissatisfaction is linked with unhealthy weight loss tactics and disordered eating (Allaz et al., 1998) among women of various age groups. The high prevalence and negative correlates of women's body dissatisfaction suggest that this topic may be considered a public health issue; furthermore it certainly fits into a contemporary definition of 'health' which encompasses far more than simply disease or its absence (World Health Organisation, 1948).

A new focus: middle-aged women. The literature on body dissatisfaction consists mainly of studies focusing on adolescents or young adult women; there are limited data on body dissatisfaction among women beyond young adulthood. The few existing studies based on older samples suggest that dissatisfaction is less prevalent among these women relative to younger samples. An explanation for these lower prevalence estimates is that older women evaluate their bodies against a different 'ideal' of beauty: one that was prominent when they were young and which was not as unrealistically thin as the 'ideal' that exists today.

Rationale. For this project it was hypothesised that, unlike 'older' women who have been studied to date, the cohort of women who are currently in middle age are likely to report high levels of dissatisfaction, for two reasons. First, an impossibly thin standard of beauty is believed to have emerged during the mid-1960s, and therefore women who are currently in middle age were teenagers when this ideal emerged. These women have lived most of their lives in an environment in which this message is conveyed strongly, and are less likely to be 'protected' by a cohort effect involving a different (earlier) ideal of beauty. Second, against this cultural backdrop, women undergo changes to their bodies at midlife including an increase in weight and

redistribution of fat. These changes serve to move these women's bodies further away from the current cultural 'ideal'.

Framework. Because of the limited data on body dissatisfaction in women of this age group, there is currently no generally accepted framework with which to address this topic. We adopted the framework of life course epidemiology, which emphasises the impact of events in early life, as well as the accumulation or interaction of events across the life course, in explaining a given health outcome in adulthood. This strategy represents a novel endeavour in body dissatisfaction research, and it may be asserted that much can be gained in our understanding of women's body dissatisfaction by applying 'new' models or frameworks: ones that are familiar to researchers in public health and epidemiology but that have not been previously considered for studying this 'psychological' outcome.

Specific questions. Using data from 54-year-old female participants in a national prospective birth cohort study, we aimed to improve understanding of midlife body dissatisfaction and its underlying pathways through the following questions. First, what is the prevalence of body dissatisfaction among women in their mid-fifties, and what are its behavioural and psychological correlates? Second, what are the body weight trajectories that underlie midlife dissatisfaction, and what role do reproductive events (puberty, pregnancy, menopause) play in this pathway? Third, to what extent are body-related comments (positive and negative), currently and while growing up, associated with midlife body dissatisfaction? Do they interact with each other, or with body size, across the life span? Fourth, to what extent is midlife body satisfaction associated with current social class, and the social class of one's family of origin? Does intergenerational social mobility have implications for midlife body satisfaction?

Review of literature

Definitions and overview

While *body image* encompasses any affective, cognitive, or perceptual views that an individual holds about his or her body (Thompson, 1995), *body dissatisfaction* is a narrower, evaluative term that involves the feeling or belief that one's current body is discrepant from an ideal, coupled with a negative affective evaluation of this discrepancy. In practice, dissatisfaction is inferred from the presence of an 'actual body' versus 'ideal body' discrepancy, from self-reported dissatisfaction, or based on the endorsement of some related concept such as 'feeling fat' or wishing to lose weight. The contribution of body dissatisfaction to the eating disorders (anorexia nervosa, bulimia nervosa) underlies a substantial literature on this topic; however, the focus of this research is body dissatisfaction in its own right. A detailed review of the literature on body dissatisfaction can be found in McLaren and Wardle (in press); see Appendix 1.

Age group comparisons and time trends

Many studies have shown that body dissatisfaction is reported by a majority of girls and women in industrialised countries. These high prevalence estimates have led to its being described as 'normative' among women in this society (Rodin et al., 1985), however this description is based primarily on research with adolescent and young adult samples (e.g., Kostanski & Gullone, 1998; Tiggemann, 1992; Wardle & Beales, 1986). In search of the origins of body dissatisfaction, there has been a growing focus on female children, among whom dissatisfaction is increasingly documented (Ambrosi-Randić, 2000; Ricciardelli & McCabe, 2001).

Research on body image beyond young adulthood is more limited, and its conclusions are less consistent. Several studies indicate less body dissatisfaction among older women relative to younger women. Franzoi and Koehler (1998) found that a sample of elderly women (mean age 74 years) felt more positively about their weight and thighs relative to a sample of younger women (mean age 19 years). Pliner et al. (1990) showed that 'appearance self esteem' increased with age in a cross-sectional sample of 10 to 79-year-olds. Reboussin et al. (2000) studied sedentary

adults age 35-75 and found that 'satisfaction with body appearance' increased linearly with age. Tiggemann and Stevens (1999) found that questionnaire-measured 'weight concern' was lower among women aged 40-59 relative to a group aged 33 and younger. Based on scores from the Body Shape Questionnaire, Hetherington and Burnett (1994) found that young women (mean age 21) reported significantly greater body dissatisfaction than older women (mean age 67).

There are some exceptions to this pattern. Guaraldi et al. (1995) found an increase in body dissatisfaction among women aged 7-65; however their measure of body dissatisfaction included items assessing satisfaction with body function (e.g., physical strength, sexual activity) that may undergo physiological decline with age and underlie reports of dissatisfaction. Allaz et al. (1998) found that a 'dissatisfaction index' (defined as discrepancy between current body and 'ideal' body) did not differ across women age 30-74 years. Notwithstanding these exceptions, in general the literature suggests that body dissatisfaction is less common among older than among younger women.

Some researchers have suggested that a maturational effect, i.e., age-related shifts in attitudes and values, may explain lower estimates of body dissatisfaction with increasing age. Qualitative research in particular has favoured this explanation, showing that some women adopt more relaxed attitudes toward their body during middle and late adulthood. For example older women have reported viewing weight gain as an inevitable part of ageing, or as something that is no longer their responsibility (Hurd, 2000; Tunaley et al., 1999), or feeling that at their age they deserve to be free to eat what they like and to ignore appearance-related pressures imposed by spouses and others (Tunaley et al., 1999). In terms of quantitative research, Pliner et al. (1990) found that the self-reported importance of appearance declined with increasing age among males and females age 10-79 (there was no age-gender interaction). Franzoi and Koehler (1998) found that weight concern was inversely correlated with self-esteem among 30-49 year old women, but uncorrelated with self-esteem among women over 50 suggesting that even if women over 50 report

weight concern, it may be less central to their self-esteem and therefore less distressing.

Although this research is interesting, there are limitations to its interpretation as indicating a maturational effect. The qualitative studies, if in fact they tap a maturational trend, can give no estimate of the number of women who adopt these attitudes (it may be just a small proportion). The quantitative studies are based on cross-sectional comparisons of individuals of different age groups rather than longitudinal follow-up of the same individuals over time, and are therefore unable to isolate the operation of maturational processes. A more general limitation is that a maturational explanation for age group differences in body dissatisfaction does not inherently take into account social circumstances that differ according to one's age or birth cohort. This point will be elaborated in the section on 'cohort effects' below.

A culture conducive to body dissatisfaction

Probably the most widely accepted explanation for normative body dissatisfaction among women is the 'thin ideal' of women's bodily attractiveness. Western media are replete with images of ultra thin women which convey the message that thinness is an essential component of women's beauty. The cultural period characterised by idealisation of extreme thinness is believed to have begun in the mid-1960s when fashion models (especially 'Twiggy') and other exemplars of female beauty began to be extremely thin. Research has documented a steady decline in the size of 'ideals' (fashion models, beauty pageant contestants, Playboy centrefolds) during the 1960s and 1970s (Garner et al., 1980), and these ideals continue to be underweight today (Katzmarzyk & Davis, 2001). These trends in 'ideal' have been paralleled by trends in 'actual' that are opposite in direction for women: population weight norms show that women have steadily increased in size throughout the 1960s-1980s and particularly during the past decade (Garner et al., 1980; Ledoux & Rivard, 2001; WHO, 2001) It has been estimated that less than 4% of American women have a body size that is comparable to today's models (Kuczmarski et al., 1997;

Katzmarzyk & Davis, 2001). Although cultural factors contributing to the social valuing of thinness were evident prior to the 1960s (e.g., establishment of the fashion industry, publication of actuarial height-weight charts which indicated higher mortality risk with higher weight; Brumberg, 1988), it is really only during these past 3.5 decades that the 'ideal' for women has been impossibly thin. The uniformly thin appearance of beauty icons throughout this most recent era is believed to have contributed to mass body dissatisfaction by conveying a ubiquitous ideal that is nearly impossible to achieve: only very few women can feel that their bodies measure up to the standard set by these images.

An association between western beauty ideals and body dissatisfaction is supported by both ecological and individual-level data. Body dissatisfaction (along with other eating disorder symptoms) is most prevalent in westernised countries, least prevalent or non existent in developing countries, and intermediate in countries undergoing transition (e.g., Singapore: Wang et al., 1999; Iran: Jaeger et al., 2002). These differences have been attributed to differential exposure to the western orientation toward women's physical attractiveness communicated through western media. Although this explanation is compelling and widely accepted, it is only an ecological correlation and therefore causality cannot be ascertained. Stronger support comes from a finding that introduction of western media had profound effects on body dissatisfaction and weight loss behaviours in a previously media-naive population. Medical anthropologist Anne Becker studied eating disorder characteristics in Fijian schoolgirls prior to, and three years following, introduction of American television. This naturalistic experiment revealed that weight loss attempts and the value placed on a thin woman's body increased markedly during this period, a most noteworthy finding given that the previous 'ideal' among Fijian females was overweight or obese by western standards and with a hearty appetite (Becker et al., 2000).

Even within western 'media-saturated' populations, an impact of media exposure has been documented. Field et al. (1999) found a positive association between frequency of reading fashion magazines and likelihood of dieting or

exercising to lose weight because of a magazine article, among girls in late childhood through adolescence. In another study, using experimentally manipulated exposure to slides of thin, average size, and oversize fashion models, Irving (1990) found that women randomly assigned to view slides of thin models had lower weight satisfaction following exposure than women who viewed slides of overweight models. A recent meta-analysis (Groesz et al., 2002) confirmed an overall presence of a small to moderate impact of media exposure to thin models on body dissatisfaction, among western female samples, compared with exposure to average size models, plus size models, or inanimate objects.

The period effect: is it demonstrable in older women?

The above discussion provides convincing evidence for a 'period effect' of sociocultural ideals of beauty on women's body dissatisfaction, that is believed to have begun around the mid 1960s. Although most of the research on body dissatisfaction since this time period has been based on adolescent girls or young adult women, it is pertinent to the present study to ask whether there is any evidence for a period effect among women who are old enough to have lived part of their lives prior to the accepted beginning of the current era of the thin ideal.

Two studies were found that offer such evidence. Rosenzweig and Spruill (1987) found that a sample of women, mean age 38 years, was more likely to report using diet pills, diuretics, and laxatives, and with greater frequency, at the time of the study (i.e., mid-late 1980s, when social pressures for thinness were quite strong) relative to when they were in high school or college (i.e., early 1960s, just prior to the emergence of Twiggy). Hetherington and Burnett (1994) found that among an elderly sample of women who reported dieting, the majority had started between the ages of 40 and 50 (which corresponded to the late 1960s, the time period when a very thin body first became popular); very few had dieted in their teens or twenties (which would have corresponded to the pre-Twiggy era). Both of these studies indicate that older women report higher use of dieting and weight loss tactics 'currently' (when

social pressures for thinness are high) than when they were adolescents (when extreme thinness was less strongly valued), and are therefore consistent with the distinct temporal operation of a period effect on disordered eating behaviours, which are related to or perhaps driven by body dissatisfaction.

Cohort effect: are currently middle-aged women particularly vulnerable?

Evidence of body dissatisfaction across females of various ages suggests that an impact of sociocultural standards for physical appearance is to some extent independent of age. Older women, by virtue of having lived part of their lives prior to the current 'period' of the thin ideal, may benefit from having experienced an earlier, more realistic, standard for women's beauty. This position speaks to a 'cohort effect' (i.e., characteristics or experiences that are unique to a generational group) which has been used as an explanation for lower prevalence estimates of body dissatisfaction among older women. Tracing the appearance of 'female beauties' over the 1940s and particularly the 1950s reveals that their figures were significantly larger and more womanly during this time in comparison with those of today (Brumberg, 1988). Women who lived a substantial part of their lives prior to the mid 1960s would have had significant exposure to this different beauty ideal against which, arguably, the 'average woman' at any time would compare more favourably. Women with substantial exposure to a pre-1960s ideal may then retain some aspects of this ideal to the present, which might then come into play in a current appearance evaluation. In short, the cohort effect explanation for less body dissatisfaction in older women is that they are using a different, and more reasonable, standard against which to evaluate their own bodies.

Direct evidence for this type of effect is difficult to obtain, although several studies have nonetheless referred to a cohort explanation. Lamb et al. (1993) used this explanation for their finding that older and younger generations of women selected different 'ideals' of beauty, with those selected by the older generation being larger on average. Rand and Wright (2000) asked men and women across a large age range to

rate which of a series of body sizes 'looked acceptable' and found that the range of 'acceptable' sizes increased with age. Middle-aged adults in that study were most tolerant of bodies that fell outside the cultural ideal. These findings could indicate a cohort effect of a different standard of beauty, however they might also be explained by a shifting preference in response to one's own changing body shape. They may also reflect an effect of increasing acceptance of diversity in general (i.e., as opposed to just body-related diversity) with age. Qualitative research has provided support for a cohort effect: Hurd (2000) interviewed older women (age 61 to 92 years) and found that they expressed a preference for women's bodies that were larger and more rounded than the cultural model of beauty espoused today. These women also believed that today's models were unrealistic standards even for young women, which suggests that their comments are not simply a response to their own changing bodies.

Notably, if a cohort effect exists that protects older women from experiencing body dissatisfaction, it would only be relevant for older women, perhaps age 65 years or older, who have spent 30 years or more in a 'different' sociocultural climate. The cohort of women currently entering middle age, in contrast, has been exposed to unrealistic images for most of their lifetime. Women of this age group represent one of the first cohorts to experience the entire Twiggy era, and there may be an impact of this long term exposure. This is one reason why currently middle-aged women are an interesting group to study. Another reason is that middle-aged women may have a slight biological disadvantage relative to women who are older and particularly relative to those who are younger, in the context of the Twiggy era. Namely at middle-age women experience changes to their bodies that bring them further from the cultural 'ideal'. The increase in BMI throughout adulthood is relatively constant until approximately the mid-50s, after which there is a more gradual increase followed by a decline. Lean body mass is also lost with age, so middle-aged women have relatively more fat than younger women of comparable BMI. There is also a redistribution of fat for women at midlife. During pre-menopause women accumulate fat peripherally, and around the time of menopause fat becomes redistributed centrally (Power & Parsons,

in press). This increase in and redistribution of fat in middle-aged women is in particularly stark contrast to the slender ideal.

In sum, women currently in middle-age have had long term exposure to a cultural message which favours a body shape that is particularly discrepant from their bodies on average at this time of life. We feel this makes them an interesting group to study.

Evidence for a developmental model

Despite the interesting confluence of period effects and biological influences on midlife body dissatisfaction, there are currently – as mentioned – few data on this topic. And among these few data, there is no generally accepted model or framework. Several factors have been linked with body dissatisfaction in a cross-sectional manner including low self-esteem (Kostanski & Gullone, 1998; Rackley et al., 1988), high neuroticism (Davis et al., 1996), and feminine gender role (Davis et al., 1996), among both younger and older women. However these findings do not contribute to a coherent model of body dissatisfaction nor do they consider that adult body dissatisfaction may reflect events or characteristics across the life span and not only contemporaneous psychological variables. The consideration of influences across the life span was an appealing prospect, however there was little in the way of empirical guidance on how to proceed. Based on the literature three influences on body dissatisfaction that might operate across the life span were selected. In each case, evidence for a cross-sectional relationship is rather strong, but support for longitudinal effect is either based on retrospective data or is non-existent. The limited evidence for a long-term impact of body size, body-related teasing, and social class on later body image is discussed next.

Body size. Body size may be the strongest correlate of body dissatisfaction in women. Body mass index has shown a consistent positive association with body dissatisfaction among females from childhood through late adulthood (Allaz et al.,

1998; Kostanski & Gullone, 1998; Mendelson et al., 1995; Pingitore et al., 1997; Reboussin et al., 2000). Although heavier women are more likely to be dissatisfied, it is clear that a substantial proportion of normal weight women report dissatisfaction. This is in contrast to men, among whom a substantial proportion of *overweight* men are *not* dissatisfied (Green et al., 1997). The small percentage of women who report being satisfied with their bodies are typically *underweight* (e.g., body mass index less than 20 kg/m^2), and even among these underweight women, several (e.g., up to 10%) report a desire to lose weight (Green et al., 1997; Ledoux & Rivard, 2001).

In addition to current body size, there is some evidence for an influence of *past* body size on body satisfaction. Retrospective research among overweight or obese women shows that those whose overweight or obese status emerged in childhood have more body dissatisfaction in adulthood than those whose overweight or obese status emerged in adulthood (Grilo et al., 1994; McLaren & Gauvin, in press). And the earlier the onset of obesity, the worse the adult body image, even controlling for adult body mass index (Wardle et al., in press). The influence of past body size on current body esteem among normal weight women is not known.

Body-related comments. The role of 'teasing' is an increasingly popular topic of study among body image researchers. A growing collection of research shows an adverse impact of body-related comments or teasing on children's body esteem. Mothers' comments, positive or negative, about their child's weight have been associated with negative body esteem in the child, particularly for daughters (Smolak et al., 1999). A self-reported history of teasing has been associated with greater body dissatisfaction among children (Gardner et al., 1997) and a history of weight/size-related teasing appears to be more damaging to body esteem than general appearance teasing (Thompson & Heinberg, 1993). One study reported that teasing from family members (especially brothers) was more damaging than teasing from peers (Collins, 1996), although teasing from both sources undoubtedly carries very negative consequences for some women.

Among adult women, retrospective reports of teasing have been associated with poor body esteem. Several studies have shown that women with poor body esteem in adulthood are more likely to recall criticism of their appearance and weight-related teasing in childhood than women with positive adult body esteem (Rieves & Cash, 1996; Schwartz et al., 1999; Thompson & Sargent, 2000). There has been no research on the relationship between positive comments and body esteem, for females at any age. Also, despite the fact that a woman's spouse or partner may become a primary source of body-related feedback in adulthood, there has been no research to address this specific topic. Ogden and Taylor (2000) found that within heterosexual couples, the men were more dissatisfied with their partners' bodies than the women were with the men's bodies. If this greater dissatisfaction manifests as comments directed at the partner's appearance, then the relationship between women's body dissatisfaction and comments from romantic partner would appear important to investigate. Because of the absence of research on partner comments received in adulthood, it is also not clear whether there is an interaction among comments experienced at different points in the life span.

Social class. It is well documented that body size is socially stratified for women in developed countries, with a larger average body mass index and a higher prevalence of obesity found in lower than in higher social class groups (Langenberg et al., in review; Sobal & Stunkard, 1989). In general, body dissatisfaction has been positively associated with social class, with girls and women of higher socioeconomic position more likely to report body dissatisfaction, weight concern, and attempts at weight loss (Drewnowski et al., 1994; Jeffery & French, 1996; Ogden & Thomas, 1999; Wardle & Griffith, 2001). Exceptions to this pattern exist but are few (Stevens & Tiggemann, 1998; Story et al., 1995).

Surprisingly, in contrast to the relatively large number of studies examining adult socioeconomic position with adult body image, no studies have considered the relation between childhood social class and adult body image, nor the role of intergenerational social mobility. Lifetime social class and social mobility are

understood to be quite important to women's health, and to predict mortality and morbidity better than a single indicator of adult social class (Heslop et al., 2001). Furthermore, social mobility is implicated as a component of westernisation and modernisation which are associated with the prevalence of body dissatisfaction in ecological-level studies (Tsai, 2001), suggesting that in individuals, intergenerational social mobility may be instrumental in explaining body dissatisfaction at midlife. One likely explanation for the absence of results on the relationship between lifetime social class and adult body dissatisfaction is the lack of appropriate longitudinal data.

Theoretical framework

As a framework from which to study the influence of body size, body-related comments, and social class across the life span on midlife body dissatisfaction, life course epidemiology (Kuh & Ben-Shlomo, 1997; Kuh & Hardy, in press) was selected. This is a pathways model originally used to study adult chronic disease, which emphasises social and biological influences across the life span and their independent, cumulative, and interactive effects on adult health. In its emphasis on pathways across the life span, life course epidemiology represents a departure from the more typical emphasis on adult risk factors that has characterised the 'chronic disease era' of public health, as well as from models focusing primarily on 'early influences' of adult health (e.g., models of biological programming). Life course epidemiology also incorporates social and temporal dimensions, thereby accommodating cohort- and period- specific effects.

Similar to the 'adult risk factor approach' taken in many studies of chronic disease aetiology, the few studies on older women's body dissatisfaction have focused on contemporaneous correlates (e.g., Allaz et al., 1999; Tiggemann & Stevens, 1999). Intuitively, this approach seems limited in its potential to yield understanding of body dissatisfaction in middle-aged women, and a life course approach to this topic represents a novel and relevant endeavour. In a social climate that has placed extraordinary value on the size and shape of women's bodies for several decades, it is

likely that events and characteristics across the life span (rather than just concurrent ones) will impact on adult body dissatisfaction. For example, cross-sectional research has clearly shown that a woman's body size is an important predictor of her level of body dissatisfaction. However this research neglects to consider the enormous objective changes in body size that 'naturally' occur across the life span (through growth and reproductive events) coupled with the social context which conveys the message that these changes are undesirable. Likewise, cross-sectional research has shown a link between experience of body-related teasing and body dissatisfaction among young samples. But this research does not reveal whether the same association exists for older samples, nor does it consider the potential role of body-related comments received in adulthood, nor has it clarified the possible relationships of mediation or moderation among comments received at different times. Finally, there is evidence that higher social class women report higher levels of body dissatisfaction. But insofar as one's social class helps shape her preferences and priorities related to physical appearance over time, it might make a difference if a woman has always belonged to the same class or if she has moved upward or downward throughout her lifetime. This speaks to the issue of social mobility, which requires attention to both childhood and adult circumstances.

In short, a 'midlife risk factor' approach to midlife body dissatisfaction ignores relevant information about a woman's individual life history and the powerful social climate throughout her cohort's history. Life course epidemiology, with its focus on trajectories across the life span and how they unfold within a social context, therefore seemed ideally suited as a framework for this study.

Summary and research questions

There are few data available on body dissatisfaction in women beyond young adulthood, and it was hypothesised that women currently in middle-age may represent a vulnerable group due to the influence of period effects and biological factors. This project aimed to examine the prevalence and correlates of body dissatisfaction among

a large national sample of middle-aged British women, and, using a life course framework, to investigate three factors that existing literature indicates may operate across the life span to influence body image at midlife (body size, body-related comments, and social class). To this end the four following research questions were formulated; these questions correspond to articles 1-4 below.

1. What is the prevalence of body dissatisfaction among these women, and how is it associated with current body size, smoking status, avoidance behaviours, and self-rated health?

2. Do women who are satisfied with their bodies at midlife show different weight history trajectories than women who are dissatisfied at midlife? Do reproductive events including puberty, pregnancy, and menopause influence midlife body image either through their influence on body size or independent of it?

3. How are reports of positive and negative body-related comments, while growing up and currently, associated with midlife body satisfaction? Do they interact with one another, and/or with body size?

4. What is the relationship body dissatisfaction and adult social class, and between body dissatisfaction and social class of one's family of origin? Is intergenerational social mobility related to midlife body image?

Methods

Participants and data collection

The data source is the Medical Research Council National Survey of Health and Development which is a follow-up study of 2547 female and 2815 male legitimate singleton births in England, Scotland, and Wales during one week in March 1946 (Wadsworth, 1991; Wadsworth & Kuh, 1997) and with whom contact has been maintained to the present. A brief history of the Survey is as follows. In the 1940s, the British Royal Commission on Population was seeking information regarding maternity services and the cost of having children. Community nurses conducted home interviews with 90% of mothers who had given birth between March 3 and 9, 1946. A short-term follow-up from these original interviews was planned in order to examine social differences in infant and child morbidity and mortality, and a sample was therefore drawn from the original population. To avoid restrictions in making comparisons between children born to different parental occupations, the sample was taken to include all families of non-manual workers, all families of agricultural workers, and a randomly selected one-in-four sample of the remaining families, for a total sample of 5362 children (Atkins et al., 1981). The intention was to study this group for five years, but the unique value of the information obtained was recognised and the study was consequently extended. Men and women survey members have been followed up several times since their birth to the present, usually by home visits.

In 1993 (at age 47), a Women's Health postal survey was begun (Kuh et al., 1997) and was administered annually through 2000 (participant age 54). The Women's Health survey was designed to collect information on the timing of the peri-menopause and the menopause, health symptoms, use of hormone replacement therapy, and life circumstances of the women. The initial women's health survey was sent to the 1778 women still involved with the study (70% of the original cohort). The final women's health survey (2000, age 54), which contained data relevant to the present project, was sent to 1477 women of whom 1308 responded (89% response rate, representing 51%

of the original cohort). Of the original cohort, 6% had died, 9% were living abroad and were not in contact with the study, 12% had refused to take part at earlier follow-ups, 3% could not be traced, and 19% became non-responders over the course of the eight women's health surveys.

A weighting procedure is available to compensate for the original sampling stratification by father's social class (Wadsworth et al., 1992). Results presented in the first three articles in this dissertation are based on un-weighted data since other studies published using these Women's Health data have found no appreciable difference between results based on weighted and un-weighted data (e.g., Kuh et al., 1999; Kuh et al., 1997). However since social class of family of origin was of central importance to the fourth article (*Body dissatisfaction, social class, and social mobility*), analyses were run with both weighted and un-weighted data for this article. In line with other studies no appreciable differences were found and results for the un-weighted data are presented in this fourth article.

Variables

1. Variables included on postal survey at age 54[1]

Body dissatisfaction (Appendix 2, questions 41, 43, 51, 52). We used five indicators of body dissatisfaction. First, women were asked whether they were happy with their current weight or whether they would like to weigh more or less (a little more/less, or a lot more/less). Second, women reported how satisfied they were with their body weight or shape at five age periods: during their teens, twenties, thirties, forties, and since age 50 (6-point scale ranging from 'very satisfied' to 'very dissatisfied'). Third, women reported whether they were actively trying to change or maintain their weight ('no', 'trying to lose', 'trying to maintain', 'trying to gain'). Those who answered affirmatively also indicated how they were trying to

[1] All questions pertaining to body image (see Appendix 2) were developed by Lindsay McLaren under the supervision of Diana Kuh.

change/maintain their weight. Fourth and fifth, women completed the Body Esteem Scale (Mendelson et al., 2001) *appearance* (e.g., 'I like what I look like in pictures'; 10 items) and *weight* (e.g., 'Weighing myself depresses me'; 8 items) subscales, which have previously shown good psychometric properties (Mendelson et al., 2001). Responses were made on a 5-point scale anchored by 'never' and 'always', and a mean score was taken across items (range 1-5). A higher mean score indicates higher, or more positive, body esteem. Among women in the current study we found evidence of good internal consistency (Cronbach's alpha = .89 for the *appearance* subscale and .91 for the *weight* subscale).

Body-related comments (Appendix 2 question 47-50). Women reported on their experience of positive and negative comments about their bodies, both currently from partner and while growing up (no; yes, occasionally; yes, frequently; yes, all the time). Participants also indicated the source of comments received while growing up (mother, father, other family member, children at school, other).

History of eating disorders (Appendix 2 question 54-55). Women indicated whether they had ever had an eating disorder (no, anorexia nervosa, bulimia nervosa, other). A brief description of anorexia nervosa and bulimia nervosa was provided, and women could circle all answers that applied.

Avoidance behaviours (Appendix 2 question 45). Women reported whether they avoided any of the following situations because of how they feel about their body weight or shape: public changing facilities, physical activities where others may see you, wearing bathing suits or similar clothing, social situations, physical intimacy (often, sometimes, never).

Other distressing things about appearance (Appendix 2 question 53). Following the Body Esteem Scale women were asked if there was any other aspect of their appearance that particularly distressed them. Up to five aspects could be listed.

Self-rated health. Women rated their overall health during the past 12 months as excellent, good, fair, or poor.

2. Variables collected at other time points

Body size. Height and weight values were obtained several time across the life span, and data starting at age 7 were used in the present project. At ages 7, 11, and 15 height and weight were measured by school doctors or nurses. At ages 20 and 26 heights and weights were self-reported. At ages 36, 43, and 53 height and weight were measured by research nurses during a home interview. At age 54 women self-reported their weight. Body mass index (BMI) was computed from height and weight values at each age, except for 'current' BMI which was computed from height measured at age 53 and weight self-reported at age 54.

Social class. Father's occupation (ages 4, 11, 15) and own and spouse's occupation (ages 26, 36, 43, 53) were classified according to the 6-point British Registrar General social class classification system (I, II, IIINM = non manual, IIIM, IV, V = manual).

Smoking behaviour. During a home interview at age 53 women indicated their present and past smoking status and were categorised as current smoker, ex-smoker, or never smoker.

Age of menarche. During medical examinations conducted by school doctors in 1960 and 1961 (when mean cohort age was 14.5 years), mothers of girls were asked whether their daughters had started to menstruate and if so, the year and month when this happened. If menarche had not been reached by that time this information was recalled by the participant at age 48 (approximately 6% of women).

Parity. Parity was defined as number of live births and this information was updated at all the adult contacts through self-report.

Menopause. On each of the eight women's health postal surveys women reported on menstrual bleeding during the previous two years. For those who had reached a natural menopause (defined as twelve consecutive months without bleeding) the age of menopause was recorded. For all women, menopause status at age 54 was recorded as pre menopausal (still regular periods), peri menopausal (at least 3 but less than 12 months of amenorrhea, or, increasingly irregular periods), postmenopausal, medical cessation (hysterectomy, other surgery). Women whose menopausal status could not be ascertained because they had started hormone replacement therapy before reaching menopause were distinguished as a separate category that we called HRT users.

Psychological symptom score. Each year from age 47 to 54 women were asked whether twenty common health symptoms had bothered them a little, a lot, or not at all in everyday life over the past year. The results of factor analysis performed each year (described in Kuh et al., in press) revealed a group of psychological symptoms that clustered together. These were anxiety and depression, irritability, tearfulness, and feelings of panic. An overall score derived from these four symptoms (range 0-12) was given to each woman by giving those who reported the symptom but were not bothered by it in their everyday life a score of one, those who were bothered a little a score of two, and those who were bothered a lot a score of three. In the current study we used the scores obtained when the women were 54.

Article 1

Prevalence and correlates of body dissatisfaction in a cohort of 54-year-old women

Lindsay McLaren
G.R.I.S., University of Montreal

Diana Kuh
MRC National Survey of Health and Development
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Rôle joué par chaque auteur – Article 1

McLaren L, Kuh D. Prevalence and correlates of body dissatisfaction in a cohort of 54-year-old women. Soumis (mai, 2002) à *Journal of Women and Aging.*

Lindsay McLaren developed the idea and rationale for the study, developed the survey questions on body dissatisfaction, conducted all analyses and wrote the article.

Diana Kuh is the head and primary researcher of the Women's Health component of the MRC National Survey of Health and Development. She supervised development of the survey questions on body dissatisfaction, was responsible for data collection, and provided guidance on analysis and interpretation of data.

Accord des coauteurs – Article 1

Identification de l'étudiant et du programme

Lindsay McLaren

Étudiante de doctorat en santé public, option promotion de la santé

Description de l'article

McLaren L, Kuh D. Prevalence and correlates of body dissatisfaction in a cohort of 54-year-old women. Soumis à *Journal of Women and Aging*.

Déclaration de tous les coauteurs autres que l'étudiante

À titre de coauteur de l'article identifié ci-dessus, je suis d'accord pour que Lindsay Mclaren incluse cet article dans sa thèse de doctorat qui a pour titre 'A life course study of body dissatisfaction in middle-aged women'.

Diana Kuh [redacted] 27.05.02.

Coauteur | Signature | Date

Abstract

We examined the prevalence and correlates of body dissatisfaction among 1026 54-year-old women from the MRC National Survey of Health and Development 1946 birth cohort. We found that weight dissatisfaction (more common than general body dissatisfaction) was reported by nearly 80% of the sample and by over 50% of 'normal weight' women (BMI<25). Women indicated being most dissatisfied with their bodies currently, relative to their younger years including their forties. Dissatisfaction with weight, but not with appearance, was higher in women from higher social classes. Dissatisfaction was highest in ex-smokers, and in those who rated themselves in poorer health. Women with poor body esteem, regardless of body size, were likely to avoid various everyday situations because of how they felt about their bodies. Women who were happy with their weight were more likely to report distress about other aspects of their appearance. The few women who indicated having had an eating disorder during their lifetime reported elevated levels of midlife body dissatisfaction. We suggest that body dissatisfaction in women of this age group merits further attention.

Introduction

Body satisfaction is an important component of health and well-being for women of all age groups. Among adult women, dissatisfaction with body weight or shape has been linked with lower psychological well-being (Cash et al., 1986), lower self-esteem (Tiggemann & Stevens, 1999), greater depressive affect, lower overall quality of life, fewer energetic feelings and more feelings of fatigue (Reboussin et al., 2000), diminished sexual interest and less enjoyment of sex (Fooken, 1994), and marital dissatisfaction (Friedman et al., 1999). In terms of health behaviour, body dissatisfaction may preclude involvement in physical activity (Ransdell et al., 1998), it has been linked with smoking behaviour (King et al., 2000), and it may underlie unhealthy weight loss tactics and disordered eating (Allaz et al., 1998).

Although typically studied among adolescent and young adult women, a growing number of studies have examined body image in middle-aged and older women. Results generally suggest that dissatisfaction is less prevalent in these older samples relative to younger ones (Allaz et al., 1998; Hetherington & Burnett, 1994; Pliner et al., 1990; Tiggemann & Stevens, 1999). One explanation for this finding is that older women are protected by a cohort effect of having grown up during a time when cultural pressures for thinness were not as strong as they are today. According to this explanation, women of a particular birth era may retain standards of beauty from when they were young, and use these standards to evaluate their current body. Since past standards of beauty (i.e., pre-1960s) were generally less strict in terms of low body weight, evaluating one's body against these earlier standards may yield a more favourable self-evaluation.

Research on the 'ideal' body size preferred by older women has been used to support this position. Lamb et al. (1993) found that middle-aged women (mean age 47 years) selected a larger 'ideal' body size than younger women (mean age 20 years). Qualitative research has shown that some older women (age 61 to 92) feel that current fashion models represent an extreme and unattractive role model for young women,

and that they themselves are not influenced by these contemporary weight standards (Hurd, 2000). Rand and Wright (2000) found that, when asked which of several stimulus figures 'look O.K.', the range of body sizes endorsed increased with age, among a sample ranging from elementary school to middle-age (mean age 46 years). The problem with interpreting this research is that it is difficult to tell whether this change in 'standards' represents a change in women's preferences as they get older (i.e., a shift in preference in response to changes in their own bodies, or a maturational shift in attitude), or whether it does in fact indicate the retention of a standard from earlier times. It remains plausible that a cohort effect at least partially explains the lower prevalence estimates of body dissatisfaction in older women.

In this context, we feel that women currently in 'middle-age' are an interesting group to study. For the effects of an earlier sociocultural era to protect a woman against current body dissatisfaction, she must have lived a substantial part of her life (i.e., at least adolescence and young adulthood) prior to the mid-1960s when the ideal for women's bodily attractiveness was larger and more womanly. Older women (i.e., women who are currently 65 or more) may well benefit from the nature of an earlier social climate, having lived for roughly 30 years prior to the emergence of the 'thin is beautiful' message. Women currently in their fifties, forties, or younger, on the other hand have lived most of their life in a social context in which this message is pervasive. Therefore we might expect the effects of this message over a lifetime to culminate in a high prevalence of body dissatisfaction in middle-aged women. Furthermore, both longitudinal and cross-sectional data indicate that women gain weight with age during adulthood up to the mid-fifties (Hardy et al., 2000; Ledoux & Rivard, 2001; Health Survey for England 1993-99). Therefore women of this age group may be at a point in their body weight trajectory that is furthest from the 'thin ideal'. Because of the confluence of these factors, we hypothesise that the prevalence of body dissatisfaction in middle-aged women will be particularly high.

Based on the above hypothesis, we aimed in this study to provide a descriptive epidemiology of body dissatisfaction in women of middle age. The goal is to outline

the prevalence of dissatisfaction among a sample of 54-year-old women (all part of the same birth cohort), using several ways of assessing dissatisfaction, and its association with likely correlates including body size, social class, smoking behaviour, avoidance behaviours, and self-rated health status. Because body dissatisfaction is typically regarded as a risk factor for eating disorders, we also asked women about past experiences of eating disorders.

Methods

Participants and procedure

The data source is the Medical Research Council National Survey of Health and Development, a follow-up study of 2547 women and 2815 men born in England, Scotland, and Wales during one week in March 1946 (Wadsworth, 1991; Wadsworth & Kuh, 1997) and with whom contact has been maintained at least once every two years, to the present. In 1993 when the participants were 47 years old, an annual women's health postal survey was begun (Kuh et al., 1997) with the aim of collecting information on the menopause in addition to other aspects of women's health not previously examined. Of the original cohort, 6% had died, 9% were living abroad and were not in contact with the study, 12% had refused to take part at earlier follow-ups, 3% could not be traced, and 19% became non-responders over the course of the women's health surveys. Of 1477 women who were sent the 2000 survey which contained the questions on body image, 1308 responded, indicating a response rate of 89% for 2000 and representing 51% of the original 1946 sample.

Most of the variables outlined below were gathered as part of the 2000 postal survey (when women were 54), which participants completed in their own time. Data on measured height, occupation, and smoking status were obtained during a home interview with a research nurse when the women were 53.

Variables

Body satisfaction. We used five methods of inquiring about body satisfaction on the postal survey at age 54. First, women were asked whether they were happy with their current weight or whether they would like to weigh less (a little less, or a lot less) or more (a little more, or a lot more). All women reported their current weight, and those who wanted to lose or gain weight also reported how much they would like to weigh. Second, women indicated how satisfied they were with their body weight or shape since age 50 (6-point scale ranging from 'very satisfied' to 'very dissatisfied'). Women also answered this question retrospectively for their teens, twenties, thirties, and forties. Third, women indicated whether they were actively trying to change or maintain their weight ('no', 'trying to lose', 'trying to maintain', 'trying to gain'). Those who answered affirmatively also indicated how they were trying to change/maintain their weight. Fourth and fifth, women completed the Body Esteem Scale (Mendelson et al., 2001) *appearance* (e.g., 'I like what I look like in pictures'; 10 items) and *weight* (e.g., item 'My weight makes me unhappy'; 8 items) subscales, which have previously shown good psychometric properties (Mendelson et al., 2001). Responses were made on a 5-point scale anchored by 'never' and 'always', and a mean score was taken across items (range 1-5). A higher mean score indicates higher, or more positive, body esteem.

Body mass index (BMI). BMI (kg/m^2) was computed from weight, self-reported at age 54 on the postal survey; and height, measured to the nearest 0.5cm at a home interview when the women were 53.

Social class. Information on occupation was gathered during the home interview when women were 53. Women's own occupation, or their spouse's occupation if they did not have one, was classified according to the six-point British Registrar General's social class classification.

Smoking status. During the home interview at age 53, women indicated their current and past smoking status, and were classified as current smoker, ex-smoker, or never-smoker.

Self-rated health. On the survey at age 54 women rated their overall health during the past year as excellent, good, fair, or poor.

Body image avoidance behaviour. On the survey at age 54 women were asked whether they ever avoided any of the following situations because of how they feel about their body weight or shape: 'public changing facilities', 'physical activity where others may see you', 'wearing bathing suits or similar clothing', 'social situations', and 'physical intimacy' (often, sometimes, or never). These items were based loosely on (although not taken from) the Body Image Avoidance Questionnaire (Rosen et al., 1991), and had reasonable internal consistency (Cronbach's alpha = .87).

Other aspects of appearance. On the survey at age 54, women indicated whether there were any other aspect(s) of their appearance that were particularly distressing (up to five aspects). We eliminated 78 women who reported an aspect clearly related to weight, e.g., big thighs, flabby stomach, increase in weight, in order to examine distressing non-weight related aspects of appearance. We categorised women as either reporting additional distressing aspects of their appearance or not, and conducted logistic regression analyses with this outcome using the five measures of body dissatisfaction as predictors.

Eating disorder history. On the survey at age 54, women indicated whether they had ever had an eating disorder (anorexia, bulimia, or other), their age at the time of the disorder, and whether they had received physician diagnosis and/or hospitalisation for the disorder.

Analyses

Data were examined and analysed using SPSS.X. All analyses are based on the 1026 women who had complete data on all variables reported in this paper (Table I), and this group was essentially identical on study variables to those in the unrestricted sample (not shown).

The scores from the body esteem scale were normally distributed and we regarded them as continuous outcome variables. The variable 'satisfaction since age 50' was slightly negatively skewed, and because of its ordinal response format, we viewed this variable as dichotomous ('satisfied' = somewhat satisfied or better, vs. 'dissatisfied' = somewhat dissatisfied or worse). For 'happy with current weight', so few women wished to gain weight that we grouped these women (n=15) in with 'happy' and considered them a group who 'do not wish to lose', versus 'wish to lose'. Likewise, for 'trying to change/watch weight', we grouped those women who were trying to gain weight (n=4) in with those who were not trying to change/watch weight, and regarded two groups as 'not trying to lose/maintain' versus 'trying to lose/maintain'. For the avoidance behaviours, since most responses fell into the 'never' category, we combined responses from 'sometimes' and 'often' to make this a dichotomous variable. Finally we viewed social class as dichotomous (manual vs. non manual) as there was no evidence for dose-response style relationships with social class as a 6-point scale.

We first examined the correspondence among the five indicators of body dissatisfaction. Specifically we examined the Pearson correlation coefficients among the continuous indicators (body esteem *weight* and *appearance*), and for the remaining indicators (all dichotomous) we looked at the proportion of women who were dissatisfied according to one indicator (e.g., dissatisfied since age 50) and also dissatisfied according to other indicators (wishing to lose weight, trying to lose/maintain weight). Second, we evaluated the relationships between body dissatisfaction and the hypothesised correlates by using multiple and logistic regression analyses with each measure of body dissatisfaction as an outcome variable. Third, we evaluated body image avoidance behaviour as a consequence of body

Table I

Descriptive information (mean and standard deviation or %) on body dissatisfaction variables for female participants in the MRC NSHD* 1946 birth cohort

Variable	N	Mean (SD) or %
Body esteem appearance (1-5)	1026	3.3 (.70)
Body esteem weight (1-5)	1026	2.9 (.90)
Body mass index	1026	26.6 (4.9)
Happy with current body weight		
Happy	217	21.2
Like to lose a little	533	51.9
Like to lose a lot	261	25.4
Like to gain a little	13	1.3
Like to gain a lot	2	0.2
Trying to change/maintain weight		
Not trying to change	266	25.9
Trying to lose	465	45.3
Trying to maintain	291	28.4
Trying to gain	4	0.4
Dissatisfaction since age 50		
Very satisfied	47	4.6
Satisfied	193	18.8
Somewhat satisfied	180	17.5
Somewhat dissatisfied	316	30.8
Dissatisfied	163	15.9
Very dissatisfied	127	12.4

* Medical Research Council National Survey of Health and Development

dissatisfaction, using logistic regression analyses to predict avoidance behaviour (0=no, 1=yes) with each indicator of body dissatisfaction. Fourth, we examined whether women who were dissatisfied with their body weight or shape were also distressed about other aspects of their appearance by using logistic regression with 'distress about other aspects of appearance' as the outcome variable (0=no, 1=yes) and each indicator of body dissatisfaction as a predictor. For all regression analyses, unadjusted and adjusted coefficients were examined; predictor variables in the adjusted analyses were entered simultaneously. Finally, we looked at whether the small group of women who reported having experienced an eating disorder differed from the remaining sample on indices of midlife body dissatisfaction, by using t-tests for mean differences and chi-square analysis to compare women with versus women without an eating disorder on continuous and dichotomous indicators of body dissatisfaction.

Results

Body Dissatisfaction - Descriptive Data

Nearly 80% of women wished to lose weight, leaving roughly 20% who reported that they did not wish to lose. Likewise, 74% of the sample reported that they were actively trying to lose or maintain their weight, leaving one quarter of the sample who were not actively trying to lose or maintain. Of those who were trying to lose, the mean desired weight loss was 9.8 kg, and of those who were trying to lose or maintain, most were using a combination of dietary changes and physical activity (48%), followed by dietary changes alone (41%). Nearly 60% of women reported being dissatisfied with their bodies since age 50.

Weight esteem and appearance esteem were highly correlated (Pearson $r = .72$, $p < .001$). The other (dichotomous) indicators showed some overlap but they are not identical. For example, of the women who were 'satisfied since age 50', half nonetheless wished to lose weight, and 60% were actively trying to lose or maintain

their weight. Therefore women could be generally satisfied with their bodies and nonetheless wish to change (typically lose) weight.

Women's retrospective reports indicated that dissatisfaction increased in prevalence with age after adolescence (Figure 1). From adolescence through their forties, body satisfaction was reported by the majority of women with over 80% of women recalling being satisfied during their twenties. This pattern reversed with the current decade, with dissatisfaction being more common than satisfaction since age 50.

Correlates of Body Dissatisfaction

Body mass index. A higher BMI was associated with more body dissatisfaction, however measured. The means and percentages in Table II show a general trend that as weight category increases (i.e., from underweight, to acceptable weight, to overweight, to obese), the amount or likelihood of body dissatisfaction increases. Heavier women had lower body esteem, were more likely to be dissatisfied during their fifties, to wish to lose weight, and to be actively trying to lose or maintain their weight. From a health standpoint, we might worry about women who are at an unhealthy weight (i.e., obese) but who do not wish to lose weight, but there are only a few of these cases (9 women, or < 4% of the obese women). On the other hand, there is a large proportion of women who are at an 'acceptable' weight (i.e., BMI range 20-24.9 kg/m^2) but who nonetheless wish to lose weight (54%), are trying to lose/maintain weight (64%), or who have felt dissatisfied with their weight/shape since age 50 (34%). Because of the consistency of the relationship between body size and dissatisfaction, BMI was considered as a covariate in subsequent analyses.

Social class. Four of the five measures of body dissatisfaction were associated with social class, controlling for BMI (Table III). Women from the non manual (higher) social classes had lower *weight* esteem, and were more likely to be dissatisfied since age 50, to wish to lose weight, and to be trying to lose or maintain,

Figure 1

Proportion of women who retrospectively reported being satisfied vs. dissatisfied at different ages (n=1227)

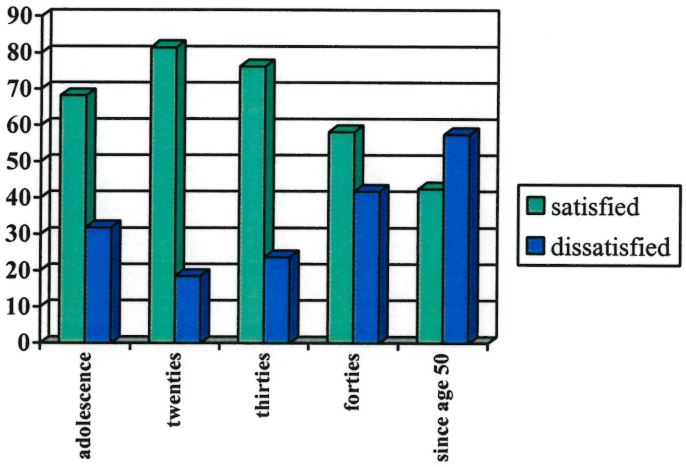

Table II

Mean scores or percentages on body dissatisfaction variables, for different levels of the predictors (n=1026)

	Body dissatisfaction				
	Appearance* esteem (M)	Weight* esteem (M)	Dissatisfied since 50 (% dissatisfied)	Wish to lose weight (% wishing to lose)	Trying to lose/maintain (% trying to lose/maintain)
Body mass index					
Underweight (n=6)	3.8	3.5	33.3%	0%	16.7%
Acceptable (n=428)	3.5	3.5	33.9%	54.0%	63.6%
Overweight (n=375)	3.3	2.7	71.7%	94.7%	82.7%
Obese (n=217)	2.9	2.2	87.6%	95.9%	79.7%
Social class					
Manual (n=255)	3.3	2.9	54.1%	75.7%	68.3%
Non manual (n=771)	3.3	2.9	60.7%	78.0%	75.5%
Smoking status					
Current (n=204)	3.3	3.0	55.9%	71.1%	58.8%
Ex (n=307)	3.3	2.8	59.9%	80.0%	80.5%
Never (n=515)	3.3	2.9	59.8%	77.9%	75.5%

Table II (continued)

			Body dissatisfaction		
	Appearance* esteem (M)	Weight* esteem (M)	Dissatisfied since 50 (% dissatisfied)	Wish to lose weight (% wishing to lose)	Trying to lose/maintain (% trying to lose/maintain)
Self-rated health					
Excellent (n=118)	3.8	3.5	37.3%	71.2%	74.6%
Good (n=580)	3.4	3.0	55.9%	77.8%	72.6%
Fair (n=281)	3.1	2.6	72.2%	77.2%	75.8%
Poor (n=47)	2.6	2.2	74.5%	89.4%	72.3%
Other distressing things about appearance**					
Yes (n=212)	3.0	2.8	63.7%	75.0%	75.9%
No (736)	3.4	3.0	55.4%	76.6%	72.3%

* higher score = higher (more positive) body esteem

** does not add up to 1026 because we eliminated 78 women who indicated weight-related aspects of appearance

[1] underweight: <= 18.5 kg/m^2

[2] acceptable weight: 18.6-24.9 kg/m^2

[3] overweight: 25.0-29.9 kg/m^2

[4] obese: >= 30 kg/m^2

Table III

Results of regression analyses (multiple or logistic) predicting body dissatisfaction with hypothesised correlates, unadjusted (1*) and adjusting for body mass index (2**) (n=1026)

	Body dissatisfaction									
	Appearance esteem[1] Regress coeff (95% CI)		Weight esteem[1] Regression coeff (95% CI)		Dissatisfied since 50 Odds ratio (95% CI)		Wish to lose Odds ratio (95% CI)		Try to lose/maintain Odds ratio (95% CI)	
Predictors	1*	2**	1*	2**	1*	2**	1*	2**	1*	2**
Social class										
Non manual	.01 (-.1 to .11)	-.06 (-.15 to .04)	.03 (-.1 to .15)	-.12[b] (-.22 to -.02)	1.3 (.98 to 1.8)	2.0[a] (1.4 to 2.7)	1.14 (.82 to 1.6)	1.9[a] (1.3 to 2.9)	1.4[b] (1.1 to 2.0)	1.7[a] (1.2 to 2.3)
Manual***	0	0	0	0	1.0	1.0	1.0	1.0	1.0	1.0
Smoking status										
Current	-.02 (-.13 to .1)	-.06 (-.17 to .05)	.08 (-.07 to .22)	-.02 (-.13 to .1)	.90 (.72 to 1.1)	.99 (.78 to 1.3)	.74[b] (.59 to .94)	.81 (.6 to 1.1)	.54[a] (.44 to .67)	.56[a] (.45 to .69)
Ex	-.04 (-.14 to .06)	-.04 (-.14 to .05)	-.1 (-.23 to .03)	-.1[b] (-.2 to .00)	1.1 (.88 to 1.3)	1.0 (.81 to 1.3)	1.3[b] (1.0 to 1..6)	1.2 (.95 to 1.6)	1.6[a] (1.3 to 2.0)	1.6[a] (1.3 to 1.9)
Never***	0	0	0	0	1.0	1.0	1.0	1.0	1.0	1.0

Table III (continued)

	Body dissatisfaction									
	Appearance esteem[1] Regress coeff (95% CI)		Weight esteem[1] Regression coeff (95% CI)		Dissatisfied since 50 Odds ratio (95% CI)		Wish to lose Odds ratio (95% CI)		Try to lose/maintain Odds ratio (95% CI)	
Predictors	1*	2**	1*	2**	1*	2**	1*	2**	1*	2**
Self-rated health										
Excellent	1.16[a] (.94 to 1.4)	.93[a] (.71 to 1.2)	1.2[a] (.92 to 1.5)	.64[a] (.4 to .88)	.38[a] (.27 to .53)	.49[a] (.34 to .71)	.62[b] (.42 to .92)	1.0 (.63 to 1.6)	1.04 (.73 to 1.5)	1.3 (.88 to 1.8)
Good	.78[a] (.59 to .97)	.58[a] (.39 to .77)	.78[a] (.53 to 1.03)	.28[a] (.06 to .5)	.82 (.65 to 1.0)	.99 (.75 to 1.3)	.88 (.66 to 1.2)	1.1 (.74 to 1.6)	.94 (.74 to 1.2)	1.1 (.81 to 1.4)
Fair	.44[a] (.24 to .64)	.29[b] (.1 to .48)	.39[a] (.14 to .64)	.04 (-.18 to .25)	1.7[a] (1.3 to 2.2)	1.9[a] (1.4 to 2.6)	.86 (.62 to 1.2)	.81 (.54 to 1.2)	1.1 (.84 to 1.5)	1.1 (.83 to 1.5)
Poor***	0	0	0	0	1.0	1.0	1.0	1.0	1.0	1.0

* unadjusted for BMI

** adjusted for BMI

*** reference group

[a] $p<.01$

[b] $p<.05$

[1] higher score = higher (more positive) body esteem

than women from the manual (lower) classes. This is despite higher social class women being lighter (mean non manual BMI = 26.3 kg/m^2 vs. mean manual BMI = 27.6 kg/m^2).

Smoking status. Smoking status was associated with 'trying to lose/maintain weight' (Table III). Ex-smokers were *most* likely to be trying to change or maintain their weight, current smokers were *least* likely to be trying to change or maintain their weight, and never-smokers were intermediate between the two. The same pattern was obtained for 'wish to lose weight', but this effect disappeared when BMI was controlled. Ex-smokers also had slightly lower *weight* esteem than never-smokers.

Self-rated health. Women with better self-rated health had more positive body esteem (*appearance* and *weight*) (Table III). Better health was also associated with more body satisfaction since age 50. These effects were attenuated but remained significant after adjusting for body size. Those who felt themselves in excellent health were less likely to wish to lose weight than those in poor health, but this effect disappeared when BMI was controlled. Self-rated health was unrelated to current attempts at weight loss/maintenance.

Consequences of body dissatisfaction

Avoidance behaviours. All body dissatisfaction measures were associated with avoidance behaviours (more dissatisfaction linked with greater likelihood of avoidance). When dissatisfaction measures were mutually adjusted for each other (not shown), only the two body esteem scales remained associated with the avoidance behaviours. The strength of these associations was reduced after controlling for BMI but remained highly significant (Table IV).

Other distressing things about appearance

Table IV

Results of logistic regression analyses predicting avoidance behaviour with body esteem variables, controlling for BMI (n=1026) ($p<.001$ in all cases)

	Avoidance behaviours*									
	Public change rooms		Bathing suits		Physical activity		Social situations		Phys intimacy	
	Odds ratio (95% CI)		Odds ratio (95% CI)		Odds ratio (95% CI)		Odds ratio (95% CI)		Odds ratio (95% CI)	
Predictors	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**
Appearance esteem**	.26 (.2 to .32)	.60 (.43 to .81)	.27 (.21 to .34)	.55 (.4 to .75)	.21 (.16 to .27)	.50 (.35 to .71)	.15 (.11 to .21)	.33 (.22 to .49)	.17 (.13 to .23)	.32 (.21 to .47)
Weight esteem**	.26 (.21 to .31)	.40 (.3 to .53)	.29 (.24 to .35)	.52 (.38 to .71)	.21 (.17 to .27)	.40 (.29 to .56)	.17 (.13 to .23)	.38 (.25 to .58)	.22 (.17 to .29)	.44 (.29 to .65)

* avoidance behaviours: 0=no, 1=yes

** body esteem: higher score = higher (more positive) body esteem

Column 1: unadjusted values

Column 2: body esteem scores adjusted for each other and for BMI

For 212 (21%) of the women, there were one or more things about their appearance that particularly distressed them (examples in Table V). After mutually adjusting for the five measures of body dissatisfaction (not shown), only the body esteem scores were significant predictors of the likelihood of being dissatisfied about other aspects, and this remained when controlling for BMI (Table VI). Women high in *appearance* esteem were less likely to report other distressing aspects of their appearance. The effect of *weight* esteem reversed after adjustment for appearance esteem and BMI, with women high in *weight* esteem being more likely to report other distressing things about their appearance.

Eating disorder history

Twenty-nine women (2.8%) indicated having had an eating disorder (7 anorexia nervosa, 5 bulimia, 2 anorexia and bulimia, 15 'other', often binge eating). Age of suffering from eating disorders ranged from 15 to 47, with several cases reportedly lasting ten or more years. Eleven women reported physician diagnosis, and three women reported hospitalisation for their eating disorder. These 29 women had lower current body esteem (both *appearance* and *weight*) and were more likely to be trying to lose or maintain their weight relative to the rest of the sample (not shown).

Discussion

Among this cohort of 54-year-old women, reports of body dissatisfaction were common. Expressed as a desire to lose weight, the majority (nearly 80%) of women were dissatisfied, and nearly half (45%) were actively trying to lose weight. These values are higher than those obtained among a sample of British women who were 67 (mean age) in 1992 (Hetherington & Burnett, 1994), and higher than those obtained among a sample of Swiss women who were 54 (mean age) in 1993 (Allaz et al., 1998). This provides some support for the hypothesis that women *currently in middle-age* are more dissatisfied than women older than middle-age (who may be protected by a cohort effect, and by the fact that they have passed the period of peak body weight),

Table V

Examples of other distressing things about appearance (number in brackets indicates how many women mentioned an aspect in that category)

Face and hair (99)	Breasts (17)	Skin and nails (34)
-thin, grey hair	-large breasts	-dry skin
-bags under eyes	-would like to have bigger breasts	-wrinkled skin
-teeth/no teeth/false teeth	-large breasts due to HRT	-thin skin
-facial hair	-flat-chested	-sagging, floppy skin
-nose	-mastectomy	-dry, split nails
-crows feet		-warts
-glasses		-brown spots on hands
-ears		-moles with hair
-thin lips		
-lines around mouth		
-facial redness		

Legs and feet (23)	Whole body/arms/shoulders (24)	Looking old (15)
-short legs	-poor posture	-look stressed/ haggard
-varicose veins	-lack of firmness	-look old & tired
-ugly legs	-arthritis/swollen joints	-look weary
-fluid retention in legs	-widows hump	-look matronly
-large feet	-height	
-misshapen feet	-round shoulders	

Table VI

Results of logistic regression analyses predicting distress about other aspects of appearance with body esteem (n=948)[a]

	Distress about other aspects of appearance (no [0] or yes [1])	
	1*	2**
	Odds ratio	Odds ratio
Predictor variables:	(95% CI)	(95% CI)
Appearance esteem	.38 (.30 to .48)	.21 (.15 to .31)
	p<.001	p<.001
Weight esteem	.79 (.66 to .94)	1.38 (1.01 to 1.9)
	p=.006	p=.04

[a] elimination of 78 women who reported weight-related aspects of appearance

* unadjusted values

** adjusted for each other and for BMI

and more dissatisfied than women who were middle-age during an earlier time (who may be protected by a cohort effect). Furthermore, our values are comparable to reports of dissatisfaction and dieting in adolescent women (Grigg et al., 1996), who are typically considered most likely to report these outcomes. There are presently no suitable data (i.e., neither British data nor middle-aged samples) with which to compare our Body Esteem Scale scores.

These women feel more dissatisfied currently than they remember feeling at younger ages, including their forties. This 'turning-50 effect' suggests that there is something about being in one's fifties that makes most women unhappy with their bodies. Cultural messages are perhaps the best explanation, such as a 'double standard of ageing' whereby physical ageing is believed to be judged more harshly in women than in men (Deutsch et al., 1986; Harris, 1994). Retrospective reports must be treated with caution, as current body image may influence recall, but findings are consistent with the position that these women, in their fifties, are at an age of highest lifetime body dissatisfaction.

Although the measures of body dissatisfaction overlap, they are not identical. Inquiring about 'weight' yields higher prevalence estimates of dissatisfaction than asking more generally about body size/shape. From a health standpoint, it could be argued that since these women are slightly overweight, on average, this high prevalence of weight dissatisfaction is unimportant and perhaps even appropriate. We found that only a few obese women were 'happy' with their weight, whereas many (>50%) normal weight women nonetheless wished to lose weight. It would appear, therefore, that dissatisfaction is sufficiently normative in our sample, across all body sizes, to conclude that it constitutes an unnecessary source of distress for many women. On the other hand, it should be recognised that although a wish to lose weight could indicate dissatisfaction, it could also be that women cognitively recognise that a lower weight would be better (for health or other reasons) without necessarily being emotionally upset by this fact (French & Jeffery, 1995). Thus it

might be more appropriate (and conservative) from a well-being standpoint to report estimates of general body (rather than weight) dissatisfaction.

Body dissatisfaction and attempts at weight loss/maintenance were more prevalent among women from higher social class, despite these women being lighter on average. This is consistent with other research showing that wealthier women are more likely to report body dissatisfaction, weight concern, and attempts at weight loss (Jeffery & French, 1996; Ogden & Thomas, 1999; Wardle & Griffith, 2001). We have extended this finding to a group of women that is older than previously examined. Further, in these data although more affluent women were more dissatisfied with their weight, they were no more dissatisfied with their general appearance (based on *appearance* esteem scores). Perhaps unlike manual social class women, non-manual class women can afford products and services that enhance and maintain a desired appearance (e.g., skin creams, regular hair appointments, attractive clothing) and therefore are relatively satisfied in this respect. On the other hand, only very few women, regardless of social class, have a body weight that coincides with what is considered ideal (Katzmarzyk & Davis, 2001; Kuczmarski et al., 1997), and therefore body weight can remain a source of dissatisfaction and a 'project' for those who have the time and desire to improve it.

Ex-smokers were most likely to be trying to lose or maintain their weight, and one explanation is that since smoking cessation is usually followed by weight gain, ex-smokers may be trying to prevent or offset weight gain that accompanied smoking cessation by changing their diet/exercise habits. Ex-smokers were relatively low in *weight* esteem, which could also be driving attempts at weight loss/maintenance. Another explanation is that quitting smoking and 'watching one's weight' are both part of a move toward a healthier lifestyle. This explanation would require viewing attempts at weight change/maintenance as a positive, health-conscious strategy (e.g., eating less fat) rather than as a negative one.

Poor self-rated health was linked with greater body dissatisfaction, and it is likely that having poor health could lead someone to view her body, including her physical appearance, negatively. Other research (Reboussin et al., 2000) has similarly found an association between subjective well-being (positive and negative affect, depression) and body satisfaction among middle-aged and older women. On the other hand, self-rated health was unrelated to 'trying to lose/maintain weight' in these data, suggesting that women who were trying to change or maintain were not doing so for health reasons. Corroborating this finding are other data (Green et al., 1997) showing that weight loss attempts are unrelated to presence of weight-related illness (diabetes, hypertension) among a large sample of Canadian adults. This is surprising, given data from the same study (Green et al., 1997) that 'to improve overall health' is the most commonly endorsed motive for weight loss attempts among middle-aged and older women. Therefore while women recognise the link between weight loss and health, actual attempts at weight loss/maintenance may be driven by appearance, rather than health-related, motives.

A negative consequence of body dissatisfaction shown in this study was that women with poor body esteem, regardless of their body size, tended to avoid various daily scenarios including public change rooms, wearing bathing suits, physical activity, social situations, and physical intimacy. Women should not have to avoid such integral parts of daily life because they feel that they do not 'measure up' to a particular body weight or shape, and this finding in itself provides sufficient rationale for interventions designed to alleviate normative dissatisfaction. Furthermore, a sedentary lifestyle resulting from avoidance of physical activity carries negative consequences for health, as discussed by researchers of the related concept social physique anxiety (Ransdell et al., 1998).

Women high in *appearance* esteem were, not surprisingly, unlikely to report other (non weight-related) distressing aspects of their appearance. However after adjustment for appearance esteem, women high in *weight* esteem were actually more likely to report other distressing things. In other words, for a given level of

appearance esteem, women with high weight esteem are more likely to be distressed about some other aspect of their appearance. Perhaps what is the norm is for women to feel dissatisfied about some aspect of their appearance, and the few who are happy about their weight are not exempt from dissatisfaction, they simply find some other aspect of appearance to be distressed about.

The lifetime prevalence of eating disorders as reported by these women was 2.8% (0.9% anorexia, 0.7% bulimia, 1.5% other). As a comparison, Bushnell et al. (1990) collected interview data on psychiatric disorders in the mid-1980s and found a lifetime prevalence of 2.0% for bulimia among 25-44 year-old women, a group who represent roughly the same birth cohort as in the present study. However limitations of this comparison must be kept in mind: Bushnell et al.'s data were collected at a younger age, they considered bulimia only, and were obtained through diagnostic interviews rather than questionnaires. Our data contribute the finding that those women who reported an eating disorder during their lifetime had lower body esteem at midlife, and were more likely to be trying to lose or maintain their weight at midlife. This draws attention to the potentially lifelong nature of body dissatisfaction and eating difficulties, and is corroborated by the wide age range and long duration for which eating disorders were experienced by these few women.

In summary, body dissatisfaction – particularly weight dissatisfaction – is common among middle-aged women in Britain. Dissatisfaction or attempts at weight change/maintenance are most prevalent among women from higher social classes and among ex-smokers, and contribute to avoidance of daily activities regardless of body size. Although dissatisfaction is positively related to body size, a substantial proportion of normal weight women is dissatisfied or wishes to lose weight. In this study we have shown that body dissatisfaction is a significant issue for women who are currently in middle age, and it is therefore not limited to young women as the existing literature leads one to believe. The high prevalence of body dissatisfaction coupled with its negative health correlates support a view of body dissatisfaction as a public health problem and we suggest that future research consider this

conceptualization. This perspective shifts the focus away from individuals and implicates features of the social or physical environment (i.e., factors that influence all women) as important targets for intervention. We suggest that high levels of body dissatisfaction among all ages of women will be the norm until the social climate that encourages an unrealistic body among women is modified.

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Article 2

Women's body satisfaction at midlife and lifetime body size: A prospective study

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Rôle joué par chaque auteur – Article 2

McLaren L, Hardy R, Kuh D. Women's body satisfaction at midlife and lifetime body size: A prospective study. Soumis (mai, 2002) à *Health Psychology.*

Lindsay McLaren developed the idea and rationale for the study, developed the survey questions on body dissatisfaction, conducted all analyses and wrote the article.

Rebecca Hardy provided guidance on statistical analysis and interpretation.

Diana Kuh is the head and primary researcher of the Women's Health component of the MRC National Survey of Health and Development. She supervised development of the survey questions on body dissatisfaction, was responsible for data collection, and provided guidance on analysis and interpretation of data.

Accord des coauteurs – Article 2

Identification de l'étudiant et du programme

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Description de l'article

McLaren L, Hardy R, Kuh D. Women's body satisfaction at midlife and lifetime body size: A prospective study. Soumis à *Health Psychology*.

Déclaration de tous les coauteurs autres que l'étudiante

À titre de coauteur de l'article identifié ci-dessus, je suis d'accord pour que Lindsay Mclaren incluse cet article dans sa thèse de doctorat qui a pour titre 'A life course study of body dissatisfaction in middle-aged women'.

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Abstract

We examined the relationship between past body size and current body esteem among 933 middle-aged women from a prospective birth cohort study. Women provided self-report data on body esteem at age 54. Height and weight data were collected at ages 7, 11, 15, 20, 26, 36, 43, and 54. Data on reproductive variables were also collected prospectively. We used hierarchical linear modelling to examine BMI trajectories across the life span, and multiple regression analyses to examine the relationship between reproductive events and midlife body esteem. It was found that women who were dissatisfied at midlife were heavier at age 7, and showed a more rapid increase in BMI with age. A late menarche, being post-menopausal, and having started HRT before menopause were associated with less dissatisfaction. Results suggest that attention to factors across the life span is necessary to understand body dissatisfaction in women at midlife.

Introduction

Body size (body mass index, BMI) is perhaps the most consistent correlate of body dissatisfaction in women. Heavier women tend to be more dissatisfied, and this relationship has been documented among women of various age groups (Allaz et al., 1998; Kostanski & Gullone, 1998; McLaren & Kuh, in review; Mendelson et al., 1995; Pingitore et al., 1997; Reboussin et al., 2000).

This finding has prompted research on body dissatisfaction in obese women, for whom dissatisfaction would presumably be particularly high. Retrospective research has shown that obese women with child-onset obesity report more body dissatisfaction as adults than those with adult-onset obesity (Grilo et al., 1994; Stunkard & Burt, 1967). And, the earlier the onset of obesity the worse the adult body image, independent of adult body mass index (Wardle et al., in press). Therefore in addition to current BMI, past BMI appears to contribute to adult body dissatisfaction in women (at least, in obese women).

In this study we wished to extend this finding, using a sample of middle-aged women who were heterogeneous in past and current BMI, and for whom prospectively measured BMI values across their life time were available. In addition reproductive variables of puberty, pregnancies and menopause were taken into account due to their impact on women's body shape and size and possibly on body satisfaction, as follows. Girls who experience an early menarche are larger before puberty, on average, than girls who experience an on-time or late puberty (Collins, 1996) and body image researchers have demonstrated a relationship between early maturation and poorer body satisfaction that is explained by the heavier body weight of the early maturing girls (Striegel-Moore et al., 2001). An early puberty has also been consistently linked with greater subsequent fatness (Power et al., 1997; Power & Parsons, in press). Parity may be positively associated with subsequent BMI, both through the accumulation of weight gained during multiple pregnancies and through greater weight gain between pregnancies that has been shown in high parity women (Harris et

al., 1997). Although shifts in body satisfaction have been detected across pregnancy and the postpartum (Fox & Yamaguchi, 1997; Jenkin & Tiggemann, 1997), the association between parity and later body dissatisfaction is not known; however we might expect high parity to predict poorer body esteem through an increase in body size. Body weight appears to increase around the time of the menopause, although this may be an effect of age rather than menopause per se (Power & Parsons, in press). Some authors have identified the menopause as a time of distress about appearance for women (Graziottin, 1996) but to our knowledge no study has attempted to disentangle the effects of menopause, age, and body size on body satisfaction at midlife.

Body dissatisfaction has previously been shown to be common in women of middle-age (Allaz et al., 1998; McLaren & Kuh, in review), and to be associated with psychological and behavioural factors that are adversely related to health and well-being (e.g., lower overall quality of life (Reboussin et al., 2000); avoidance of physical activity (McLaren & Kuh, in review)). Therefore a better understanding of pathways underlying midlife dissatisfaction is desirable. Specific questions in this study were as follows. Do women with high versus low body esteem at midlife differ in body size as early as childhood? Do they show different trajectories of BMI across their lifetime? How do reproductive events of puberty, parity, and menopause fit into the BMI - body dissatisfaction pathway? In line with retrospective research in obese women, we expected to detect an association of past BMI with midlife body esteem, but did not formulate any hypotheses as to how early in life this effect would be evident. Based on research in younger samples (Striegel-Moore et al., 2001) we suspected that an earlier puberty might be associated with poorer body esteem, but that this effect would be of small magnitude due to the time lag between menarche and reporting of body dissatisfaction, and that the effect might operate through a higher BMI. We did not formulate specific hypotheses regarding parity and menopause, other than a general expectation that an impact of either would have much to do with the influence of these events on body size. In short, our goal was to clarify pathways underlying midlife body esteem pertaining to body size and reproductive events. This topic has not previously been researched.

Methods

Participants

The data source was the Medical Research Council National Survey of Health and Development, a follow-up study of 2547 women and 2815 men born in England, Scotland, and Wales during one week in 1946 (Wadsworth, 1991; Wadsworth & Kuh, 1997) and with whom regular contact has been maintained to the present. From 1993 to 2000 (participant age 47-54 years) an annual women's health postal survey was conducted (Kuh et al., 1997) in order to study the menopause transition in addition to other aspects of women's health not previously examined. Of the original cohort, 6% had died, 9% were living abroad and not in contact with the study, 12% had refused to take part at earlier follow-ups, 3% could not be traced, and 19% became non-responders over the course of the women's health surveys. Of 1477 women who were sent a survey in 2000 (at age 54), 1308 responded, indicating a response rate of 89% for 2000, and representing 51% from the original 1946 cohort.

Variables

Body satisfaction. When women were 54 they completed a postal survey which included the Body Esteem Scale (Mendelson et al., 2001) *appearance* (e.g., 'I like what I see when I look in the mirror', 10 items) and *weight* (e.g., 'weighing myself depresses me', 8 items) subscales. These have previously shown good psychometric properties (Mendelson et al., 2001). Responses were made on a 5-point scale anchored by 'never' and 'always' and a mean score was taken across items (range 1-5). A higher mean score indicates higher (more positive) body esteem.

Body mass index (BMI). Height and weight were measured at ages 7, 11, and 15 years by school doctors or nurses. Height and weight were self-reported by women at ages 20 and 26. At ages 36, 43, and 53 years, height and weight were measured during a home interview with a trained research nurse. Women also self-reported their

weight at age 54. BMI (kg/m^2) was computed from height and weight values at age 7, 11, 15, 20, 26, 36, and 43 years, and current BMI was computed from height measured at age 53 and weight self-reported at age 54.

Current social class. Information on own and partner's (if applicable) occupation was gathered during a home interview when women were 53. Occupations were classified according to the British Registrar General's social class classification, and for this study social class was defined in a gender-neutral way based on the women's own value or her partner's, whichever was highest (Krieger et al., 1999). We viewed this variable as dichotomous (manual, non manual) as there was no evidence for a dose-response association between body esteem and social class across the six classes.

History of body dissatisfaction. When women were 54 they recalled how satisfied they had been with their body weight/shape in adolescence, 20-29 years, 30-39 years, 40-49 years, and since aged 50 years. Responses were made on a 6-point scale anchored by 'very satisfied' and 'very dissatisfied' but for this study we viewed this variable as dichotomous ('satisfied' = somewhat satisfied or better, vs. 'dissatisfied' = somewhat dissatisfied or worse).

Age at menarche. During medical examinations conducted by school doctors in 1960 and 1961 (when mean cohort age was 14.5 years), mothers of girls were asked whether their daughters had started to menstruate, and if so, the year and month when this happened. If menarche had not been reached by that time this information was recalled by the participant at age 48 (approximately 6% of women).

Number of children. Parity was defined as number of live births and this information was updated at all the adult contacts through self-report.

Menopause data. On each of the eight women's health postal surveys women reported menstrual bleeding during the previous two years. For those who had

reached a natural menopause (defined as twelve consecutive months without bleeding) the age of menopause was recorded. For all women, menopause status at age 54 was recorded as pre menopausal (still regular periods), peri menopausal (at least 3 but less than 12 months of amenorrhea or, increasingly irregular periods), postmenopausal, medical cessation (hysterectomy, medical cessation, other surgery). Women whose menopausal status could not be ascertained because they had started hormone replacement therapy before reaching menopause were distinguished as a separate category which we called HRT users.

Analyses

BMI trajectories and their relationship with midlife body esteem was modelled with hierarchical linear modelling using HLM 5.0 software. Relationship of midlife body esteem with puberty, parity, and menopause were examined with multiple regression using SPSS.X. All analyses were examined unadjusted and adjusting for social class.

Hierarchical linear modelling (HLM). HLM is appropriate for data that has a nested structure, such as repeated measures data where several individual measurements are nested or clustered within an individual. Measurements within an individual are likely to be more highly correlated than measurements between individuals, and HLM takes into account this within-individual correlation. Failure to take this into account (as in ordinary regression) can lead to underestimation of standard errors. HLM can accept missing values for the repeated measures data as long as these data can be presumed to be missing at random (see below).

In these data the individual was considered as 'level 2' and age (or measurement occasion) as 'level 1'. We modelled change in BMI over time as follows. Among the 933 women in the sample there were a total of 6962 BMI measurements. These values comprised the 'outcome variable' in HLM, which was then 'predicted' by age. By entering the variables 'age', 'age^2' and 'age^3' as level 1

predictors we evaluated linear and non-linear (quadratic and cubic) trends of growth in BMI. Modelling of change in BMI with age therefore constitutes the level 1 analysis. This can be written as:

$$y_{ij} = ß_{0j} + ß_{1j}x_{ij} + ß_{2j}x^2_{ij} + ß_{3j}x^3_{ij} + e_{ij}$$

where y_{ij} represents BMI for participant *j* ($j = 1,\ldots 933$) at occasion *i* ($i = 1,\ldots 8$) and x_{ij} represents age for participant *j* at occasion *i*. The within-individual variation, e_{ij}, is assumed to be normally distributed with a mean of 0 and a variance of σ^2.

By centring the age variable around the youngest age measurement occasion (age 7), the subject-specific intercept $ß_{0j}$ represents BMI at age 7 years. The coefficients $ß_{1j}$, $ß_{2j}$ and $ß_{3j}$ represent subject-specific linear, quadratic and cubic (respectively) changes in BMI for each unit increase in age, and each can be split into a fixed component and a random component. The fixed component (γ) represents the average across all women, and the random (μ) component represents the deviation of each woman's value from the mean. Each μ is assumed to have a mean of 0 and a variance τ. To illustrate this breakdown of ß,

$$ß_{0j} = \gamma_{00} + \mu_{0j}$$

represents the equation for the intercept ($ß_{0j}$), where γ_{00} represents the average intercept across all women and μ_{0j} represents the variation of woman *j* from that mean. The growth elements of the BMI trajectory are likewise represented by

$$ß_{1j} = \gamma_{10} + \mu_{1j}$$

$$ß_{2j} = \gamma_{20} + \mu_{2j}$$

$$ß_{3j} = \gamma_{30} + \mu_{3j}$$

For each component of the trajectory, the presence of random variation was tested for statistical significance. Significant random effects were retained, and in the case of a non significant finding the random component μ was removed from the model. In this way we followed the model building procedure suggested by Bryk and Raudenbush (1992).

Body dissatisfaction (body esteem), a level 2 variable that was constant within women, was then entered as a predictor of each trajectory component. Using 'd_j' to represent body dissatisfaction for individual *j*, this is shown as:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}d_j + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}d_j + \mu_{1j}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}d_j + \mu_{2j}$$

$$\beta_{3j} = \gamma_{30} + \gamma_{31}d_j + \mu_{3j}$$

and by substitution, the original level 1 equation can be rewritten as:

$$y_{ij} = (\gamma_{00} + \gamma_{01}dj + \mu_{0j}) + (\gamma_{10} + \gamma_{11}dj + \mu_{1j})(x_{ij}) + (\gamma_{20} + \gamma_{21}dj + \mu_{2j})(x^2_{ij}) + (\gamma_{30} + \gamma_{31}dj + \mu_{3j})(x^3_{ij}) + e_{ij}$$

The relationship modelled by this equation was then illustrated by plotting BMI trajectories for high and low values (+ and – 1 SD from the mean) of appearance and weight esteem. Also for high and low values of midlife esteem, we plotted the proportion of women reporting dissatisfaction retrospectively. This enabled us to examine whether body dissatisfaction trajectories and BMI trajectories over time showed a similar pattern.

Multiple regression. Following the HLM modelling of BMI trajectories, puberty, parity, and menopause variables were examined individually for their relationship with body esteem using multiple regression. For each reproductive variable two analyses were run (one each with *appearance* and *weight* esteem as the dependent variable), and effects were examined both unadjusted and adjusting for current BMI. The puberty analyses were also adjusted for pre-pubertal BMI (age 7). In the analysis with menopause group at age 54, an overall test was run, and this was followed by an analysis with dummy variables to contrast the different menopause groups (pre menopausal, peri menopausal, post menopausal, medical cessation, HRT, with pre menopausal as baseline). Likewise in the analysis with age of menopause (divided into three groups, described below), an overall test of significance was run, followed by an analysis with dummy variables to contrast the different categories of age of menopause (early, middle, late, with early as baseline).

Results

Descriptive information

Table I shows descriptive information about the sample. At midlife the women were slightly overweight on average (mean BMI = 26.8 kg/m^2) and were slightly more satisfied with their general appearance than with their weight. The number of children born to the largest proportion of women was two (46% of women), and the most common menopause group at age 54 was postmenopausal (45% of women). Average age for menarche and menopause (for those who had reached a natural menopause) was 12.7 years and 50.1 years respectively. Age of menarche data were essentially normally distributed with a slight positive skew, and were left as is. Age of menopause data were negatively skewed and this was not improved by transformation, therefore we divided this data into three groups: under 50 years (n=158, 38.3%), 50 to 51.9 years (n=121, 29.3%), and 52 years and older (n=134, 32.4%). The middle group contained both the mean and median values for this variable. The 'early' group (under 50 years) had a slightly lower average current BMI than the 'late' group (52 years and older), p=.06. We divided parity into 0-3 children (n=866, 92.8%) and 4-6 children (n=67, 7.2%) and these groups were found to differ in current BMI (those with 0-3 children had lower current BMI than those with 4-6 children, p=.02) and to differ marginally in *weight* esteem (those with 0-3 children had more positive esteem than those with 4-6 children, p=.07). This dichotomization (0-3 versus 4+) has been used by other researchers who have found a similar difference in mean BMI between the two groups (Harris et al., 1997). In the present data, women without children did not differ in BMI or in body esteem from women with 1 or more children.

The 933 women included in the sample were those with complete data on *appearance* esteem, *weight* esteem, social class, age at puberty, parity, and menopause group at age 54, and at least one value of BMI across the eight time points. The number of women with recorded BMI data at each age is shown in Table II, and 556 women had BMI values for all eight measurement occasions. Women with complete

Table I

Descriptive information (mean and standard deviation or %) on study variables for female participants in the MRC NSHD* 1946 birth cohort

Variable	N	M (SD) or %
Body Esteem Scale (range 1-5)		
Appearance esteem	933	3.3 (.71)
Weight esteem	933	2.9 (.89)
BMI (kg/m^2)		
age 7	846	15.7 (1.5)
age 11	873	17.5 (2.5)
age 15	868	20.6 (2.8)
age 20	824	21.9 (2.9)
age 26	853	22.4 (3.2)
age 36	876	23.4 (3.8)
age 43	910	25.0 (4.7)
age 54	912	26.8 (5.1)
Age of menarche (range 11-19 years)	933	12.7 (1.2)
Number of live births	(933)	
0	112	12.0%
1	116	12.4%
2	432	46.3%
3	206	22.1%
4 or more	67	7.2%
Menopause status age 54	(933)	
Pre	32	3.4%
Peri	103	11.0%
Post	415	44.5%
Medical cessation	202	21.7%
HRT	181	19.4%

Table I (continued)

Variable	N	M (SD) or %
Age at menopause**	413	50.1 (3.1)
History of dissatisfaction***		
Teens	908	32.0%
Age 20-29 years	917	19.7%
Age 30-39 years	911	25.4%
Age 40-49 years	917	43.6%
Since age 50	919	60.6%

* Medical Research Council National Survey of Health and Development

** for those post menopausal

*** % retrospectively reporting dissatisfaction

Table II

Number of observations of BMI at each pair of time points

Age (years)	7	11	15	20	26	36	43	54
7	846*							
11	797	873*						
15	784	818	868*					
20	749	772	766	824*				
26	853	803	797	763	853*			
36	794	822	816	776	815	876*		
43	824	852	845	806	832	854	910*	
54	825	854	847	806	835	857	890	912*

* number of observations at each age (7, 11, 15, 20, 26, 36, 43, 54)

BMI data had an earlier menarche (12.6 years versus 12.9 years, p<.001) and were more likely to be in the non manual social class (85.8% versus 77.2%, p=.001) than women with one or more missing BMI value.

To explore the pattern of association between BMI trajectory and body esteem, Figure 1 shows the mean BMI values at each age for women who are high and low in midlife body esteem. The mean BMI for all women increased with age, and the women with poor body esteem at midlife were heavier at every age. These women also showed a steeper increase in BMI with age.

Modelling BMI trajectories (Table III)

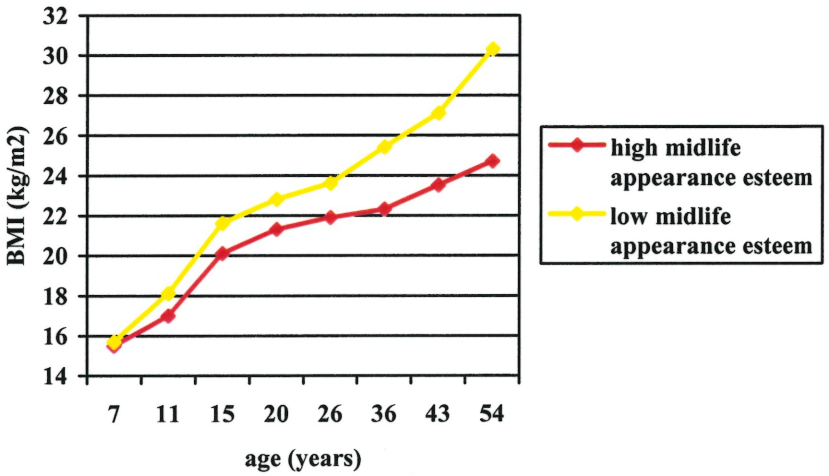
We began with the model specifying constant BMI with age. Not surprisingly mean BMI showed significant within- and between-woman variability (p<.001 for each). Values of sigma squared (the variance of e_{ij}, representing within-individual variation) and τ_0 (the variance of μ_{0j}, representing between-individual variation) are provided when this model is estimated; from this we calculated that 79% of the variation in BMI is within-individual (reflecting the wide age range of the BMI data) and the remaining 21% is between individuals.

The linear effect of age was added as a random effect as it was found to have a significant variance component (p<.001), indicating that linear growth in BMI varied between women. Thus, both intercept (which represents BMI at age 7) and linear slope were allowed to vary between women. These random effects are shown in Table III models 1 and 2 under "final estimation of variance components" for intercept, μ_{0j}, and age (linear slope), μ_{1j}. The quadratic effect of age did not show significant between-woman variation (p>.5) and was therefore constrained to be fixed across women. Likewise the cubic effect of age was retained as a fixed effect. Both terms were highly significant as fixed effects (p<.001), and this is shown in Table III models 1 and 2 under "final estimation of fixed effects" for γ_{20} and γ_{30}. A test for the

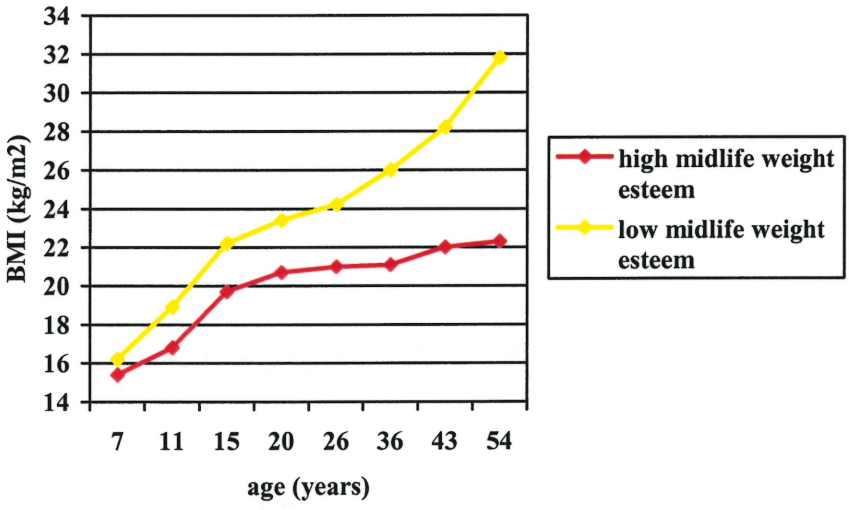
Figure 1

Mean BMI values at each age for women high versus low* in midlife *appearance* esteem (a) and *weight* esteem (b)

(a)



(b)



* high and low body esteem = mean +/- 1SD

Table III

Results of hierarchical linear modelling (HLM) analyses for modelling lifetime BMI trajectories and their association with midlife body esteem

Model 1: dependent variable = *appearance* esteem

Final estimation of fixed effects (with robust standard errors):

Fixed effect	Coefficient	Std Error	T ratio	df	p
For intercept, $ß_{0j}$					
Intercept, γ_{00}	15.6	.06	255.2	931	<.001
Appearance esteem*, γ_{01}	-.34	.099	-3.5	931	.001
For age (linear slope), $ß_{1j}$					
Intercept, γ_{10}	.70	.01	58.5	931	<.001
Appearance esteem*, γ_{11}	-.02	.01	-2.0	931	.047
For age^2 (quadratic trend), $ß_{2j}$					
Intercept, γ_{20}	-.02	.0007	-33.6	6955	<.001
Appearance esteem*, γ_{21}	-.0005	.0002	-2.1	6955	.038
For age^3 (cubic trend), $ß_{3j}$					
Intercept, γ_{30}	.0003	.00001	27.9	6955	<.001

Final estimation of variance components:

Random effect	Standard Deviation	Variance Component	df	chi square	p-value
Intercept, μ_{0j}	1.8	3.3	931	3598.3	<.001
Age (linear slope), μ_{1j}	.09	.008	931	5163.8	<.001
Level 1, eij	1.8	3.3			

Table III (continued)

Model 2: dependent variable = *weight* esteem

Final estimation of fixed effects (with robust standard errors):

Fixed effect	Coefficient	Std Error	T ratio	df	p
For intercept, β_{0j}					
Intercept, γ_{00}	15.6	.06	259.8	931	<.001
Weight esteem*, γ_{01}	-.4	.08	-5.3	931	<.001
For age (linear slope), β_{1j}					
Intercept, γ_{10}	.70	.01	59.4	931	<.001
Weight esteem*, γ_{11}	-.06	.01	-4.3	931	<.001
For age^2 (quadratic trend), β_{2j}					
Intercept, γ_{20}	-.02	.0006	-33.9	6954	<.001
Weight esteem*, γ_{21}	.001	.0008	1.8	6954	.07
For age^3 (cubic trend), β_{3j}					
Intercept, γ_{30}	.0003	.00001	28.2	6954	<.001
Weight esteem*, γ_{31}	-.00003	.00001	-2.7	6954	.007

Final estimation of variance components:

Random effect	Standard Deviation	Variance Component	df	chi square	p-value
Intercept, μ_{0j}	1.8	3.2	931	3568.5	<.001
Age (linear slope), μ_{1j}	.08	.007	931	4357.5	<.001
Level 1, e_{ij}	1.8	3.2			

Table III (continued)

Final model (*appearance* esteem):

Level 1 $BMI_{ij} = ß_{0j} + ß_1 (age_{ij}) + ß_{2j} (age^2_{ij}) + ß_{3j} (age^3_{ij}) + e_{ij}$

Level 2 $ß_{0j} = \gamma_{00} + \gamma_{01}$ (*appearance* esteem$_j$) + μ_{0j}

$ß_{1j} = \gamma_{10} + \gamma_{11}$ (*appearance* esteem$_j$) + μ_{1j}

$ß_{2j} = \gamma_{20} + \gamma_{21}$ (*appearance* esteem$_j$)

$ß_{3j} = \gamma_{30}$

Final model (*weight* esteem):

Level 1 $BMI_{ij} = ß_{0j} + ß_{1j} (age_{ij}) + ß_{2j} (age^2_{ij}) + ß_{3j} (age^3_{ij}) + e_{ij}$

Level 2 $ß_{0j} = \gamma_{00} + \gamma_{01}$ (*weight* esteem$_j$) + μ_{0j}

$ß_{1j} = \gamma_{10} + \gamma_{11}$ (*weight* esteem$_j$) + μ_{1j}

$ß_{2j} = \gamma_{20} + \gamma_{21}$ (*weight* esteem$_j$)

$ß_{3j} = \gamma 30 + \gamma 31$ (*weight* esteem$_j$)

* appearance and weight esteem: range 1-5, higher = better

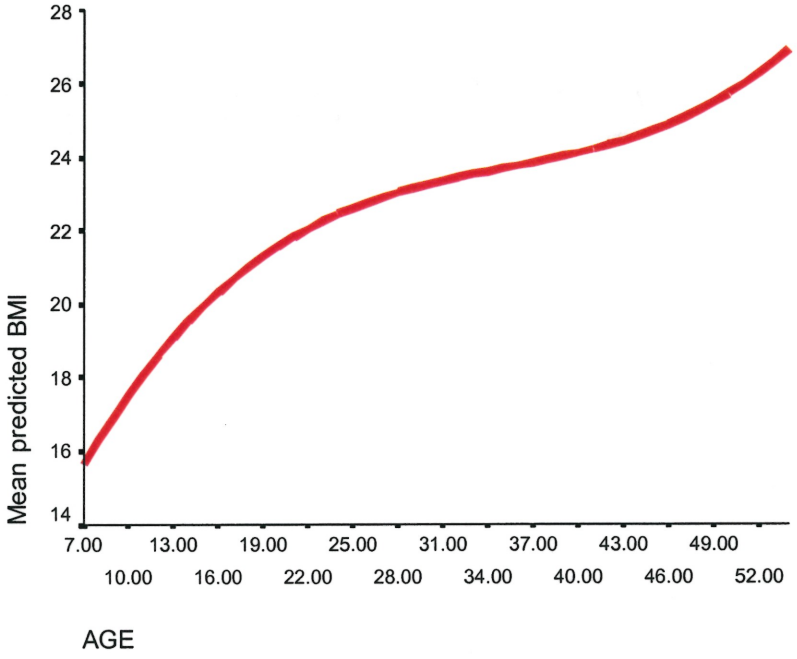
homogeneity of level 1 variance was found to be highly significant ($p<.001$) indicating that the variance in BMI differs at different ages (Table 1 suggests that variance in BMI increases with increasing age). Therefore level 1 variance was allowed to vary with age and the results we report reflect this specification. The mean growth curve predicted by the fixed elements of this model (i.e., not showing the variance in intercept and linear slope, and irrespective of body esteem, the level 2 predictor) is illustrated in Figure 2.

We began level 2 analyses by evaluating the relationship between *appearance* esteem and BMI trajectory (Table III **model 1**). *Appearance* esteem showed a significant negative association with the intercept [mean BMI at age 7] ($p=.001$), indicating that women with high levels of appearance satisfaction at midlife were thinner at age 7. *Appearance* esteem also showed a significant negative association with the linear slope ($p<.001$) and with the quadratic trend ($p=.04$). Including *appearance* esteem as a predictor of the quadratic trend reduced the size of the association with the linear slope ($p=.047$). These effects are shown in Table III model 1 under "final estimation of fixed effects" for γ_{01}, γ_{11}, and γ_{21}. Women with poor *appearance* esteem at midlife were heavier at age 7 and showed a steeper linear increase in BMI with age, but a weaker negative quadratic effect, relative to women with positive *appearance* esteem at midlife.

Weight esteem (Table III **model 2**) showed a significant negative association with the intercept ($p<.001$), linear trend ($p<.001$), and cubic trend ($p=.007$), and a marginal positive association with the quadratic trend ($p=.07$). These effects are shown in Table III model 2 under "final estimation of fixed effects" for γ_{01}, γ_{11}, γ_{21}, and γ_{31}. Women with poor *weight* esteem at midlife were heavier at age 7 and showed a steeper linear and cubic increase in BMI with age, and a marginally stronger negative quadratic growth with age, relative to women with positive *weight* esteem at midlife.

Figure 2

Average BMI curve indicating growth in BMI age 7-54 predicted by fixed part of hierarchical linear model



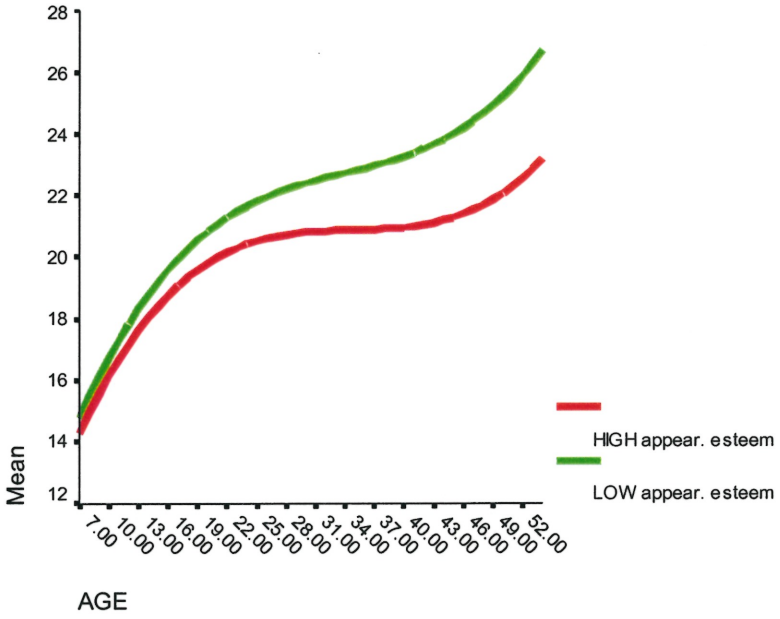
With the addition of social class as a predictor of the level 1 trajectory, the above associations were unchanged and therefore we do not report results for social class. Predicted growth curves for women high versus low in body esteem (appearance and weight) are illustrated in Figure 3. For *appearance* esteem, although the low esteem women started out heavier at age 7, the growth pattern for the two groups was similar up until their early teens. At this point the trajectories started to diverge, with high esteem women showing a levelling off of BMI compared to the low esteem women who continued to increase. This divergence between the trajectories continued to widen until the early 40s, at which point both groups showed a similar upturn, and the discrepancy between high and low esteem women appeared constant from about age 43 to 54. For *weight* esteem, the divergence of satisfied and dissatisfied women appeared to have occurred earlier. The low weight esteem women started out heavier and immediately showed a faster rate of increase. The discrepancy widened steadily with increasing age, with the high weight esteem women showing a marked levelling off relative to the low weight esteem women who continued to increase. These low weight esteem women furthermore showed a midlife upturn in BMI which appeared to begin around their late 40s, an upturn that was far less evident in the high weight esteem women.

Although midlife body esteem may be influenced by lifetime BMI trajectory, it is also possible that we are simply picking up an effect of earlier body dissatisfaction. We examined this possibility by plotting the retrospective reports of past body dissatisfaction for women who were high versus low in midlife body esteem (Figure 4). These data show a somewhat similar pattern to the mean BMI data in Figure 1 in that in both cases high versus low esteem women were most similar at the youngest ages, and showed an increasing discrepancy with increasing age. Thus, midlife body dissatisfaction does not appear to reflect a lifetime of constant levels of dissatisfaction, but rather a steady increase in likelihood of dissatisfaction that parallels the increase in body size in these women.

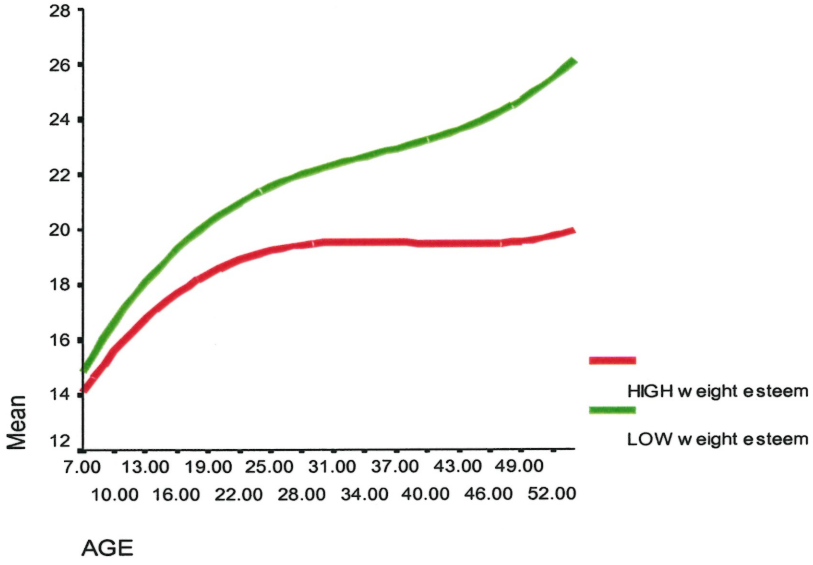
Figure 3

Average BMI curves indicating growth in BMI age 7-54 for women high versus low* in *appearance* esteem (a) and *weight* esteem (b) predicted by fixed part of hierarchical linear model

(a)



(b)

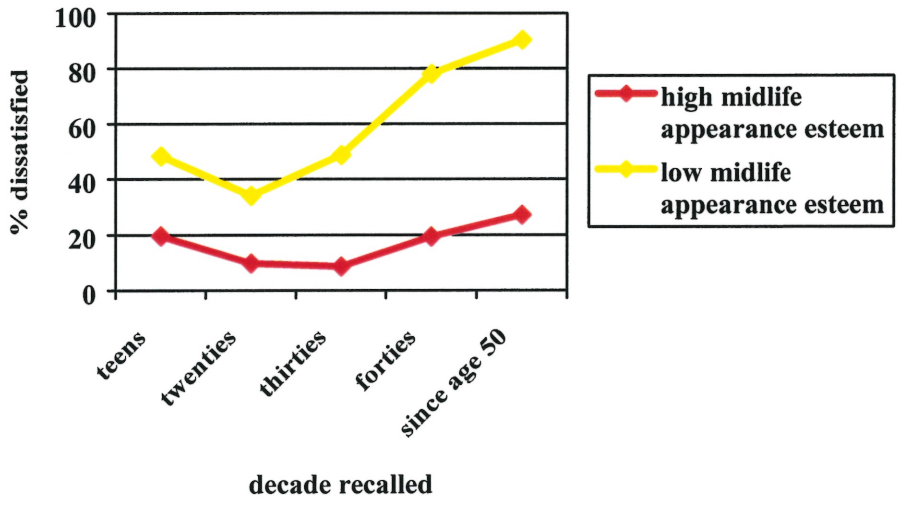


* high and low body esteem = mean +/- 1SD

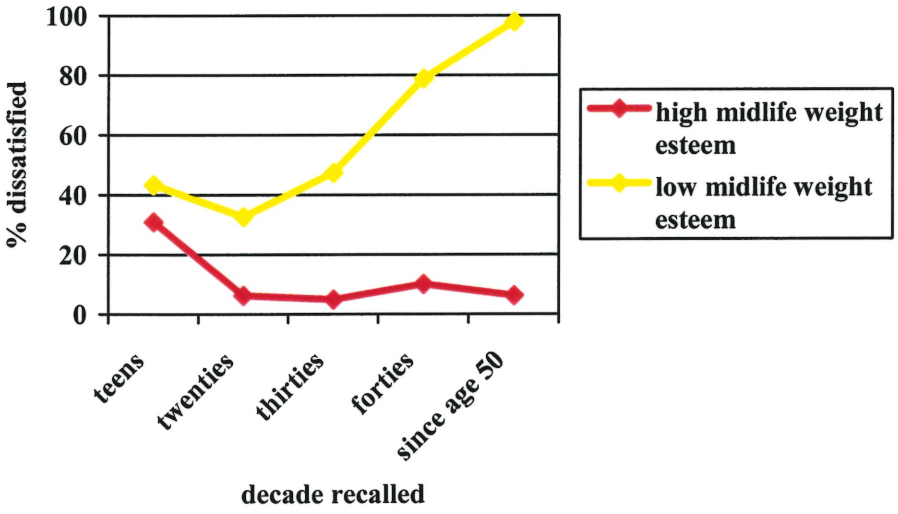
Figure 4

Percent of women recalling dissatisfaction with body weight/shape during each decade from adolescence to present, for women high versus low* in midlife *appearance* esteem (a) and *weight* esteem (b)

(a)



(b)



* high and low body esteem = mean +/- 1SD

The role of puberty, parity, and menopause

Table IV shows results of the analysis with age of menarche as a continuous predictor variable. In the unadjusted analysis predicting midlife *appearance* esteem (model 1) age of menarche showed a significant positive effect, with later maturing girls being more satisfied with their appearance at midlife. This effect remained when adjusting for pre pubescent (age 7) BMI (adjusted[1]) but was reduced to non significance when midlife BMI (age 54) was included in the model (adjusted[2 and 3]) suggesting that later maturing girls were more satisfied with their appearance at midlife because they were thinner as adults. The addition of social class to the model did not change results (not shown). With *weight* esteem as the outcome variable (model 2) we again found a significant unadjusted effect with later maturing girls showing more weight satisfaction at midlife. This effect was independent of pre pubescent BMI (adjusted[1]) and midlife BMI (adjusted[2 and 3]) although the effect was reduced by more than half when adjusting for midlife BMI. Because previous modelling of BMI showed an increasing discrepancy with age among women high versus low in midlife weight esteem, we ran a further regression that included a 'midpoint' BMI value, from age 26 years. The relationship between age of puberty and midlife weight esteem remained positive and significant (p=.04, not shown). Inclusion of social class in the model resulted in a negligible reduction in the effect size (not shown). Girls with a later menarche were more satisfied with their weight at midlife, and this was not entirely explained by body size (nor social class).

Table V shows regression analyses examining the role of parity. We found no relationship between parity and *appearance* esteem (model 1), although notably the positive effect of parity increased in size once current BMI was controlled for. Although not significant at the 5% level this adjusted effect suggests that for a given BMI, women with four or more children were more satisfied with their appearance at midlife than women with three or fewer children. High parity women were larger on average (mean high parity BMI = 28.2 kg/m^2 versus mean low parity BMI = 26.7

Table IV

Results of multiple regression analyses predicting body esteem with age of menarche and BMI (n=825*)

Model 1: dependent variable = body esteem *appearance*

Variable	Unadjusted Regression Coefficient (95% CI) p-value	Adjusted[1] Regression Coefficient (95% CI) p-value	Adjusted[2] Regression Coefficient (95% CI) p-value	Adjusted[3] Regression Coeff (95% CI) p-value
BMI age 7 (kg/m^2)	-.037 (-.07 to -.006) p=.02	-.028 (-.06 to .004) p=.09	---	.01 (-.02 to .04) p=.5
BMI age 54 (kg/m^2)	-.049 (-.06 to -.04) p<.001	---	-.048 (-.06 to -.04) p<.001	-.048 (-.06 to -.04) p<.001
Age of menarche (years)	.064 (.02 to .11) P=.002	.057 (.02 to .10) p=.007	.026 (-.01 to .07) p=.2	.03 (-.01 to .07) p=.2

Table IV (continued)

Model 2: dependent variable = body esteem *weight*

Variable	Unadjusted Regression Coefficient (95% CI) p-value	Adjusted[1] Regression Coefficient (95% CI) p-value	Adjusted[2] Regression Coefficient (95% CI) p-value	Adjusted[3] Regression Coefficient (95% CI) p-value
BMI age 7 (kg/m^2)	-.091 (-.13 to -.05) p<.001	-.075 (-.12 to -.04) p<.001	---	.003 (-.03 to .04) p=.9
BMI age 54 (kg/m^2)	-.10 (-.11 to -.09) p<.001	---	-.10 (-.11 to -.09) p<.001	-.10 (-.11 to -.09) p<.001
Age of menarche (years)	.12 (.07 to .17) p<.001	.10 (.05 to .16) p<.001	.044 (.002 to .09) p=.04	.045 (.002 to .09) p=.04

Adjusted[1]: adjusted for BMI age 7

Adjusted[2]: adjusted for BMI age 54

Adjusted[3]: adjusted for BMI age 7 and BMI age 54

* n=825: complete data on *appearance* esteem, *weight* esteem, age of menarche, BMI age 7, BMI age 54

Table V

Results of multiple regression analyses predicting body esteem with parity and BMI (n=912*)

Model 1: dependent variable = *appearance* esteem

Variable	Unadjusted Regression Coefficient (95% CI)	Adjusted for current BMI Regression Coefficient (95% CI)
Parity		
Four or more	.067 (-.11 to .25)	.14 (-.03 to .31)
Three or fewer (reference group)	0	0
p-value	.5	.1

Model 2: dependent variable = *weight* esteem

Variable	Unadjusted Regression Coefficient (95% CI)	Adjusted for current BMI Regression Coefficient (95% CI)
Parity*		
Four or more	-.20 (-.43 to .02)	-.05 (-.23 to .13)
Three or fewer (reference group)	0	0
p-value	.08	.6

* n=912: complete data on *appearance* esteem, *weight* esteem, parity, BMI age 54

kgm^2, p=.02). On the other hand, with *weight* esteem as the outcome variable (model 2) we found a marginal negative effect of parity in the unadjusted analysis, where women with four or more children reported feeling worse about their weight at midlife than women with three or fewer children. This effect was eliminated when controlling for current BMI indicating that high parity women were more unhappy with their weight because they were heavier. Adjusting for current BMI resulted in the elimination of any association between parity and body dissatisfaction, so we did not include measures of BMI from other ages. Inclusion of social class did not change the pattern of results for *appearance* nor *weight* esteem.

Menopause group at age 54 was associated with *weight* esteem both unadjusted (overall p<.001) and adjusted for BMI (overall p=.006). Using dummy variables to represent contrasts between groups we found that post menopausal women and women who started taking HRT before menopause felt more satisfied with their weight than pre menopausal women (Table VI). The effect of the HRT group was reduced by controlling for BMI suggesting that these HRT users were more satisfied partly because they were thinner (mean BMI for HRT group = 25.4 kg/m^2 versus mean BMI for pre menopausal group = 27.0 kg/m^2). There was no association between menopause group at age 54 and *appearance* esteem (not shown). Among women who had reached a natural menopause, age of menopause (early, middle, late) showed no association with body esteem, neither unadjusted nor adjusted for BMI.

Discussion

Previous research has identified lifetime history of BMI as an influence on adult women's body dissatisfaction. Our study builds on this research by examining a longer 'lifetime' period (by studying middle-aged women), by using a sample of women who were heterogeneous in BMI, by using prospectively measured values of height and weight which eliminated the risk of bias in recall, and by taking into account reproductive factors including puberty, pregnancy, and menopause that have been shown to be related to body size (Collins, 1996; Harris et al., 1997; Power et al.,

Table VI

Results of multiple regression analyses predicting *weight* esteem with menopause group at age 54 years (n=912*)

Variable	Unadjusted Regression Coefficient (95% CI)	Adjusted for BMI age 54 Regression Coefficient (95% CI)
Menopause status age 54		
Perimenopausal	.14 (-.21 to .49)	.20 (-.09 to .49)
Postmenopausal	.25 (-.06 to .56)	.26 (.01 to .51)
Medical cessation	.011 (-.32 to .34)	.06 (-.21 to .33)
HRT before menopause	.43 (.10 to .76)	.27 (.00 to .54)
Pre menopausal (reference group)	0	0
p-value	<.001	.006

* n=912: complete data on *weight* esteem, menopause status, BMI age 54

1997; Power & Parsons in press). Data on these latter events were also collected prospectively, again eliminating the problem of bias in recall. We showed that past body size as early as age 7 years, as well as lifetime BMI trajectory differed by midlife body dissatisfaction score. Body dissatisfaction was associated with reproductive events, particularly puberty and menopause, among this national sample of middle-aged British women.

The relationship between past body size and current body esteem was somewhat different for the two components of body esteem. For *appearance* esteem, based on average BMI trajectories for women who had high versus low midlife esteem, the differences in midlife body satisfaction appeared to primarily reflect body size during the 'young adult' period between the teens and age forty. For *weight* esteem, the upturn in BMI at midlife may have explained the low satisfaction reported by the low esteem women, but the large discrepancy in BMI between high and low weight esteem women at all points in the trajectory made it more difficult to pinpoint a particularly detrimental period of growth in explaining midlife weight dissatisfaction.

A general discussion of the relationship between past body size and current body esteem requires attention to the history of women's body image. The mid-1960s marked the beginning of an important period in this history: fashion models and other 'exemplars' of female beauty started to be impossibly thin. For the first time, the standard set by these beauty icons was entirely incongruent with the average female body of the time, and thereby contributed to a social climate in which only very few women 'measured up' to this stringent ideal. When this era began, the women in our cohort were 19-20 years old, and the impact of this culture could explain why relative heaviness from age 20 onward in these women was associated with later body dissatisfaction. This explanation may be relevant to our findings with appearance esteem, since we showed that the divergence in BMI between those satisfied versus dissatisfied with their appearance occurred not long prior to their twenties.

However we also found that those with higher levels of dissatisfaction (with appearance but particularly with weight) were also heavier prior to this era, namely when they were 7, 11, and 15 years old. Despite the impact ascribed to the ultra thin standard evident since the mid 1960s, we must acknowledge that an ideal of thinness had precedents earlier in the 20th century. Some basic institutions of beauty culture were established during the 1920s including fashion and cosmetic industries, the modeling profession, and motion pictures. The first actuarial standards for height and weight were also published during this time, which contributed to popular pursuit of thinness (among both men and women) for its 'proven' health advantage (Brumberg, 1988). While we would argue that pressure on women to be thin has been greatest during the past 3.5 decades, due to the unrealistic bodies of today's beauty icons, it is nevertheless likely that body size attained a social value prior to this time and this may help explain why body dissatisfaction at midlife was associated with relative heaviness even in childhood.

It must be emphasized that the statistical procedure used in modeling BMI trajectories only allows us to assert that women with different levels of body satisfaction at midlife show different body size profiles from age 7 to 54. We cannot conclude that a particular BMI trajectory causes poor midlife body esteem; for this we would need prospective evidence of increasing BMI being followed by increasing body dissatisfaction over the life span. Despite this limitation, we did have retrospective data that were supportive of this type of relationship: among the midlife dissatisfied women there were parallel patterns of increasing BMI and increasing likelihood of recalled dissatisfaction throughout adulthood (i.e., it does not appear that dissatisfaction preceded increase in BMI). This also suggests that we did in fact detect an effect of body size on later dissatisfaction and not simply an effect of earlier dissatisfaction (although retrospective data must be interpreted with caution). One way in which a history of relative heaviness might contribute to poor body image is through an accumulation of negative experiences related to weight. The repeated adverse experience of not measuring up to a sociocultural 'ideal' may accumulate over

a lifetime, as may the negative effects of body-related feedback from others (body-related comments, weight-related discrimination).

Both through their association with body size and independent of it, reproductive events contributed to midlife body esteem. Puberty has been considered by many authors to be a trigger for body dissatisfaction in girls due to the dramatic transition from the androgynous shape of childhood (which current societal messages indicate is attractive) to a rounded womanly body. The prevalence of body dissatisfaction has been shown to more than double from pre-pubescence (eg. 34%) to post-pubescence (eg. 76%; Thompson & Chad, 2000). A puberty that is early relative to one's peers has been hypothesised to be particularly damaging, but this may be explained by early maturing girls being heavier (Ackard & Peterson, 2001; Striegel-Moore et al., 2001). An early menarche has consistently been associated with greater fatness, both prior to and following puberty (see Power & Parsons, in press). The long-term effect of timing of puberty on body satisfaction has not previously been examined, and our results are consistent with an enduring effect of this transition on body esteem that is independent of pre-pubertal, post-pubertal, and midlife BMI. In particular our results suggest that having gone through puberty at a relatively late age somehow protects against later body dissatisfaction. One explanation is that having witnessed one's peers go through the physical changes at puberty means that the experience is more familiar and less threatening to later maturing girls, which underlies a more positive feeling about the body.

Although not a statistically significant finding, women who had had four or more children were slightly happier with their *appearance* at midlife relative to women with fewer children, for a given BMI (and these high parity women were slightly heavier on average). A simple explanation is that the greater amount of time and energy needed with more children prevents women from becoming overly concerned with their appearance, as they simply do not have the time. However high parity women were somewhat more dissatisfied with their *weight*, mainly because they were heavier, and these results draw attention to the need to distinguish between

weight and appearance aspects of body satisfaction. The most persistently communicated prerequisite for beauty in women in this culture is thinness, and therefore perhaps women, even if they 'do not have time' to worry about their appearance, may still be unhappy with their weight. The media have also been blamed for communicating the message that weight is modifiable through the right combination of diet and exercise, and therefore women may believe that whereas their general appearance can be fixed (e.g., clothing, makeup, having one's hair done), they are responsible for their weight and are therefore dissatisfied by an 'inability' to change it, even though some amount of weight gain is a common (and perhaps normal) outcome among women with several children (Harris et al., 1997).

Women who were postmenopausal or who started taking HRT before menopause were more satisfied with their weight than pre menopausal women. In the case of HRT users this effect was partly explained by the fact that they are thinner. We can confidently attribute our finding to menopause group rather than to age since all survey members were the same age (born in the same week). One explanation is that women who are pre menopausal at this age (54) are most likely aware that the menopause transition is imminent and may feel generally more anxious about their bodies (which could drive reports of weight dissatisfaction) relative to those who have finished the transition and those who are experiencing lessened symptoms (post menopause and HRT users). A related suggestion is that the menopause marks a point at which physical appearance becomes less important to women. Chrisler and Ghiz (1993) suggest that the menopause requires an alteration in body image due to the magnitude of the bodily changes occurring during this transition (cessation of menstruation as well as vasomotor symptoms) and it is possible that body image is de-emphasised and other aspects of identity become more important at this time.

In conclusion, body dissatisfaction among women who are currently in middle-age was associated with lifetime body size, and with reproductive events both through their association with body size and independent of it. Based on our data, the profile of a woman who is satisfied with her body at midlife includes having been relatively

thin throughout her life, having reached puberty relatively late, and being either post menopausal or having started taking HRT before menopause. Research on body dissatisfaction needs to take into account such life history information as well as the social context in which this information is gathered in order to understand this problem. This is particularly true when studying women beyond young adulthood for whom there are only very limited data available.

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Article 3

Positive and negative body-related comments and their relationship with body dissatisfaction in middle-aged women

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Rôle joué par chaque auteur – Article 3

McLaren L, Kuh D, Hardy R, Gauvin L. Positive and negative body-related comments and their relationship with body dissatisfaction in middle-aged women. Soumis (mai, 2002) à *Psychology and Health.*

Lindsay McLaren developed the idea and rationale for the study, developed the survey questions on body dissatisfaction, conducted all analyses and wrote the article.

Diana Kuh is the head and primary researcher of the Women's Health component of the MRC National Survey of Health and Development. She supervised development of the survey questions on body dissatisfaction, was responsible for data collection, and provided guidance on analysis and interpretation of data.

Rebecca Hardy provided guidance on statistical analyses and interpretation of data.

Lise Gauvin provided conceptual guidance throughout the study.

Accord des coauteurs – Article 3

Identification de l'étudiant et du programme

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Description de l'article

McLaren L, Kuh D, Hardy R, Gauvin L. Positive and negative body-related comments and their relationship with body dissatisfaction in middle-aged women. Soumis à *Psychology and Health.*

Déclaration de tous les coauteurs autres que l'étudiante

À titre de coauteur de l'article identifié ci-dessus, je suis d'accord pour que Lindsay Mclaren incluse cet article dans sa thèse de doctorat qui a pour titre 'A life course study of body dissatisfaction in middle-aged women'.

Diana Kuh	[redacted]	25/5/02
Coauteur	Signature	Date
Rebecca Hardy	[redacted]	22/5/02
Coauteur	Signature	Date
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Coauteur	Signature	Date

Abstract

We examined the relationship between body-related comments recalled across the life span and current body esteem among 903 54-year-old female participants from the MRC National Survey of Health and Development. A significant effect of negative comments while growing up, which was independent of comments from partner, suggests an enduring adverse impact of these early comments on midlife body esteem. There was no evidence that the detrimental effect of negative comments recalled while growing up could be reversed by compliments from one's partner. Partner comments (positive or negative) had a greater impact on the body esteem of thinner women and of women who had received positive comments while growing up. Results suggest that an impact of social feedback on body esteem is not restricted to young samples, and that comments received in adulthood should be taken into account.

Introduction

Several studies have shown that reports of body-related comments or teasing are associated with and probably contribute to poor body esteem in women. Women who recall being teased while growing up are more likely to report body dissatisfaction in adulthood than women who do not recall being teased, and this relationship has been demonstrated among adults from the general population (Cash et al., 1986), female college students (Thompson & Heinberg, 1993), and obese adult women (Grilo et al., 1994; Wardle et al., in press).

While these early instances of body-related comments are important, this existing research raises several additional issues. First, teasing is not necessarily limited to the period of childhood/adolescence. It is likely that some women also receive comments in adulthood (e.g., from spouse or partner) which may influence their body image, and it is surprising that this topic has only rarely been investigated. Ogden and Taylor (2000) showed that within heterosexual couples, men expressed more dissatisfaction with their partners' body than the women expressed with their partners' bodies, and therefore women's bodies may be a target for criticism within the context of a relationship.

Second, research has focused exclusively on negative comments or teasing, which probably reflects a general 'negative' tendency in the body image literature to focus on determinants of body *dis*satisfaction rather than on determinants of satisfaction. The role of positive comments has not been considered, despite the appealing possibility that positive body esteem may be promoted by positive comments, or that poor body esteem can be 'mended' by positive body-related feedback.

Third, because comments received in adulthood have not been studied, the relative importance of comments experienced at different life points (and from different sources) is not known. The implication in existing studies is that feedback

during childhood has an adverse effect on body image that endures into adulthood. However it may be that, after taking account of comments received in adulthood, reports of teasing during childhood are no longer associated with adult body dissatisfaction. Alternatively, comments from one's spouse or partner might modify (i.e., add to, or reduce) the effects of comments received earlier in life.

Finally, it is generally believed that teasing is more commonly experienced by fatter than thinner women (e.g., Falkner et al., 1999), but it is not clear whether comments are actually more damaging to the body image of fatter women. Since fatter women have been found to be at a social and economic disadvantage because of their weight (Gortmaker et al., 1993; Sargent & Blanchflower, 1994), it may be that specific instances of positive comments or teasing have a particularly pronounced impact on the body esteem of these women (i.e., a double dose in the case of negative comments, or a stark contrast in terms of positive comments).

Body dissatisfaction has been shown to be common among women at midlife (Allaz et al., 1998; Ledoux & Rivard, 2001; McLaren & Kuh, in review), and has been associated with negative health consequences including increased depressive affect (Reboussin et al., 2000), avoidance of physical activity (McLaren & Kuh, in review; Ransdell et al., 1998), and use of unhealthy weight loss tactics (Allez et al., 1998) among women of this age group. Thus additional research into its origins is desirable. We wished to contribute to the existing literature on teasing and body image by a) asking about comments received during adulthood from one's romantic partner, as well as during childhood (from a number of sources), b) by inquiring about positive as well as negative body-related comments, and c) by using a large, nationally representative cohort of middle-aged British women for whom information on body size, in adolescence and in middle adulthood, was available. Questions asked were as follows: 1) Do negative comments while growing up have an enduring impact on midlife body esteem, independent of comments received from husband/partner? 2) Is the impact of comments dependent on body size, with comments having a greater effect on the body esteem of fatter than of thinner women? and 3) Can an adverse

effect of negative comments while growing up be modified, or lessened, by the experience of positive comments from one's partner in adulthood?

Methods

Participants and procedure

The sample consisted of women survey members from the Medical Research Council National Survey of Health and Development, a follow-up study of 2547 women and 2815 men born during one week in March, 1946 and followed since birth to the present with contact on 29 occasions (e.g., Wadsworth, 1991; Wadsworth & Kuh, 1997). Among the female participants, a postal survey was conducted annually from 1993 to 2000 in order to study the menopause transition in addition to other aspects of women's health not previously included (Kuh et al., 1997). Of the original cohort, 6% had died, 9% were living abroad and were not in contact with the study, 12% had refused to take part at earlier follow-ups, 3% could not be traced, and 19% became non-responders over the course of the women's health surveys. Of 1477 women who were sent the 2000 survey which contained questions on body image, 1308 responded, a response rate of 89% for 2000 and indicating 51% from the original 1946 sample.

Variables

Body-related comments. As part of the 2000 survey, women were asked whether they received positive and negative comments about their body weight or shape, from their current partner and while growing up (4 questions)[1]. Response options were fourfold ('no', 'yes, occasionally', 'yes, frequently', 'yes, all the time'), but since most responses fell into the 'no' and 'yes, occasionally' options, we

[1] 'Does your husband or partner make **negative** comments about your body weight or shape?' 'Does your husband or partner make **positive** comments about your body weight or shape?' 'When you were growing up did people make **negative** comments or tease you about your body weight or shape?' 'When you were growing up did people make **positive** comments about your body weight or shape?'

dichotomised these variables into 'absence' ('no' response) and 'presence' (all three 'yes' responses) of comments. Women who reported comments while growing up also indicated the source of these comments, and could indicate one or more of the following: mother, father, other family member, children at school, or other (please specify).

Body esteem. Also on the 2000 survey, women completed the Body Esteem Scale for Adolescents and Adults (Mendelson et al., 2001), *appearance* (10-items, e.g., 'I like what I look like in pictures') and *weight* (8 items, e.g., 'my weight makes me unhappy') subscales. Responses are made on a 5-point scale anchored by 'never' and 'always', and a higher mean score indicates higher (more positive) body esteem. The Body Esteem Scale has shown good internal consistency and test-retest reliability among adolescents and young adults (Mendelson et al., 2001); and although not previously used with a sample of middle-aged women, we found the subscales to be internally consistent in these data (Cronbach's alpha for *appearance* subscale = .89; for *weight* subscale = .91 based on n=1134).

Current body mass index (BMI). We computed BMI (kg/m^2) based on self-reported weight values provided on the 2000 postal survey, and values of height measured to the nearest 0.5 cm during a home interview in 1999.

Adolescent BMI. We created an indicator of women's BMI 'while growing up', to correspond to the time period assessed by the teasing questions. We computed BMI from measured heights and weights when survey members were 15 (n=786) and from age 11 if the participant was missing data at age 15 (n=117).

Current psychological symptom score. Each year from age 47 to 54 women were asked whether twenty common health symptoms had bothered them a little, a lot, or not at all in everyday life over the past year. The results of factor analysis performed each year (described elsewhere, Kuh et al., in press) revealed a group of psychological symptoms that clustered together: anxiety and depression, irritability,

tearfulness, and feelings of panic. An overall score derived from these four symptoms (range 0-12) was assigned to each woman by giving a score of one to those who reported the symptom but were not bothered by it in their everyday life, a score of two to those who were bothered a little, and a score of three to those who were bothered a lot. In the current study we used the scores obtained when the women were aged 54.

Analytic Strategy

Analyses were based on women with complete data on current BMI, adolescent BMI, positive comments from partner, negative comments from partner, positive comments in childhood, negative comments in childhood, and the two body esteem scales – *appearance* and *weight* (n=903). This elimination of data included women who did not have husbands or partners (n=104), although we looked at this subset of data separately (indicated in results).

Using SPSS.X we ran multiple regression analyses with Body Esteem *appearance* and *weight* as dependent variables (i.e., two sets of analyses). Body-related comments (presence versus absence) and BMI (continuous variable) were evaluated as predictors. First, we looked at the unadjusted effects of all predictors. Among those that were significant at the 5% level, we examined the effects of adolescent and current BMI adjusted for each other and the effects of the comments adjusted for each other. We then examined the effects of the comments adjusted for each other and for BMI. This allowed us to see which type(s) of comments were independently associated with midlife body esteem, and in particular whether an effect of reported negative comments from childhood remained even taking account of reported comments from partner in adulthood. Second, we examined the interaction between body size and comments to see whether comments had a different effect on body esteem depending on one's body size. Finally, we tested whether there was an interaction between childhood negative comments and partner positive comments which would suggest that an influence of the former on body esteem could be 'cancelled out' by the presence of the latter. We then re-ran all analyses including

psychological symptom score as a covariate, to see if concurrent psychological distress might account for associations detected.

Results

Preliminary analyses

Values for study variables based on women with complete data were similar to those based on the unrestricted sample (Table I), which suggests that the single women did not unduly change the characteristics of the overall sample. Furthermore, there was no evidence that single (n=104) and non single (n=903) women differed in their reporting of positive or negative comments while growing up. Nor was there any evidence for a differential impact of comments while growing up on body esteem for single versus non single women, based on a multiple regression analysis including positive comments while growing up (presence, absence), negative comments while growing up (presence, absence), single status (single, non single), and interaction terms.

Across our sample, scores on the Body Esteem Scale were normally distributed, and the two subscales were highly inter-correlated (Pearson r=.70, $p<.001$). Women were slightly overweight on average (mean BMI = 26.6 kg/m^2). Over half the women reported positive comments from their partners, while roughly one quarter reported negative comments from this source. Positive comments while growing up were reported by just over one quarter of the women, the most common source being mothers (Table II). One third reported negative comments while growing up, and these were most likely to come from children at school. There was no evidence for the importance of any particular source of comments while growing up, based on regressions using each source as an individual predictor and body esteem as the outcome variable.

Table I

Descriptive statistics (mean and standard deviation, or %) on study variables for female participants in the MRC NSHD* 1946 birth cohort

Variable	Unrestricted n**		Complete data	
	N	M(SD) or % presence	N	M(SD) or % presence
Appearance esteem (1-5)	1286	3.3 (.72)	903	3.3 (.69)
Weight esteem (1-5)	1286	2.9 (.91)	903	2.9 (.88)
Adult BMI (kg/m^2)	1192	26.7 (5.0)	903	26.6 (4.9)
Adolescent BMI (kg/m^2)	1133	20.2 (3.1)	903	20.2 (3.0)
Psycholog. symptom score (0-12)	1281	3.05 (3.13)	898	3.04 (3.15)
Positive comments (partner)	624/1139	55%	506/903	56%
Negative comments (partner)	293/1142	26%	234/903	26%
Positive comments (growing up)	380/1268	30%	260/903	29%
Negative comments (growing up)	420/1282	33%	294/903	33%
Combinations of comments				
Negative and positive from partner			127/903	14%
Neither negative nor positive from partner			290/903	32%
Negative and positive while growing up			111/903	12%
Neither negative nor positive while growing up			460/903	51%
Negative while growing up and negative from partner			80/903	9%
Positive while growing up and positive from partner			171/903	19%

* Medical Research Council National Survey of Health and Development

** includes single women

Table II

Sources of positive (n=260) and negative (n=294) comments while growing up

Source	Positive comments N	Positive comments %	Negative comments N	Negative comments %
Mother	165	64%	53	18%
Father	65	25%	44	15%
Other family member	74	29%	86	29%
Children at school	64	25%	181	62%
Friends	25	10%	5	2%
Other*	18	7%	19	6%

* e.g., workmates, boyfriends, strangers

Note: values exceed 100% because more than one source was often reported.

In analyses that included current psychological symptom score as a covariate, results were either unchanged or marginally reduced in magnitude. In no case did the nature of the findings or their statistical significance level change; therefore we report results omitting psychological symptom score.

Relationship between positive/negative comments and body esteem

In unadjusted analyses (Table III 'unadjusted'), both BMI measures and all comments variables except childhood positive comments were associated with midlife body esteem. When adolescent and adult BMI were adjusted for each other (adjusted model 1), both remained significant in predicting *weight* esteem, but only an effect of adult BMI remained in predicting *appearance* esteem. When comments variables were adjusted for each other (adjusted model 2), positive and negative comments from partner, and negative comments while growing up all remained significantly associated with both *weight* and *appearance* esteem. Furthermore, these effects remained when controlling for adult BMI (*appearance* esteem), and when controlling for adolescent and adult BMI (*weight* esteem) (adjusted model 3).

Therefore, negative comments while growing up and negative comments from partner were each associated with poorer body esteem, and positive comments from partner were associated with better body esteem, regardless of body size. Positive comments while growing up were unrelated to current body esteem, neither *appearance* nor *weight*. Negative childhood comments therefore appeared to have an enduring effect on adult body esteem, since they remained significant when taking account of comments from partner and BMI.

Body-related comments and BMI

The presence versus absence of comments was related to body size (Table IV). Women who received positive comments from their partners were lighter than those who did not, and women who received negative comments from their partners and/or

Table III

Results of multiple regression analyses predicting body esteem with body-related comments (past and current) and body size (past and current), n=903

1. Dependent variable: Body esteem *appearance*

Variable	Unadjusted Regression Coefficient (95% CI)	p-value	Adjusted Model 1[1] Regression Coefficient (95% CI)	p-value	Adjusted Model 2[2] Regression Coefficient (95% CI)	p-value	Adjusted Model 3[3] Regression Coefficient (95% CI)	p-value
Adolescent bmi (kg/m^2)	-.04 (-.05 to -.03)	<.001	-.01 (-.03 to .00)	.1			---	---
Adult bmi (kg/m^2)	-.05 (-.05 to -.04)	<.001	-.04 (-.05 to -.03)	<.001			-.04 (-.05 to -.03)	<.001
Partner negative*	-.31 (-.41 to -.21)	<.001			-.30 (-.40 to -.20)	<.001	-.25 (-.34 to -.16)	<.001
Partner positive*	.15 (.06 to .24)	.001			.16 (.07 to .25)	<.001	.11 (.03 to .19)	.01
Childhood negative*	-.37 (-.46 to -.28)	<.001			-.38 (-.47 to -.29)	<.001	-.32 (-.41 to -.23)	<.001
Childhood positive*	-.02 (-.12 to .08)	.7			.02 (-.08 to .11)	.7	---	---

Table III (continued)

2. Dependent variable: Body esteem *weight*

Variable	Unadjusted Regression Coefficient (95% CI)	p-value	Adjusted Model 1[1] Regression Coefficient (95% CI)	p-value	Adjusted Model 2[2] Regression Coefficient (95% CI)	p-value	Adjusted Model 3[3] Regression Coefficient (95% CI)	p-value
Adolescent bmi (kg/m^2)	-.1 (-.12 to -.08)	<.001	-.03 (-.05 to -.02)	<.001			-.03 (-.05 to -.01)	<.001
Adult bmi (kg/m^2)	-.10 (-.11 to -.09)	<.001	-.01 (-.11 to -.09)	<.001			-.09 (-.10 to -.08)	<.001
Partner negative*	-.55 (-.68 to -.42)	<.001			-.54 (-.66 to -.42)	<.001	-.41 (-.51 to -.31)	<.001
Partner positive*	.27 (.15 to .39)	<.001			.28 (.17 to .39)	<.001	.14 (.05 to .23)	.003
Childhood negative*	-.41 (-.53 to -.29)	<.001			-.42 (-.54 to -.30)	<.001	-.24 (-.34 to -.14)	<.001
Childhood positive*	-.02 (-.15 to .11)	.8			.005 (-.11 to .12)	.9	---	---

[1] adjusted among bmi variables

* presence vs. absence

[2] adjusted among teasing variables

[3] adjusted among comments variables, controlling for BMI variable(s)

Table IV

Mean body mass index (adolescent and current) for presence versus absence of body-related comments

Comments	N	Adult BMI Mean (SD)	mean difference (95% CI)	p-value	Adolesc BMI Mean (SD)	mean difference (95% CI)	p-value
Partner positive							
Presence	506	26.0 (4.5)			20.0 (2.8)		
Absence	397	27.4 (5.3)	1.4 (.77 to 2.1)	<.001	20.4 (3.2)	.33 (-.064 to .72)	.1
Partner negative							
Presence	234	27.7 (5.0)			20.2 (2.8)		
Absence	669	26.2 (4.9)	-1.5 (-2.2 to -.8)	<.001	20.2 (3.1)	-.03 (-.47 to .42)	.9
Childhood positive							
Presence	260	26.2 (4.8)			20.3 (3.1)		
Absence	643	26.8 (5.0)	.62 (-.09 to 1.3)	.09	20.1 (2.9)	-.16 (-.59 to .27)	.5
Childhood negative							
Presence	294	27.7 (3.8)			21.1 (3.8)		
Absence	609	26.1 (2.4)	-1.6 (-2.2 to -.88)	<.001	19.8 (2.4)	-1.3 (-1.7 to -.88)	<.001

while growing up were heavier than those who did not. Women who reported negative comments while growing up were heavier as adolescents than those who did not. There was no relationship between reports of positive comments while growing up, and adolescent body size.

Heavier women were therefore more likely to report having received negative comments than lighter women, but did the *impact* of comments on body esteem differ according to one's weight? Contrary to our expectations, multiple regression analyses with *weight* esteem as the outcome variable indicated that comments from one's partner, either positive (Table V, model a) or negative (model b), had a greater effect on the body esteem of *thinner* women. That is, the presence versus absence of both negative and positive comments from one's partner was associated with a larger discrepancy in body esteem among thinner than among heavier women (Figure 1, a & b). Although thinner women had more positive body esteem than heavier women, the body esteem of these thinner women appeared to be more malleable in the face of reported body-related comments from their partners. There was no evidence of interactions between adolescent BMI and comments while growing up, nor in the case of *appearance* esteem as the outcome variable (analyses not shown).

Can an effect of negative comments while growing up be cancelled out by positive comments from partner?

There was no significant interaction between negative comments while growing up and positive comments from partner, neither for *appearance* nor *weight* esteem (Table VI, model a, only results for *weight* esteem are shown). Positive comments from one's partner therefore had the same effect on body esteem whether or not negative comments in childhood had been reported, and so there was no evidence that positive comments from partner could 'cancel out' an effect of negative comments experienced while growing up. We did find, using *weight* esteem as the outcome variable, that both positive (model b) and negative (model c) comments from one's partner had a greater effect on the weight esteem of women who had (versus had

Table V

Results of multiple regression analyses evaluating interactions between comments from partner and body size in predicting **weight esteem** (n=903)

Model	Variable	Regression Coefficient (95% CI)	p-value
a)	Constant*	2.8	
	Adult BMI (kg/m^2)**	-.09 (-.10 to -.07)	<.001
	Partner positive comments (presence vs absence)	.13 (.04 to .22)	.009
	Interaction	-.04 (-.06 to -.02)	<.001
b)	Constant*	3.03	
	Adult BMI (kg/m^2)**	-.11 (-.12 to -.10)	<.001
	Partner negative comments (presence vs absence)	-.42 (-.53 to -.31)	<.001
	Interaction	.03 (.01 to .05)	.003

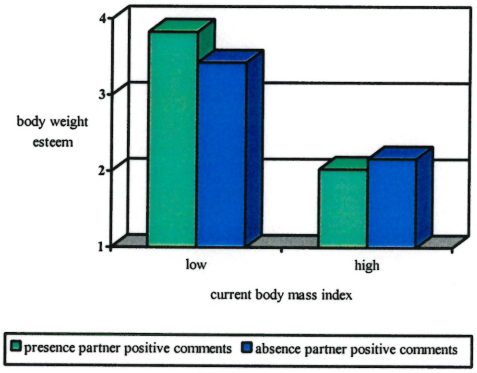
* constant = mean weight esteem score for women of mean BMI in absence of partner comments

** centred around mean

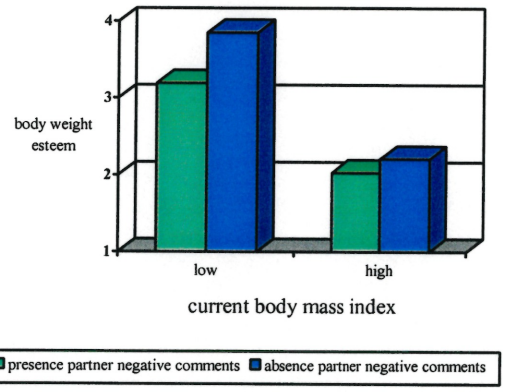
Figure 1

Impact* of presence versus absence of (a) negative comments and (b) positive comments from partner on current *weight* esteem, by current body mass index**

a)



b)



* estimated weight esteem scores based on regression model with BMI as continuous variable

** 'high' and 'low' BMI (19 kg/m^2 and 34 kg/m^2) based on (mean BMI) +/- 1.5 std dev

Table VI

Results of multiple regression analyses evaluating interactions between past and present body-related comments in predicting **weight esteem** controlling for BMI (n=903)

Model	Variable	Regression Coefficient (95% CI)	p-value
a)	Constant*	2.9	
	Adolescent BMI (kg/m^2)**	-.03 (-.04 to -.01)	.002
	Adult BMI (kg/m^2)**	-.09 (-.10 to -.08)	<.001
	Childhood negative comments (presence vs absence)	-.17 (-.32 to -.02)	.03
	Partner positive comments (presence vs absence)	.18 (.07 to .29)	.002
	Interaction	-.12 (-.32 to .08)	.2
b)	Constant*	2.9	
	Adolescent BMI (kg/m^2)**	-.03 (-.05 to -.01)	<.001
	Adult BMI (kg/m^2)**	-.1 (-.11 to -.08)	<.001
	Childhood positive comments (presence vs absence)	-.41 (-.58 to -.24)	<.001
	Partner positive comments (presence vs absence)	.001 (-.11 to .11)	.9
	Interaction	.51 (.29 to .73)	<.001

Table VI (continued)

Model	Variable	Regression Coefficient (95% CI)	p-value
c)	Constant*	3.0	
	Adolescent BMI (kg/m^2)**	-.04 (-.05 to -.02)	<.001
	Adult BMI (kg/m^2)**	-.09 (-.10 to -.08)	<.001
	Childhood positive comments (presence vs absence)	.005 (-.11 to .12)	.9
	Partner negative comments (presence vs absence)	-.32 (-.44 to -.20)	<.001
	Interaction	-.30 (-.54 to -.06)	.01

* constant = mean weight esteem score for women of mean BMI with absence of comments

** centred around mean

not) received positive comments in childhood. In other words, women who reported positive comments in childhood were more affected by later comments from their partner (positive or negative), than women who did not report positive comments in childhood (Figure 2). No other interactions were found, neither for *weight* nor *appearance* esteem.

Discussion

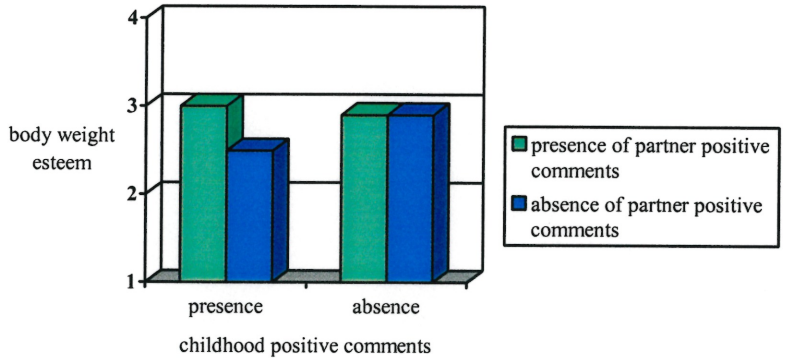
The primary limitation of this study was its use of retrospective self-report data on body-related comments. Recall of comments could be affected by a woman's current body esteem, or by her mood or level of psychological distress which also may be related to her body esteem. However we found that associations between recalled body-related comments and body esteem were essentially unchanged by including an indicator of concurrent psychological symptoms as a covariate. This strengthens our confidence that retrospective reports of comments were not simply picking up current mood or distress. Furthermore, our study contributed to the literature on teasing and body image in a number of ways: 1) by assessing current body-related comments from spouse or partner, in addition to those received from peers and family while growing up, 2) by asking about body-related comments of a positive as well as negative nature, and 3) by using a sample of women who are older than those previously used and for whom body dissatisfaction has been shown to be common. An advantage of this study was the use of prospectively measured BMI values from adolescence.

We found that women's body esteem was affected by reported negative and positive comments from partner, and by reported negative comments while growing up. Negative comments in particular appeared to influence midlife body esteem, both while growing up and currently. The effect of recalled negative comments or teasing during childhood appears to endure, as it was not accounted for by negative comments from one's partner later in the life span.

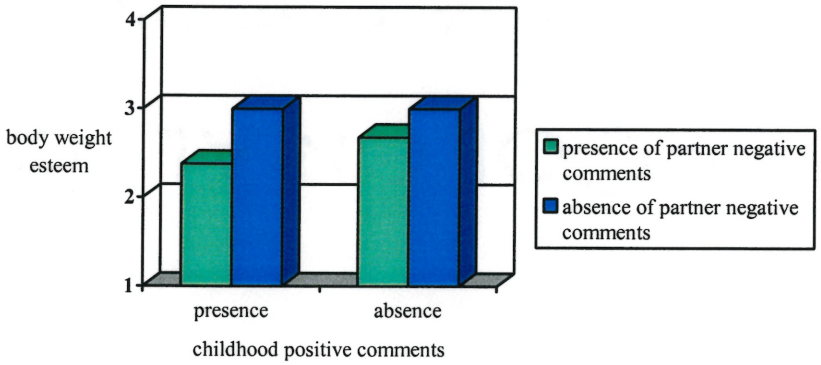
Figure 2

Interaction of body-related comments from partner and while growing up on current body esteem, controlling for adolescent and current body mass index*

a) **Positive** comments while growing up, **positive** comments from partner



b) **Positive** comments while growing up, **negative** comments from partner



The nature of comments received differed according to body size. Heavier women reported more negative comments from partners, and thinner women reported more positive comments from this source. This is not particularly surprising, since thinness in women is considered to be more attractive than fatness in contemporary society, and presumably body-related compliments and criticism will correspond to this societal preference. But we also found that women who recalled negative comments while growing up had actually been larger during this time. It is widely agreed that the 'thin ideal' for women's beauty emerged in the mid-1960s, and therefore being 'larger' prior to this period (i.e., 1961 or 1957) perhaps should not have elicited teasing to the extent that it would today. However since the time period specified in our survey was simply 'while you were growing up', it is possible that women were including later time periods in their responses, such as late teens and early adulthood when social pressure to be thin was starting to intensify.

There was no evidence that an adverse effect of negative childhood comments could be cancelled out by positive comments from one's partner. However, body-related comments from partners had a greater effect on the body esteem of thinner women than of fatter women, and also had a greater effect on the body esteem of women who had received positive body-related feedback than of women who had not received such compliments. The body esteem of these women appears to be less stable and more likely to be influenced by social feedback. One explanation is that body esteem is only one component of self-esteem, and women who have always been large or who did not receive positive comments about their bodies while growing up may have developed their self-esteem or identity on the basis of other (appearance-unrelated) strengths, thereby increasing their resilience to body-related comments from their partners. Thinner women, or those who are otherwise 'used to' receiving compliments, might therefore be more distressed by negative comments, or by an absence of positive comments about their bodies as adults. Another explanation is that these women have relatively high body esteem, and in a society where body dissatisfaction is 'normative' (Rodin et al., 1984), satisfaction with one's body is simply more tenuous than dissatisfaction, and more easily disrupted.

Body-related comments were self-reported and we had no means of verifying the nature, frequency, nor even existence of these comments. It must be acknowledged that we have shown an impact of women's reports of comments, and not necessarily an impact of comments themselves. However we would argue that it is individuals' experience of comments and their timing that is most meaningful; it would make little sense for us to define a 'positive' and a 'negative' comment, ask individuals whether they have experienced it, and then seek some external validation of this report. We feel that it does not diminish the value of our results to recast them as follows: body-related comments, as defined and interpreted by individuals, have an impact on the body esteem of women who report them.

In sum, an influence of body-related comments on women's body image occurs across the life span. In this cohort, those who were heavy as adolescents or in adulthood were more likely to report receiving negative comments and lighter women were more likely to report receiving positive comments. Negative comments while growing up may be just as important (or as damaging) as current negative comments, and we found no evidence that this impact could be lessened by adult compliments. Comments from husband or partner were particularly influential for thinner women, and for women who had received compliments about their appearance while growing up. As body dissatisfaction continues to detract from the well-being of a majority of women, continued research into its origins is desirable. Our data support the use of a life course framework in discovering these origins (McLaren & Wardle, in press).

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Article 4

Body dissatisfaction, social class, and social mobility

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University College London

Rôle joué par chaque auteur – Article 4

McLaren L, Kuh D, Body dissatisfaction, social class, and social mobility. Soumis (mai, 2002) à *Social Science and Medicine.*

Lindsay McLaren developed the idea and rationale for the study, developed the survey questions on body dissatisfaction, conducted all analyses and wrote the article.

Diana Kuh is the head and primary researcher of the Women's Health component of the MRC National Survey of Health and Development. She supervised development of the survey questions on body dissatisfaction, was responsible for data collection, and provided guidance on analysis and interpretation of data.

Accord des coauteurs – Article 4

Identification de l'étudiant et du programme

Lindsay McLaren

Étudiante de doctorat en santé public, option promotion de la santé

Description de l'article

McLaren L, Kuh D, Body dissatisfaction, social class, and social mobility. Soumis à *Social Science and Medicine.*

Déclaration de tous les coauteurs autres que l'étudiante

À titre de coauteur de l'article identifié ci-dessus, je suis d'accord pour que Lindsay Mclaren incluse cet article dans sa thèse de doctorat qui a pour titre 'A life course study of body dissatisfaction in middle-aged women'.

Diana Kuh	[redacted]	25/05/02
Coauteur	Signature	Date

Abstract

Although body dissatisfaction has been linked with concurrent socioeconomic advantage, no studies on this topic have considered the social class of the family of origin or intergenerational social mobility. Among 912 54-year-old women from a prospective birth cohort study, we examined the associations between childhood and adult social class (defined based on father's occupation and own or partner's occupation, respectively), educational qualifications, current and adolescent BMI, and current body esteem. All data were obtained prospectively. Women from the non manual classes as adults were more dissatisfied with their *weight* (but not with their appearance) than women from the manual classes as adults, for a given BMI. Adjusting for BMI, downwardly mobile women were most satisfied with their *appearance*. Adjusting for BMI, higher educational qualifications were associated with more dissatisfaction with *weight* and with *appearance,* and education appears to be more important than occupationally-defined social class in explaining body dissatisfaction. A clearer understanding of the relationship between socioeconomic position and body dissatisfaction requires that distinctions be made between weight and appearance satisfaction, between education and occupation, and between current social class and intergenerational social mobility.

Introduction

There is a clear social stratification of body size among women in modern societies with a larger average body size and a higher prevalence of obesity among socially disadvantaged than among socially advantaged women (Langenberg et al., in review; Sobal, 1991; Sobal & Stunkard, 1989). Body dissatisfaction is strongly related to body size in females, with larger women more likely to be dissatisfied (Allaz et al., 1998; Reboussin et al., 2000). Yet studies have demonstrated that for a given body size, higher social class women are more dissatisfied with or concerned about their bodies than lower social class women (Ogden & Thomas, 1999; Wardle & Griffith, 2001). Some exceptions to this latter finding exist (Story et al., 1995). A finding of more body dissatisfaction among socially advantaged women could help to explain the social class gradient in obesity, as dissatisfaction is often linked with weight control behaviours. On a more theoretical level, the interplay between body size, body dissatisfaction, and social class is interesting from a social epidemiological perspective because it provides insight into class culture. Higher social class women are thinner, which is itself a marker of social distinction in our society (Wilkinson, 1996), but they are also more likely to be dissatisfied with their (relatively small) deviation from an ideal. Research on body dissatisfaction and social class may pertain to health behaviours and obesity, but it also implicates class differences in such elusive concepts as aesthetic preferences, ideals, and aspirations of distinction.

Body dissatisfaction is common among women currently in middle age (Allaz et al., 1998; McLaren & Kuh, in review). Dissatisfaction carries negative consequences for health and well-being among women of this age group, including elevated feelings of depression, lower quality of life, low energy levels (Reboussin et al., 2000), and avoidance of social situations, physical intimacy, and exercise (McLaren & Kuh, in review). We (McLaren & Kuh) recently found that for any given weight, women from the non manual social classes in this age group were more dissatisfied about their body weight but not about their general appearance, than women from the manual classes. Inconsistencies in research on the social class-

dissatisfaction relationship might therefore reflect inconsistencies on the aspect of body dissatisfaction (weight or general appearance) assessed.

Existing research on social class and body dissatisfaction deals exclusively with women's current socioeconomic position, with little or no attention paid to the socioeconomic position of her family of origin. Furthermore, to our knowledge there are no studies addressing social mobility over the life span as it relates to adult body dissatisfaction. Research has shown that upward social mobility reduces the likelihood of being obese in comparison with those who remain in the manual classes (Langenberg et al., in review), and that women who come from lower social class origins are likely to increase in weight more rapidly throughout adulthood (Hardy et al., 2000). The close relationship between body size and body dissatisfaction prompted us to study social mobility in relation to body dissatisfaction. As well, the prevalence of body dissatisfaction and cultural pressures for women's thinness coincide in a graded manner with westernisation (and wealth) on a global scale, with women living in more westernized countries have greater body dissatisfaction than those living in non-westernized countries, with countries in transition intermediate between the two (Jaeger et al., 2002). This suggests that intergenerational shifts in personal socio-economic position may be instrumental in shaping body image at midlife. Finally, studying social mobility provides us with a glimpse of what might happen if we were theoretically able to manipulate individuals' socio-economic position. This is of great interest to social epidemiologists who are preoccupied with pervasive socio-economic inequalities in health and their alleviation. Whether the health of socially mobile individuals is more similar to individuals of their socio-economic position of origin or of destination has implications for understanding determinants of health as well as for designing interventions.

The specific aims of this study are to examine current body esteem (weight and general appearance dimensions) as a function of a) adult social class, b) childhood social class, c) educational qualifications, and d) occupationally-defined intergenerational social mobility among a large cohort of middle-aged British women.

Methods

Participants

The data source is the Medical Research Council National Survey of Health and Development, a follow-up study of 2547 women and 2815 men since their birth in March, 1946 in England, Scotland, and Wales (Wadsworth, 1991; Wadsworth & Kuh, 1997). This was originally a class-stratified sample which included all births to non manual households, all births to agricultural workers, and a randomly selected 1 in 4 sample of the remaining families (Atkins et al., 1981). When the participants were 47 years old an annual women's health postal survey was begun (Kuh et al., 1997) in order to study health in relation to the menopause transition. Of the original cohort, 6% had died, 9% were living abroad and not in contact with the study, 12% had refused to take part at earlier follow-ups, 3% could not be traced, and 19% became non-responders over the course of the eight women's health surveys. Of 1477 women who were sent a survey in 2000 (at age 54), 1308 responded indicating a response rate of 89% for 2000, and representing 51% of the original cohort.

Variables

Body dissatisfaction. When women were aged 54 years they completed the Body Esteem Scale (Mendelson et al., 2001) *appearance* (e.g., 'There are lots of things I'd change about my looks if I could', 10 items) and *weight* (e.g., 'Weighing myself depresses me', 8 items) subscales, which have shown good psychometric properties (Mendelson et al., 2001). Responses were made on a 5-point scale anchored by 'never' and 'always' and a mean score was taken across items (range 1-5). A higher mean score indicates more positive body esteem.

Social class. Data on father's occupation were collected at home visits when the women were 4, 11, and 15 years old. When the women were aged 26, 36, 43, and 53 years, data were gathered on each woman's occupation and her partner's, if

applicable. These occupations were assigned to one of six classes according to the British Registrar General's social class classification; however in this study we treated social class as a dichotomous variable (manual, non manual) because there was no evidence for a dose-response relationship between body esteem and social class across all six classes. We defined adult social class in a gender-neutral manner, using either the woman's own or her partner's social class, whichever was highest (Krieger et al., 1999). If a woman did not have an occupation, her partner's class was used; if her partner did not have one, the woman's own class was used. We assigned adult social class based on the predominant social class grouping across the four measurement occasions in adulthood, and in a similar way we assigned a childhood social class from the three measures of father's occupation. Women for whom there was no predominant grouping across childhood or adulthood (e.g., manual at age 4, non-manual at age 11, and missing data at age 15) were eliminated from the analyses (n=26 for childhood social class, n=193 for adult social class). We then assigned social mobility category as stable non manual (non manual in both childhood and adulthood), upwardly mobile (manual in childhood and non manual in adulthood), downwardly mobile (non manual in childhood and manual in adulthood), or stable manual (manual in both childhood and adulthood).

On the basis of the highest educational qualifications achieved by age 26 years (Department of Education and Science, 1972) women were divided into those with no qualifications (n=272, 30.7%), ordinary secondary qualifications (O-level or equivalent) (n=315; 35.6%), advanced secondary qualifications (A-level or equivalent) (n=244, 27.5%) and higher education (degree or equivalent) (n=55, 6.2%).

Body mass index (BMI). Current BMI (kg/m^2) was computed from height which was measured to the nearest 0.5cm during a home interview when the women were aged 53 years, and weight which was self-reported by women on the postal survey when they were aged 54 years. An index of adolescent BMI was computed from measured heights and weights at age 15 years (n=790), or age 11 years for those who were not measured at age 15 (n=122).

Analyses

We conducted multiple regression analyses with body esteem as the outcome variable and childhood social class and BMI, and adult social class and BMI as independent variables. These analyses were repeated with educational qualifications as the independent variable among the slightly smaller sample of women with complete data on this variable (n=886), unadjusted and adjusted for BMI. An overall test for an effect of educational qualifications was run, and this was followed by an analysis with dummy variables to contrast the different categories of education (no qualifications, ordinary secondary qualifications, advanced secondary qualifications, and degree level, with no qualifications as baseline). We also ran a regression analysis that included both adult social class and educational qualifications, to examine the relationship of these two variables to body esteem adjusted for one another. The relationship between social mobility and body esteem was investigated using a model including both childhood and adult social class and by testing for an interaction between the two. This was followed by an analysis with dummy variables to contrast the different categories of social mobility (stable non manual, upward mobility, downward mobility, stable manual, with stable non manual as baseline). All the analyses were repeated using a weighting procedure to adjust for the original sampling frame. As there was little or no change in the effect sizes the unweighted results are presented.

Results

Descriptive statistics are presented in Table I. At midlife these women were slightly overweight on average (mean BMI = 26.7 kg/m^2). In childhood, over half the sample was classified as from the manual social classes in accordance with the original sampling procedure. In adulthood over 80% of the women were classified as in the non-manual classes. Consequently the two biggest groups were those who were 'always non manual' and 'upwardly mobile' (in the manual classes as a child and in the non manual classes as an adult). In terms of educational qualifications women

Table I

Descriptive information (mean and standard deviation or %) on study variables for female participants from MRC NSHD* 1946 birth cohort

Variable	Unique N		Complete data (n=912)	
	N	Mean (SD) or %	N	Mean (SD) or %
Body esteem appearance (1-5)	1288	3.3 (.72)		3.3 (.71)
Body esteem weight (1-5)	1286	2.9 (.91)		2.9 (.90)
Current BMI (kg/m^2)	1172	26.7 (5.0)		26.7 (5.0)
Adolescent BMI (kg/m^2)	1135	20.2 (3.1)		20.2 (3.1)
Childhood social class				
Manual	650	54.1%	490	53.7%
Non-manual	552	45.9%	422	46.3%
Adulthood social class				
Manual	213	18.3	169	18.5%
Non-manual	949	81.7	743	81.5%
Social mobility				
Always manual	159	14.7%	138	15.1%
Downward mobility	40	3.7%	31	3.4%
Upward mobility	403	37.3%	352	38.6%
Always non manual	478	44.3%	391	42.9%

* Medical Research Council National Survey of Health and Development

were split reasonably equally among no qualifications, ordinary secondary, and advanced secondary qualifications, with only a small minority of women (6.2%) reaching degree level.

With *appearance* esteem as the outcome variable (Table II, model 1), neither childhood nor adult social class showed a significant effect, whether unadjusted or adjusted for one another and/or BMI (adjusted[2,3,4, and 5]). With *weight* esteem as the dependent variable (Table II, model 2), childhood social class showed a marginal positive effect when unadjusted and adjusted for adult social class (adjusted[2]), with women from non manual backgrounds feeling more positively about their weight at midlife. However this effect disappeared once BMI was adjusted for (adjusted[3 and 5]), as childhood social class affected midlife *weight* esteem partly through adolescent BMI and particularly through adult BMI. This suggests that women from non manual backgrounds were more satisfied with their weight at midlife because they were thinner throughout life (mean adolescent manual BMI = 20.3 kg/m^2 vs. mean adolescent non manual BMI = 20.0 kg/m^2, p=.1, and mean adult manual BMI = 28.2 kg/m^2 vs. mean adult non manual BMI = 26.4 kg/m^2, p<.001). On the other hand, adult social class showed no relationship with *weight* esteem until BMI was controlled for (adjusted[4 and 5]) when a strong negative relationship was revealed. This indicates that for any given weight, women in the non manual classes in adult life felt more dissatisfied about their weight than women in the manual classes.

Educational qualifications were associated with poorer *appearance* esteem once we adjusted for BMI (unadjusted p=.3; adjusted for BMI p=.006). Table III model 1 (adjusted column) shows that women with any educational qualifications showed more appearance dissatisfaction relative to women with no qualifications. Thus *appearance* esteem seems to be more sensitive to educational qualifications than to adult occupationally-defined social class. In predicting *weight* esteem with educational qualifications (Table III model 2) we see a similar but stronger pattern (unadjusted p=.6; adjusted for BMI p<.001). Re-running the adjusted education models including adult social class (not shown) we found that education is the

Table II
Results of multiple regression analyses predicting body esteem with social class and BMI (n=912)

Model 1: Dependent variable: body esteem *appearance*

Variable	Unadjusted Regression Coefficient (95% CI) p-value	Adjusted[1] Regression Coefficient (95% CI) p-value	Adjusted[2] Regression Coefficient (95% CI) p-value	Adjusted[3] Regression Coefficient (95% CI) p-value	Adjusted[4] Regression Coefficient (95% CI) p-value	Adjusted[5] Regress Coeffic (95% CI) p-value
Adoles BMI	-.041	-.008	--	-.041	--	-.01
(kg/m^2)	(-.06 to -.03)	(-.02 to .01)		(-.06 to -.03)		(-.03 to .01)
	p<.001	p=.3		p<.001		p=.3
Adult BMI	-.05	-.047	--	--	-.05	-.05
(kg/m^2)	(-.06 to -.04)	(-.06 to -.04)			(-.06 to -.04)	(-.1 to -.04)
	p<.001	p<.001			p<.001	p<.001
Child SC**	.052	--	.04	.039	--	-.014
	(-.05 to .2)		(-.06 to .1)	(-.06 to .1)		(-.11 to .08)
	p=.3		p=.4	p=.4		p=.8
Adult SC**	.07	--	.06	--	-.024	-.02
	(-.05 to .2)		(-.06 to .2)		(-.14 to .09)	(-.1 to .1)
	p=.2		p=.4		p=.7	p=.7

Table II (continued)

Model 2: Dependent variable: body esteem *weight*

Variable	Unadjusted Regression Coefficient (95% CI) p-value	Adjusted[1] Regression Coefficient (95% CI) p-value	Adjusted[2] Regression Coefficient (95% CI) p-value	Adjusted[3] Regression Coefficient (95% CI) p-value	Adjusted[4] Regression Coefficient (95% CI) p-value	Adjusted[5] Regress Coeffic (95% CI) p-value
Adoles BMI	-.10	-.03	--	-.09	--	-.03
(kg/m^2)	(-.12 to -.08)	(-.05 to -.01)		(-.11 to -.07)		(-.1 to -.01)
	p<.001	p=.001		p<.001		p=.001
Adult BMI	-.11	-.10	--	--	-.11	-.10
(kg/m^2)	(-.12 to -.10)	(-.11 to -.09)			(-.12 to -.10)	(-.11 to -.1)
	p<.001	p<.001			p<.001	p<.001
Child SC**	.10	--	.11	.07	--	-.004
	(-.02 to .2)		(-.01 to .2)	(-.05 to .2)		(-.10 to .09)
	p=.08		p=.07	p=.2		p=.9
Adult SC**	.001	--	-.04	--	-.20	-.21
	(-.2 to .2)		(-.2 to .1)		(-.32 to -.08)	(-.3 to -.1)
	p=.9		p=.6		p=.001	p=.001

Table II (continued)

** 0 = manual, 1 = non manual

[1] adjusted within BMI variables

[2] adjusted within social class variables

[3] adjusted within childhood variables (adolescent BMI, childhood SC)

[4] adjusted within adult variables (adult BMI, adult SC)

[5] all variables mutually adjusted

Table III

Results of multiple regression analyses predicting body esteem with highest educational qualifications and BMI (n=886)

Model 1. Dependent variable: body esteem *appearance*

Variable	Unadjusted Regression Coefficient (95% CI)	Adjusted for current BMI Regression Coefficient (95% CI)
Degree-level	-.13 (-.3 to .07)	-.21 (-.4 to -.01)
A-level	-.12 (-.2 to .00)	-.20 (-.3 to -.08)
O-level	-.07 (-.2 to .05)	-.11 (-.2 to -.01)
No qualifications (reference group)	0	0
p-value	.27	.006

Model 2. Dependent variable: body esteem *weight*

Variable	Unadjusted Regression Coefficient (95% CI)	Adjusted for current BMI Regression Coefficient (95% CI)
Degree-level	-.06 (-.3 to .2)	-.24 (-.5 to -.02)
A-level	-.09 (-.3 to .07)	-.27 (-.4 to -.2)
O-level	-.10 (-.2 to .04)	-.19 (-.3 to -.07)
No qualifications (reference group)	0	0
p-value	.56	<.001

component of adult socioeconomic position that contributes most to body dissatisfaction: for *appearance* esteem, the effect of educational qualifications remained significant and the effect of adult social class remained non significant; for *weight* esteem, the effect of educational qualifications remained significant (p=.002) and the effect of adult social class was reduced to non significance (p=.3).

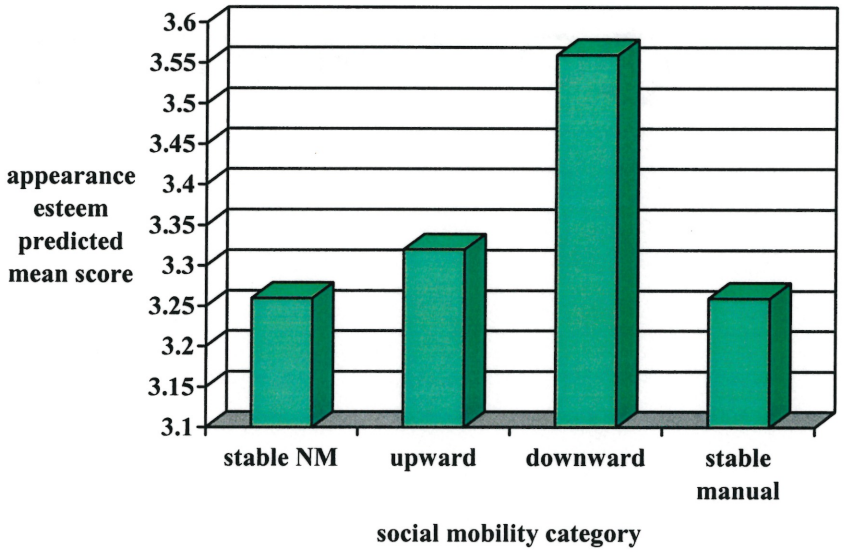
A significant interaction (p=.01) between childhood and adult social class emerged with *appearance* esteem as the outcome variable, such that an effect of childhood social class was seen in those in the manual social classes in adulthood. The size and direction of this interaction effect remained constant whether unadjusted or adjusted for BMI (not shown). Using dummy variables to represent contrasts between social mobility groups we found that the downwardly mobile group of women (non manual in childhood, manual as adults) had significantly higher (better) *appearance* esteem than the stable non manual women. Using regression coefficients from the interaction model adjusted for BMI we plotted the predicted *appearance* esteem scores for the four social mobility categories (Figure 1a). This contrasts with the findings using *weight* esteem as the outcome variable where we did not detect a significant social class interaction effect. The greater effect of social classes of destination than of origin on *weight* esteem is clear in Figure 1b: the predicted *weight* esteem values for the stable non manual women and the upwardly mobile women were identical, as were the predicted *weight* esteem values for the downwardly mobile and the stable manual women.

Discussion

To our knowledge this study is the first to examine the relationship between social class and body dissatisfaction from a longitudinal perspective, which enabled investigation of the effects of childhood social class and social mobility. Strengths of our study include prospectively collected data on occupation, education, and body weight and height from a large national sample. We also had social class data from both the woman and her partner, which made it possible to define social class as a

Figure 1a

Midlife *appearance* esteem by category of social mobility

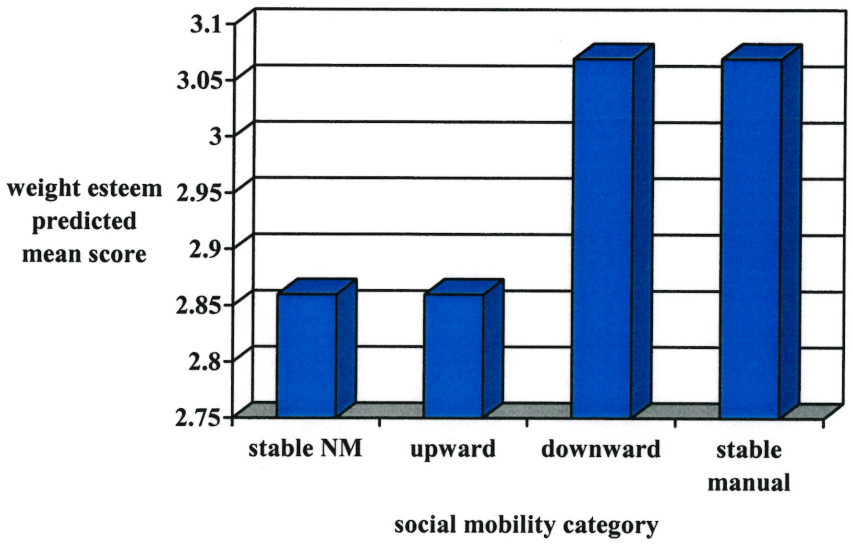


Notes:

1. **appearance** esteem: range 1-5, higher = better
2. values computed from regression coefficients from interaction model, adjusted for adolescent and adult BMI
3. reported for average adolescent and adult BMI

Figure 1b

Midlife *weight* esteem by category of social mobility



Notes:

1. **weight** esteem: range 1-5, higher = better
2. values computed from regression coefficients from additive model, adjusted for adolescent and adult BMI.
3. reported for average adolescent and adult BMI.

gender-neutral household index. This is considered most appropriate for the study of women's health (Krieger et al., 1999).

We found no evidence for a relationship between *appearance* esteem and either childhood or adult social class. However there was an effect of social mobility, with the small group of downwardly mobile women reporting more satisfaction with their appearance relative to the stable non manual group. Sociological authors have highlighted social class differences in the extent to which investment in and control over the body is considered a 'project' worthy of time and effort (Bourdieu, 1984). This point of view would suggest that appearance investment is more typical of the upper class lifestyle. Looking at childhood or adult social class alone, our results would appear to contradict this position, for *appearance* esteem. However we can reconcile the two by suggesting, based on our results, that intergenerational *transition* between classes is necessary to detect such an effect of 'class social climate' on body esteem. Downwardly mobile women may be particularly influenced by the lower appearance investment that Bourdieu suggests characterises the manual classes (keeping in mind that 'appearance investment' can be a social or group-level attribute and not just an individual-level characteristic). Having come from a non manual background, such manual class attitudes and values may be especially salient or influential to these women, and thereby exert a demonstrable (protective) effect on *appearance* esteem.

Findings with *weight* esteem require a different explanation. For this outcome, the marginal positive effect of childhood social class that disappeared once we adjusted for adolescent and particularly adult BMI, and the negative effect of adult social class that emerged only when we adjusted for BMI, suggests that the effects of childhood and adult social class on *weight* esteem operate through different pathways. Women from a non manual background are thinner in adolescence and particularly in adult life and this explains why they are more satisfied with their weight at middle age. Other studies have also shown a similar relationship between childhood social class and adult BMI (Power & Parsons, in press). The reasons are not entirely known

but may involve healthier diets and more physical activity. The relative thinness in adulthood and to a lesser extent in adolescence of those from non manual backgrounds then facilitates weight satisfaction. Women in the non manual classes in adult life were thinner and they were more dissatisfied with their weight, for a given BMI. This pattern probably implicates sociocultural factors such as the cultural message that thinness is a prerequisite for beauty and 'thin is never thin enough'.

At each level of BMI, women with no educational qualifications at age 26 years felt more positively about their weight and appearance at age 54 than those with qualifications. The effect was stronger for *weight* esteem than for *appearance* esteem, but the pattern was similar: women with degrees and/or advanced secondary qualifications had the lowest body esteem, women with no qualifications had the highest esteem, and women with ordinary secondary qualification were intermediate between the two. Barber (1998) has shown that over time, as women's levels of education have increased, 'ideal' standards for women's bodily attractiveness have become more slender. Perhaps at the individual level, better educated women are increasingly attuned to or influenced by these standards and are therefore more likely to evaluate themselves (negatively) against them.

Comparing the findings based on education and adult social class (both indicators of adult socioeconomic position) we see that for *weight* esteem the findings were similar for both indicators (higher position = more dissatisfaction for a given BMI). However for *appearance* esteem this relationship was only borne out for education. Further, the relationship between *weight* esteem and adult social class was eliminated when education was included in the model. For this cohort of women, education appears to be the key status variable contributing to body dissatisfaction. Education may have the effect of increasing women's awareness of news and media, in which women are often portrayed in a way that emphasises their appearance. Women's fashion magazines for example are considered to contribute to body dissatisfaction among girls (Field et al., 1999), and if better educated women are the ones reading these magazines then they may be at greater risk. If this is the case then

it is unfortunate that education does not promote a more critical evaluation by these women of the way females are portrayed in the mass media. Another possibility is that these women are more familiar with health education messages which have extolled the virtues of a healthy diet and body, and such messages may inadvertently foster body dissatisfaction through a focus on 'ideal' diet and body weight. A final explanation concerns the relationship between women's education levels and expectations for personal achievement. Perhaps more highly educated women show higher achievement expectations which generalise to include expectations about physical appearance. Since contemporary standards for women's physical attractiveness are nearly impossible to meet, 'achievement' in this arena will rarely be met and body dissatisfaction will be more likely. This explanation is related to a feminist view on eating disorders which holds that within a patriarchal society women are limited in the amount of 'space' they can occupy. As women gain in education and economic power, they must compensate by taking up a smaller amount of physical space – evidenced by the smaller body size sought by many women and achieved by the few with anorexia nervosa (Bordo, 1993). As an extension, women who achieve or excel academically or economically may compensate with insecurity or dislike for their physical self.

To conclude we assert that an understanding of the relationship between social status and body image requires that several distinctions be made: weight versus appearance satisfaction, occupation versus education, and current socioeconomic position versus intergenerational stability or mobility.

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General Discussion

1. Overview of results

This project represented an attempt to understand body dissatisfaction in women who were currently middle-aged, a group for whom there are few data on body dissatisfaction yet who were hypothesised to report high levels of this problem. A broader goal of this project was to introduce a novel framework for the study of body dissatisfaction, in particular a life course framework borrowed from epidemiology. Because a woman's body image at midlife most likely reflects more than simply concurrent events and characteristics, a life course model that takes into account events and characteristics occurring throughout the life span was considered appropriate.

Beginning at a most general level it was asked, how common is this problem in the population of interest, and what are its correlates in terms of health and well-being? Prevalence levels were found to be high, with nearly 80% of women wishing to lose weight and nearly 60% reporting being at least somewhat dissatisfied with their bodies since age 50, even though just 21% of women were categorised as obese and are therefore at increased risk for health problems due to their weight (Power & Parsons, in press). Thus dissatisfaction did not appear to correspond with health risk; a statement substantiated by our finding that attempts at weight loss or maintenance were not related to self-rated health status. The average value of appearance esteem was higher than that of weight esteem (where higher is better), and when asked about 'other distressing aspects about appearance' a minority (21%) of women indicated one or more aspect. This suggests that weight is the most important source of body dissatisfaction in these women. Dissatisfaction was associated with being an ex-smoker, and with being in the non manual social class, for a given body size. Dissatisfaction was also associated with poorer self-rated health over the past year, and with a higher likelihood of avoiding various situations because of feelings about one's body (public change rooms, physical activity, social situations, wearing bathing suits, and physical intimacy).

From the general question of prevalence and correlates, an investigation of particular pathways was undertaken. The variables selected for study had some basis in the literature but in each case this project made a substantial contribution. First, based on evidence from samples of younger (and usually obese) women, past body size was suspected to be associated with midlife body satisfaction. We extended this existing research by showing that among women who were heterogeneous in body size, those who were satisfied with their bodies at midlife were thinner as early as age 7 and showed a less rapid increase in body mass index with age relative to women with poor midlife body esteem. We also examined the role of reproductive events in this pathway: women who had had an early puberty were more dissatisfied with their weight at midlife, and this was partly but not entirely explained by their larger body size. Women who were postmenopausal or who started using hormone replacement therapy before menopause were more satisfied with their middle-age bodies. A second topic that was investigated concerned body-related comments. Findings indicated that midlife body esteem was associated with body-related comments (positive and negative) experienced while growing up and currently, and that some women were especially receptive to the experience of comments: thin women, and women who had received positive comments while growing up (and these were not the same women). A third topic concerned childhood and current social class and intergenerational social mobility, and their association with midlife body esteem. It was found that women from the non manual class in adulthood were more dissatisfied with their weight, but not with their general appearance, than women from the manual adult class, for a given BMI. Women who were from the non manual class in childhood were more satisfied with their weight at midlife, which was explained by their being thinner throughout life. Educational qualifications were associated with more dissatisfaction, and women who had experienced downward intergenerational social mobility were the most satisfied with their appearance at middle age.

2. General conclusions

Body dissatisfaction is common in middle-aged women. The prevalence estimates obtained for body dissatisfaction in this sample were very high. As part of the rationale for this study it was suggested that such findings could reflect social circumstances unique to this birth cohort, namely, long term exposure to an unrealistically thin ideal of beauty. Results were consistent with this explanation, since our estimates of dissatisfaction are higher than those reported among samples of older women (Hetherington & Burnett, 1994), and among middle-aged women studied at an earlier time (Allaz et al., 1998).

However it is important to consider other explanations. Perhaps the most likely alternative concerns the mass upward social mobility in this sample. Half of the women came from manual backgrounds, but as adults more than 80% were classified in the non manual classes. If the upper class lifestyle promotes appearance investment and body concern as suggested by sociological authors (e.g., Bourdieu, 1984), then mass upward mobility may help explain the high prevalence findings. Results may also simply be explained by a very powerful period effect of current pressures for women to be thin, pressures that affect women of all ages. It could be that current pressures have affected middle-aged women all along (i.e., not just from this birth cohort), but this age group of women has just not been studied as much or in as much detail as younger women.

Life course epidemiology, and epidemiology in general, provide a useful framework for research on body dissatisfaction. Life course epidemiology provided a useful theoretical model for the study of midlife body dissatisfaction. This framework helped us identify and evaluate pathways that included *enduring* effects of early life experiences on later body dissatisfaction (e.g., having received negative comments about appearance while growing up, having gone through puberty relatively early), *interactions* between events (e.g., comments from partner in adulthood had greater impact on women who had received compliments while growing up relative to women who had not received such compliments), and *cumulative* effects (e.g., women who

were dissatisfied at midlife were heavier as children and became heavier more quickly with age, relative to women who were satisfied at midlife). Such findings highlight more general considerations for research on this and other adult health outcomes from a life course perspective (Ben-Shlomo & Kuh, 2002), such as the need to consider temporal relationships between variables, the need to study a combination of physiological, psychological, and social variables, and the need to consider possible clustering of 'risk factors' (example from this study: body size and social class). With respect to the current absence of a model for research on body dissatisfaction in women beyond young adulthood, it is suggested that life course epidemiology provides the framework for future research on this topic in order to facilitate coherence among empirical findings.

Epidemiology, the discipline from which the life course model was drawn, is a perspective that has not often been applied to research on body dissatisfaction, but which may provide an ideal complement to existing perspectives on this topic. Most of this research has been conducted by psychologists, who have emphasised physiological, psychological, and behavioural reasons why one individual is more likely to be dissatisfied than another individual. While this information is valuable, it is characterised by relative inattention to social influences. A helpful feature of epidemiology is explicit attention to social or environmental influences. This is because epidemiologists pay specific attention to the causes of incidence (Rose, 1985); that is, to factors that explain geographic or population-level variation in a health problem; in addition to the causes of cases: markers of individual susceptibility within a given environment. In contrast, psychologists tend to study only the latter. Since the importance of environmental influences on body dissatisfaction (e.g., social pressures for thinness) is so widely acknowledged, it is surprising that psychological research has essentially neglected to directly address these influences. It is asserted that widening the disciplinary scope of body dissatisfaction research to include epidemiological principles would greatly contribute to the advancement of knowledge in this area.

Body dissatisfaction as public health problem. The high prevalence and negative correlates of body dissatisfaction satisfy two basic criteria for its consideration as a public health problem. The present results support the view that this problem is not limited to girls and young adults, but affects women across a wide age span. In addition, although dissatisfaction is widely known as a risk factor for eating disorders, it is a relatively non specific one, and it does have other negative correlates for well-being aside from disordered eating (e.g., avoidance behaviours, McLaren & Kuh, in review; low quality of life, Reboussin et al., 2000). It therefore seems appropriate to assert that body dissatisfaction be considered an important health issue in its own right, aside from its link with disordered eating.

Considering the idea of a public health problem, it may be helpful to consider widespread body dissatisfaction the result of a toxic environment, in which particular features can be identified as harmful and their impact on health quantified (and perhaps modified, or eliminated). A public health model is useful because the term 'toxic' is used in the same way here as in a more familiar public health sense, such as an environmental pollutant with demonstrable effects on physical health. Viewing body dissatisfaction in this way draws attention to influences that are population-wide, and thereby offers new and potentially powerful targets for intervention. However there is another important benefit of a toxic environment model. It offers a means of integrating research on body dissatisfaction/eating disorders and obesity, an integration that has not been well addressed in the literature. The current western environment provides ubiquitous reminders to women of the importance of being thin, and at the same time it encourages over-consumption of food and facilitates sedentary behaviour (Battle & Brownell, 1996; Irving & Neumark-Sztainer, 2002). The common theme (weight) yet contradictory nature of these messages suggests that efforts at their reconciliation must begin, both in terms of research and intervention (elaborated below).

3. Comments on study design and limitations

In terms of study design and conduct this project has many strengths. The MRC National Survey of Health and Development is an extraordinary study that is extremely well organised and managed. It is unique in its longevity as well as in terms of the variety and quality of data collected. Although the present project is nested within the National Survey and therefore draws on many of the Survey's strengths, some limitations must also be acknowledged.

Body dissatisfaction was assessed at age 54 in several ways. In addition to three one-item questions developed for the survey, we used the Body Esteem Scale which has shown good psychometric properties in samples of young Canadian adults (Mendelson et al., 2001). This questionnaire has not been examined for reliability and validity among middle-aged adults, nor among British individuals (although we did find evidence of good internal consistency among women in this project). Nonetheless we selected the scale for two reasons; first because it makes the distinction between satisfaction with *weight* and satisfaction with *appearance*; this is a valuable feature as many scales focus only on weight as a source of dissatisfaction, or include both elements without making a distinction. Second, the scale is brief and easy to understand, both of which are essential for a postal survey that aims to tap many aspects of women's health without being too labour-intensive.

Some of the height and weight values used in the project were self-reported. Although self-report values of height and weight have been found to show bias (women tend to underreport their weight and over report their height, Rowland, 1990), it is also generally true that self-report and measured values of weight and height are highly correlated (pearson $r > .90$ for adults; Heymsfield et al., 1995). Furthermore self-report data are far easier to obtain and are the only option for particular methods of data collection (e.g., postal survey). I chose to calculate 'current' body mass index from measured height at age 53 and self-report weight at age 54 (rather than measured

weight at age 53) for the following reason. In addition to reporting their current weight on the survey at age 54, women reported the weight they would like to be. This 'ideal' weight was therefore reported in reference to the self-reported current weight, and the discrepancy between the two was regarded as a desired weight change. These data are reported in Article 1. I then used the same body mass index values for subsequent articles simply for consistency. For women who had data for measured weight at age 53 and self report weight at age 54 (n=1183) the correlation between the two was high (pearson r = .94, p<.001) suggesting that this decision did not unduly influence results.

The investigation of lifetime experience of body-related comments on later body esteem was limited by the fact that these comments were self-reported retrospectively. Retrospective self-reports are subject to recall bias whereby current characteristics and circumstances can influence past reports in a way that confounds the relationship of interest; one obvious example is that women with poor body esteem may be more likely to recall negative comments even if they did not really occur. This has also been a problem in other studies assessing past teasing by adult women (Jackson et al, 2000; Rieves & Cash, 1996). We were able to make the unique contribution of asking about current comments from partner as well as positive comments in the past and currently. Asking about early life comments – even though retrospectively – was essential for disentangling the relative impact of earlier life versus current comments, and the interaction between the two, which are central questions to life course epidemiology. Furthermore as reported in that paper, results remained essentially unchanged when including an index of current psychological symptoms as a covariate. Therefore the association detected between recall of negative comments in childhood and midlife body dissatisfaction was not explained by psychological distress measured at the time of reporting on body esteem and body-related comments.

Another issue that arose after completion of the articles was the possibility that body-related comments recalled from childhood were related to timing of puberty; specifically, that girls who had experienced an early menarche would be more likely to recall negative comments during this earlier time. If this were the case, then age of menarche could be thought to explain, or mediate, the relationship between past negative comments and current body esteem. Follow-up analyses were conducted accordingly. These analyses showed that girls with a later menarche were slightly less likely to recall negative body-related comments (OR = .90, p=.06), however this effect was eliminated by adjusting for adolescent BMI (adjusted OR = 1.04, p=.5). Therefore women who had reached puberty early were more likely to recall negative comments because they were heavier. Since we adjusted for adolescent BMI in the body-related comments paper (article 3) we have little reason to be concerned about menarcheal timing as a confounding variable.

A final comment regarding study limitations is that these results are obviously unique to this particular birth cohort of women. This can be viewed as a limitation of the study since it is not clear the extent to which our findings can be generalised to women of other ages or in different places, or even to middle-aged women in the same place but at a different period in time. However it can be argued that most if not all research is context and cohort specific, and that this does not in any way diminish the value of a study. A great deal can be learned from understanding the experiences of individuals within a particular context, and even if specific results cannot be generalised, the tools and strategies for studying and understanding can certainly be applied in other contexts.

4. Implications for health promotion

As mentioned, body dissatisfaction has typically been studied in the context of eating disorder research, by psychologists whose aim is to understand individual differences in this outcome. This approach to research underlies a similarly

individualistic or 'high-risk' approach to intervention whereby the most dissatisfied individuals (typically young women) are identified and become the target of intervention. Most existing interventions (e.g., Smolak et al., 1998; Steiner-Adair, 2000; Stewart, 1998) include elements of psychological resilience (enhancing self-esteem and assertiveness) and education (e.g., educating girls about normal developmental changes to the body and about normative population weight data, media literacy training to raise awareness of the 'unrealistic' portrayal of women in fashion magazines, educating girls about healthy weight management and the hazards of unhealthy weight loss). These approaches recognise societal pressures as contributing to dissatisfaction, but in all cases the target of change, and the unit of analysis, is the individual. These strategies are therefore, explicitly or implicitly, *reactive* in nature (i.e., teaching girls to deal with the pressures) rather than proactive (i.e., modifying the pressures themselves) (Austin, 2000). Perhaps accordingly, these interventions have generally succeeded in changing participants' knowledge, but have failed or yielded only inconsistent changes in attitudes and behaviours which do not endure at follow-up (Smolak et al., 1998; Stewart, 1998).

The results of the present project are consistent with the need to move toward proactive, population-wide prevention strategies, which can be accommodated within health promotion. The high prevalence of body dissatisfaction across a wide age range of women suggests that high-risk interventions which seek out only the most dissatisfied girls and help them to change their individual dissatisfaction levels are not appropriate. Modifying the 'risk factor' that is common to most or all instances of body dissatisfaction (sociocultural pressures for thinness, a feature of the environment) would seem the most efficient strategy. This is because, as acknowledged by epidemiologists, even a slight modification of these pressures could have a very large impact on body dissatisfaction as a public health problem, due to the large number of people that are exposed to this risk factor (Rose, 1992). This way of thinking, and interventions that follow, requires moving beyond the disciplinary boundaries of psychology. A movement toward health promotion is one suggestion. Health

promotion is partly rooted in psychology, however it also goes beyond this individualistic perspective and recognises the importance of creating supportive environments for health (Ottawa Charter, 1986). There are other defining features of health promotion (e.g., strengthening community action; reorienting health services), but the focus of this discussion is creating supportive environments for health, because in the context of body image this approach is relatively understudied yet would appear to make the most sense.

How might interventions go about influencing contextual influences on body dissatisfaction, and thereby creating a supportive environment for this outcome? One suggestion is to invoke legislation as has been done to change population levels of smoking and seat belt use. Applying this to body image, an example would be legislation which requires that fashion models (an indicator of social pressures) are not too thin. Such legislation was proposed in Spain in 1999 (Bosch, 1999; Bosch, 2000). In response to an estimated 15% increase in the incidence of anorexia nervosa per year, the opposition government proposed regulations obliging dress designers and manufacturers to make women's clothes in sizing that fit a wider range of women, and they also initiated dialogue with advertisers and marketing companies persuading them to use models who are not unrealistically thin. Information on the status of these propositions has not been published and outcomes are not yet known.

Another example along these lines concerns initiatives taken by fashion magazines to curtail toxic messages to their readers. Fashion magazines have been criticised for portraying uniformly thin models (message: 'this is what readers should look like') as well as including articles on diet and weight loss (message: 'here's how'). YM magazine, a fashion and pop culture magazine for teenage girls, has adopted a 'no diet' policy: the magazine includes no information about dieting (YM, 2002). This initiative represents a step in the right direction by avoiding direct messages on how to lose weight; however, the uniform ultra-thinness of models in this and similar magazines has shown no sign of enduring change. Continued effort

toward modification of these influences is needed. Some ideas include encouraging editors to include 'real woman' sections of magazines or entire issues devoted to this theme; or placing 'warning' messages on photos indicating the steps that have been taken to make the model appear the way she does; or gradually increasing the proportion of articles devoted to personal development and decreasing the proportion devoted to physical beauty. Realisation of these changes could be expedited by combining them with existing individual-level interventions which encourage girls and women to challenge toxic messages and to take action in modifying them, and which promote individual resilience (personal development and self-esteem).

Although country- or nation-wide intervention is desirable, it may be more feasible to implement environmental-level change on a smaller scale. There is a relatively successful example of this in the eating disorders literature that was conducted in the somewhat confined environment of an elite ballet school (Piran, 1999). This intervention was based on the WHO Health Promoting Schools model and specific targets of change were determined through a participatory research strategy. Dialogue was initiated with administration, teachers, and students in focus groups, which resulted in several changes made at the school level. Examples included the replacement of an emphasis on body shape with an emphasis on physical conditioning and endurance, prohibition of evaluative comments on body shape, and introduction of a staff member who could be contacted by students regarding body shape concerns. Over a 10-year period during which 3 different cohorts of same-aged girls were studied, a significant decline was detected in the prevalence of disordered eating and body dissatisfaction (Piran, 1999).

In terms of non-elite environments, evidence for variation in body dissatisfaction across living environments, for a given BMI, has recently been demonstrated (McLaren & Gauvin, 2002). This finding suggests that small-area interventions may be possible outside of a ballet school environment, and that neighbourhoods or communities might be a reasonable venue in which to develop

environmental change strategies. This strategy would require more research to identify specific 'toxic' features of a community environment that could be realistically modified. This might involve, for example, surveying neighbourhoods thought to be at greatest risk (affluent neighbourhoods, based on existing research; McLaren & Gauvin, 2002) for factors such as fashion magazine availability, content and quantity of billboard advertising, 'messages' conveyed by local gyms (e.g., is appearance heavily emphasised at gyms, rather than an encouragement of all shapes and sizes, with a goal of fitness and health). This type of strategy is highly compatible with the health promotion tenet that supportive environments are essential for lasting improvements in health.

In encouraging environmental-level change, health promotion strategies may help to bridge the gap between existing interventions for body image and for obesity. Currently, this gap is not at all well addressed in the literature, despite the apparently serious potential for negative consequences: body image interventions run the risk of promoting obesity by encouraging body acceptance and discouraging dietary restraint, and likewise obesity interventions run the risk of encouraging body dissatisfaction, and even eating disorders by advocating dietary control and monitoring of body weight. Equipped with existing intervention strategies (high-risk, individual-level), the practitioner is faced with the impossible decision of which is the more serious mistake.

By directing efforts toward environmental-level change, this problem may be avoidable. The change strategies suggested above to modify the 'thin ideal' in western media do not appear to encourage or facilitate obesity in any way. In contrast, individual-level strategies that teach girls about the harmful effects of dieting and encourage acceptance of all body sizes do, intuitively, run that risk. Environmental-level change strategies designed to target obesity may be regarded similarly. Examples include subsidisation of healthy foods and taxation of unhealthy ones, closer regulation of food advertising to reduce deception (e.g., consumption of a particular food is linked with having good friends and being physically attractive), and creating

more opportunities for physical activity (e.g., bicycle paths, low-cost recreation centres, organised walks and cycle events on a regular basis to appeal to all) (e.g., Battle & Brownell, 1996). These ideas direct attention away from the individual goal of attaining a specific weight, and therefore reduce emphasis on the notion of an 'ideal weight'. Because 'dieting' and 'weight loss' are not the explicit goals of these interventions, it is difficult to imagine how this type of action could lead to an epidemic in body dissatisfaction or eating disorders.

Conclusion

Body dissatisfaction was found to be common among middle-aged women and to carry negative consequences for health and well being. The theoretical framework of life course epidemiology was instrumental in explaining patterns of body-related comments, body size and reproductive events, and social class over the life span underlying body dissatisfaction at midlife. The present results highlight body dissatisfaction as a problem for women outside of the 'high risk' age range, which supports a movement from high-risk/individual-level strategies to population-level strategies for intervention.

It will be difficult to alleviate body dissatisfaction as a public health problem without paying attention to the overlapping yet contradictory problem of obesity. As the prevalence of both remain high and on the increase, efforts toward their reconciliation must intensify. Environmental influences on body image and body weight are recognised however they are relatively understudied compared with psychological and physiological influences. Due to the potentially large population health impact of intervening at the environmental level for both outcomes, increased attention to influences at this level is encouraged.

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Appendix 1

McLaren L, Wardle J. Body image: a life course perspective. In Kuh D, Hardy R (eds). *A life course approach to women's health.* Oxford: Oxford University Press; in press.

Rôle joué par chaque auteur – Book Chapter (Appendix 1)

McLaren L, Wardle J. Body image: a life course perspective. In Kuh D, Hardy R (eds). *A life course approach to women's health.* Oxford: Oxford University Press, in press.

Lindsay McLaren researched and wrote the chapter.

Jane Wardle provided feedback on drafts of the chapter and made editorial suggestions.

Accord des coauteurs et de l'éditeur du livre – Book Chapter (Appendix 1)

Identification de l'étudiant et du programme

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Description du chapitre

McLaren L, Wardle J. Body image: a life course perspective. In Kuh D, Hardy R (eds), *A life course approach to women's health*. Oxford: Oxford University Press; in press.

Déclaration de tous les coauteurs et des éditeurs autres que l'étudiante

À titre de coauteur ou de l'éditeur du chapitre identifié ci-dessus, je suis d'accord pour que Lindsay McLaren inclue ce chapitre dans sa thèse qui a pour titre 'A life course study of body dissatisfaction in middle-aged women'.

Jane Wardle [redacted] 9th August 2002

Coauteur | Signature | Date

Diana Kuh [redacted] 22nd Aug 2002.

Editeur du livre | Signature | Date

Abstract

Interest in women's body image has focused primarily on the life stages of adolescence and young adulthood since it is during these periods that peak prevalence of clinical eating disorders is observed. However it is increasingly clear that body dissatisfaction is reported by women at midlife and beyond, and can adversely impact women's health and well-being throughout the life span. Although current cultural standards for women's bodily attractiveness constitute an important backdrop for dissatisfaction, such contextual factors do not easily explain variation in dissatisfaction within and across age groups. Body dissatisfaction can emerge for the first time at midlife, or may reflect a continuation of dissatisfaction experienced at earlier periods. Retrospective research indicates that particular risk factors in early life (for example overweight body size, body-related teasing) may contribute to body dissatisfaction later on. These predictors, in turn, probably interact with developmental events (puberty, pregnancy, and menopause), which can facilitate fat storage and bring women's bodies further from the thin 'ideal' with increasing age. These pathways appear to differ for women of different racial and social class groups. In this chapter, with the goal of explaining body dissatisfaction at midlife, we review the literature on body dissatisfaction across the life span, highlighting enduring, cumulative, or interactive effects of early predictors where research exists to support such pathways.

Introduction

While 'body image' encompasses any affective, cognitive, or perceptual beliefs individuals hold about their bodies (Thompson, 1995), 'body dissatisfaction' is a narrower, evaluative term that involves the feeling or belief that one's current body is discrepant from an ideal, coupled with a negative affective evaluation of this discrepancy. Dissatisfaction is assessed in a variety of ways, including ratings of self-reported dissatisfaction, or based on the endorsement of some related concept such as 'feeling fat' or wishing to lose weight, or is inferred from a current–ideal discrepancy. The contribution of body dissatisfaction to the occurrence of eating disorders underlies a substantial proportion of the literature on this topic; however, the focus here is body dissatisfaction in its own right.

We aim to integrate existing literature on body dissatisfaction in a way that highlights possible pathways or trajectories that explain variation in body dissatisfaction at midlife. To this end, we focus on three main questions: first, what is the extent or prevalence of body dissatisfaction in women beyond young adulthood, and what trends have there been over time? Second, what are the consequences of body dissatisfaction for health and well-being among older women? Third, what are the determinants of dissatisfaction at different stages of the life span that may be relevant in explaining midlife dissatisfaction? A life course perspective will be considered in this third goal, and since this perspective is a new framework for the study of body image, identification of gaps in the literature is inevitable.

Prevalence and time trends

Body dissatisfaction is often described as 'normative' among women in contemporary western society (Rodin et al., 1985). This position has emerged primarily from research with adolescent and young adult samples, which invariably reports that a large proportion, if not a majority, of these girls are dissatisfied (Kostanski & Gullone, 1998; Tiggemann, 1992; Wardle & Beales, 1986). Furthermore, dissatisfaction is increasingly documented among female children (Ambrosi-Randic,

2000; Ricciardelli & McCabe, 2001), attesting to the early emergence of this discontent. Research on body image beyond young adulthood is more limited, and its conclusions are less consistent. Several studies indicate less body dissatisfaction among older women relative to younger women (Franzoi & Koehler, 1998; Pliner et al., 1990; Reboussin et al., 2000; Tiggemann & Stevens, 1999). However, other research has found an increase in body dissatisfaction with increasing age among females aged 7 to 65 (Guaraldi et al., 1995), and 17 to 40 (Altabe & Thompson, 1993). A further study (Allaz et al., 1998) found that 62% of a sample of women over 65 wanted to lose weight, a value comparable with that obtained in younger samples (Kostanski & Gullone, 1998).

Widespread body dissatisfaction is inextricably tied to what type of body is considered 'attractive' at a given time, and insight into body dissatisfaction among middle-aged and older women can be gained from looking at changes in the 'standards' of beauty over time. It is widely accepted that the ubiquitous images of ultra-thin women in western media, by conveying the message that beauty is equated with thinness, serve as the primary source of dissatisfaction felt by most women about their bodies. Today's cultural 'ideal' defined by these images is very thin, and researchers have attempted to quantify changes in this 'ideal' by tracking the body dimensions of female fashion models over time. Classic research in the eating disorder literature documented a steady decline in body size and curvaceousness of the 'ideal' over the course of the 1960s and 1970s, a trend which paralleled a steady increase in the population weight norms for young women (Garner et al., 1980). Thus the gap between 'actual' and 'ideal' was widening over this period, a trend believed to underline the 'normative discontent' described in the 1980s (Rodin et al., 1985). During the 1980s and 1990s, the body size of models was essentially constant (Katzmarzyk & Davis, 2001); however, the prevalence of obesity has risen and continues to rise strongly (Ledoux & Rivard, 2001; World Health Organisation, 2001). Thus, although the 'ideal' may not be changing, the actual–ideal gap may well continue to increase. Furthermore, this 'ideal' remains underweight by normative guidelines (i.e. body mass index below 18.5 kg/m2), and is therefore an unrealistic

pursuit for most women. Among American women, for example, less than 4% have a body size that is comparable to these models (Kuczmarski et al., 1997). The 'thin ideal' is widely believed to have emerged in the mid-1960s with media images of 'Twiggy', and therefore it is important to emphasize that the cohort of women currently entering middle age has been exposed to these unrealistic images for much of their lifetime (i.e. since adolescence).

Studies comparing body dissatisfaction in women of different age groups are typically cross-sectional in nature. Thus it is difficult to determine whether findings reflect cohort effects (i.e. impact of values and attitudes unique to one's generational group), period effects (i.e. impact of time-specific sociocultural context), or maturational effects (i.e. impact of age-related changes in attitudes and values). Women of different age groups may resemble one another in contemporaneous cross-sectional surveys of body dissatisfaction simply because they are all living in an environment that emphasizes a slim body. They may differ from one another due to cohort-specific values, attitudes, and experiences, or due to maturational changes that are independent of one's birth cohort.

In terms of a cohort effect, a qualitative study found that older women (aged 61 to 92 years) expressed a preference for women's bodies that were larger and more rounded than the cultural model of beauty espoused today (Hurd, 2000). The author suggested that older women hold standards of beauty that are more in keeping with standards that existed when they were growing up (i.e. that are unique to their birth cohort), than with contemporary standards. Alternatively, this could reflect a shifting ideal in response to one's own changing body shape. Age differences in body dissatisfaction have also been attributed to cohort effects in other studies (Lamb et al., 1993); however, convincing empirical support for this type of effect is limited due to the lack of research following different age groups of women over a lengthy period of time. The Women's Health Australia project (Brown et al., 1999) looks promising in this regard.

Evidence for an age-independent period effect is strong. First, in contrast to qualitative research cited above, another study found different generations of women to espouse similar 'ideals' for body size (Tiggemann, 1992). This suggests that, regardless of age, women are aware of and perhaps aspire to today's standard of beauty. Furthermore, results from two studies indicate that when older women are asked about their current and past diet and weight loss behaviours, they indicate higher use of these tactics currently (i.e. when social pressures for thinness are high) than when they were adolescents (i.e. when thinness was less strongly valued). Rosenzweig and Spruill (1987) studied a sample of 159 women (mean age 38 years) in the mid to late 1980s, when social pressures for thinness were quite strong. They found women were more likely to report current and more frequent use of diet pills, diuretics, and laxatives at this time than when they were at school or college during the early 1960s, just prior to the emergence of 'Twiggy'. Similarly, Hetherington and Burnett (1994) found that among an elderly sample of 65 women who reported dieting, most had started between the ages of 40 and 50, which corresponded to the late 1960s, the time period when a thin body first became popular. Very few women had dieted in their teens or twenties during the pre-Twiggy era. Since weight loss behaviours in these women emerged—having been absent before—in a social climate characterized by a slim ideal and social sanction of dieting, these studies suggest an influence of the sociocultural climate in the onset of behaviours related to body dissatisfaction, which is independent of age.

Evidence for maturational changes in body dissatisfaction is also compelling. Cross-sectional research across a sample of 334 women and 305 men aged 10–79 documented a decrease in the self-reported importance of appearance with increasing age (Pliner et al., 1990). In addition, weight concern was found to be inversely correlated with self-esteem among 30–49-year-old women, but uncorrelated with self-esteem among women over 50 (Tiggemann & Stevens, 1999) suggesting that even if women over 50 report weight concern, it may be less central to their self-esteem and therefore less distressing. Another study (Rand & Wright, 2000) found that the range of body sizes chosen as 'acceptable' increased with age, such that middle-aged adults

were the most tolerant of bodies that did not resemble the cultural ideal. Finally, qualitative research indicates that some women adopt more relaxed attitudes towards their body during middle and late adulthood. For example, they view weight gain as an inevitable part of ageing, or something that is no longer their responsibility (Hurd, 2000; Tunaley et al., 1999), or feel that at their age they deserve to be free to eat what they like and to ignore appearance-related pressures imposed by spouses and others (Tunaley et al., 1999).

Distinguishing the relative impact of age and current context is difficult because of the virtual absence of research which allows for the teasing apart of such effects, such as comparable longitudinal studies of women from different birth cohorts during different eras. However, in an interesting pair of studies, Heatherton and colleagues (Heatherton et al., 1995; Heatherton et al., 1997) attempted to tease apart these effects by comparing eating disorder symptoms across a 10-year period in both a cross-sectional and longitudinal manner. Specifically, these authors examined self-reported symptoms among samples of (a) women and men in 1982 when they were in college, (b) those women and men from 1982 who agreed to participate again in 1992 (now approximately 30 years old), and (c) college-aged women and men in 1992, comparable to sample (a). Body dissatisfaction was expressed as a desire for weight loss. There was both a cross-sectional decrease (i.e. fewer college-aged women desiring to lose weight in 1992 relative to 1982), and a longitudinal decrease (i.e. women who desired to lose weight in 1982 were less likely to report this ten years later in 1992). The magnitude of the longitudinal decrease was larger than that of the cross-sectional decrease. Coupled with evidence that the 'ideal' has not changed appreciably over this time period (Katzmarzyk & Davis, 2001), this provides some evidence for an independent age-related decline in this behaviour.

In summary, research generally suggests that middle-aged and older women are slightly less likely to report body dissatisfaction than younger women. This appears to reflect maturational changes in attitudes toward the body and thinness, coupled with some 'protection' offered among older women (i.e. age 65 and older) by having grown

up in an era when standards of beauty were larger and more womanly. However, the prevalence of dissatisfaction among middle-aged and older women is still high, and in general women from these earlier born cohorts are acutely aware of contemporary standards of attractiveness and means of attaining them. Furthermore, the cohort of women now entering middle-age have experienced a thin ideal since adolescence, and therefore we may well expect a constant or even increasing prevalence of body dissatisfaction among women of this age group, since such lifelong exposure may overwhelm any protective maturational effect.

Health consequences

Body dissatisfaction in middle-aged women has effects on health and well-being. Body dissatisfaction has been linked with greater depressive affect, lower overall quality of life, fewer pleasant feelings (e.g. energetic, happy, upbeat), and more unpleasant feelings (e.g. fatigued, tired, worn-out) among a sample of women aged 35–75 (Reboussin et al., 2000). It has also been associated with diminished sexual interest and sexual activity, and less enjoyment of sex (Fooken, 1994). Body dissatisfaction has been associated with marital dissatisfaction, independent of the woman's body size (Friedman et al., 1999). Importantly, the direction of causality in these latter relationships is not clear: if a woman who is dissatisfied with her body is reluctant to engage in physical intimacy, it is easy to see how this could place strain on the sexual/marital relationship. Alternatively, in the case of a relationship that is already strained, a woman may begin to feel undesirable and consequently develop dissatisfaction with her body or appearance.

Also, body dissatisfaction may adversely influence health behaviour. The related construct of social physique anxiety (Hart et al., 1989)—anxiety about having one's body evaluated by others—has been linked with lesser involvement in physical activity among postmenopausal women, independent of percentage body fat (Ransdell et al., 1998). The explanation is that a woman who is dissatisfied with her body may be reluctant to exercise in public or in circumstances where she must wear revealing

clothing (such as a swimsuit). As smoking cessation is linked with weight gain, body dissatisfaction has been cited as one reason why women are reluctant to stop cigarette smoking (King et al., 2000), notwithstanding the far more negative health consequences of failure to quit. Body dissatisfaction is also linked with unhealthy weight loss tactics and disordered eating among older women just as in younger ones (Allaz et al., 1998). Finally, body dissatisfaction may influence women's medical decisions at menopause. Women have cited perceived cosmetic benefits and anti-ageing effects of hormone replacement therapy as important reasons for choosing or not choosing this therapeutic option at menopause (Fauconnier et al., 2000; Hunter et al., 1997). Thus there are several reasons to consider body dissatisfaction an important health issue for women across the life span.

Determinants of body dissatisfaction across the life span

This section considers the correlates of body dissatisfaction and how they might be involved in dissatisfaction at midlife. Following a discussion of 'age-independent' factors (i.e. factors whose influence is not restricted to a particular age period), the developmental spectrum and correlates of body dissatisfaction that are associated with particular periods in the life course are considered. Enduring, cumulative, or interactive effects will be highlighted where research exists to support such pathways.

Age-independent risk factors

Gender. Particularly when expressed as a desire to lose weight, body dissatisfaction is more prevalent among women than men. This female preponderance becomes apparent at about eight to ten years of age (Ricciardelli & McCabe, 2001) and remains evident across a wide age span. Women have also been shown to accord greater importance to appearance and weight control than men regardless of age (Pliner et al., 1990). Using cross-sectional data, one study found that the gender gap in body dissatisfaction was smaller among older adults (mean age 74 years) than among

young adults (mean age 19 years) (Franzoi & Koehler, 1998). However, another study reported that the gender difference remained constant across a 10–74-year-old sample (Pliner et al., 1990) with women consistently feeling less satisfied with their appearance. Longitudinal research suggests that women gain more weight with age than men across 11 years (Heitmann & Garby, 1999) and 25 years (Stevens et al., 1991) in adulthood (based on individuals who were in their thirties at baseline). Since higher weight is associated with greater body dissatisfaction in women (see below), it is perhaps most likely that the female preponderance of body dissatisfaction will remain constant or even increase with increasing age. In any case, it seems clear that being female places one at a disadvantage in terms of body dissatisfaction from childhood onwards, and this disadvantage does not subside with age.

Body size. Among women, perhaps the strongest predictor of body dissatisfaction is body size. In general, a higher body mass index is associated with greater body dissatisfaction, and this relationship has been consistently demonstrated from childhood through late adulthood (Allaz et al., 1998; Kostanski & Gullone, 1998; Mendelson et al., 1995; Pingitore et al., 1997; Reboussin et al., 2000). Although overweight women are perhaps at greatest risk for body dissatisfaction at any age, a substantial number of normal weight women are dissatisfied, although within the normal weight range, a heavier woman is likely to be more dissatisfied than a lighter woman (Hetherington & Burnett, 1994). Notably, the small percentage of women who report being satisfied with their bodies are typically underweight (body mass index less than 20 kg/m2), and even among these underweight women, several (up to 10%) report a desire to lose weight (Green et al., 1997; Ledoux & Rivard, 2001).

This negative consequence of being or feeling 'overweight' appears to accumulate over time, such that the longer an individual has been overweight, the worse her body dissatisfaction will be. Research indicates that women whose overweight or obese status emerged in childhood have more body dissatisfaction in adulthood than those whose overweight or obese status emerged in adulthood (Grilo et al., 1994; McLaren & Gauvin, in press). And, the earlier the onset of obesity, the worse the adult body image, even controlling for adult body mass index (Wardle et al.,

in press). Thus, overweight status during childhood appears to be one early predictor of adult body dissatisfaction.

Social and cultural context. Highlighted earlier in this chapter, the contemporary western sociocultural climate is characterized by strong pressure for women to be thin. Ubiquitous media images of very thin women convey this message. Studies have demonstrated that greater exposure to media representations of the thin ideal—whether through experimentally manipulated exposure to slides of thin, versus average or oversize, models (Irving, 1990) or through high self-reported frequency of reading fashion magazines (Field et al., 1999)—is linked with increased body dissatisfaction. Furthermore, coupled with the pressure for women to be thin is the societal aversion to fatness. Studies using primarily young samples have shown that fat people are judged more negatively and attributed more negative character traits than thin people (Shapiro et al., 1997; Wardle et al., 1995). In addition to thinness being equated with beauty for women in western cultures, research shows that physically attractive people are judged as possessing more positive qualities (Cash, 1990) and are treated more positively (Langlois et al., 2000) than unattractive people. In such a context, 'normative' body dissatisfaction, typically in the direction of wanting to become thinner, is hardly surprising.

Individual characteristics. Individual attributes can help explain which individuals are more or less vulnerable to ubiquitous sociocultural factors. Body dissatisfaction is associated with high neuroticism in young samples (Davis et al., 1996), and with low self-esteem, in both young and middle-aged women (Kostanski & Gullone, 1998; Rackley et al., 1988). Young women who endorse feminine gender roles have shown more negative appearance evaluation (Davis et al., 1996), and endorsement of non-traditional or feminist values has been associated with less weight concern among young samples (Dionne et al., 1995) and among 30–49-year-old women (Tiggemann & Stevens, 1999). To the extent that individual characteristics remain stable across the life span, they may provide baseline protection from, or vulnerability to, the impact of other stressors. For example, women with high

neuroticism or low self-esteem may be more likely to experience body dissatisfaction at periods of rapid weight gain such as puberty or pregnancy.

Race. 'Race' is a difficult variable to consider. Increasingly, social science research recognizes that 'race' has little biological foundation, and typically a great deal of variation is detected within racial groups; issues that underline the question of what 'race' is really tapping. Nonetheless, some patterns have emerged from the work that has examined racial differences in body dissatisfaction, mostly pertaining to the differences between White and Black or African American women.

Comparisons of Black and White women within western societies generally indicate that for any given weight, Black women report less body dissatisfaction than White women. This finding has been demonstrated in women ranging from adolescence (Story et al., 1995) through middle-age and beyond (Reboussin et al., 2000; Stevens et al., 1994). Furthermore, Black women are less likely than White women to diet during puberty, after pregnancy, and during menopause, periods which are considered 'high-risk' for body dissatisfaction among White women due to their potential for weight gain (Striegel-Moore et al., 1996). Among Black women, this lower prevalence of body dissatisfaction coupled with higher prevalence of overweight (Flynn et al., 1998) has led to the suggestion that these women experience cultural norms that are more permissive of larger body sizes and that place less importance on thinness in women (Flynn & Fitzgibbon, 1998; Kumanyika et al., 1993). In line with this hypothesis, White women express more negative social pressure about their weight than Black women (Striegel-Moore et al., 1996), White women express more negative attitudes toward overweight than Black women (Thompson & Sargent, 2000), and Black girls perceive less concern about weight from their family and friends than White girls (Adams et al., 2000). This suggests that the more relaxed attitudes towards weight seen in Black girls emerge early on and are maintained throughout adulthood. Research on body dissatisfaction in other racial groups is limited, particularly from a life course perspective, and will not be discussed here.

Social class. Body size is socially stratified for women in developed countries, with a larger average body mass index and a higher prevalence of obesity found in lower than in higher social class groups (Sobal & Stunkard, 1989). In general, body dissatisfaction is positively associated with social class, with girls and women of higher social class more likely to report body dissatisfaction, weight concern, and attempts at weight loss (Drewnowski et al., 1994; Jeffery & French, 1996; Ogden & Thomas, 1999; Wardle & Griffith, 2001). Exceptions to this pattern exist but appear to be few (Stevens & Tiggemann, 1998; Story et al., 1995). A positive relationship between social class and body dissatisfaction is consistent with the epidemiological transition in the social distribution of body weight: as overweight and obesity become common among the lower class, a thin body becomes a mark of affluence or social distinction (Wilkinson, 1996). From this theoretical perspective, it is the wealthy in developed countries who will aspire to be thin, and in turn be most distressed by a discrepancy between their own body and that of the ideal (i.e. experience the most body dissatisfaction).

Low-income women have been found to be both less attentive to their weight and more tolerant of weight gain than high-income women, independent of body mass index (Jeffery & French, 1996). Also, higher social class individuals appear to be more interested in their weight as indicated by more regular weight monitoring than lower social class individuals, controlling for body mass index (Wardle & Griffith, 2001). In terms of negative attitudes toward fatness, one study found these attitudes to be more prevalent among girls from higher-class schools (Shapiro et al., 1997); however, another study found negative attitudes to be more prevalent among adolescents from a lower-class school (Ogden & Thomas, 1999), controlling for participants' body size. Thus, low social class women may be less interested in their weight, but they do not necessarily hold more positive attitudes toward larger body sizes than high-income women. Alternatively, it may be that attitudes toward fatness are being diffused down the social hierarchy and thus relationships between social class and attitudes are going through a transition, accounting for the mixed findings. A 'cultural' explanation for social class differences in obesity (Jeffery & French, 1996) asserts that lower social

class women hold different standards of physical attractiveness; however, research has found that high and low social class women do not differ in their 'ideal' body size (Jeffery & French, 1996; Wardle & Griffith, 2001). This suggests that women acknowledge the same standard for female attractiveness regardless of social class. All of these studies implicitly consider social class to be a stable attribute, and research on social mobility and body image is lacking.

An emerging hypothesis is that the social or material–physical climate in which low-income women live is less conducive to body dissatisfaction. Research has documented a relationship between the affluence of one's local living environment (i.e. neighbourhood) and body dissatisfaction: for a given body mass index, high affluence neighbourhoods have a higher proportion of women reporting body dissatisfaction than low affluence neighbourhoods, independent of women's individual income (McLaren & Gauvin, 2002). This contextual effect suggests that affluent neighbourhoods have certain features that promote body dissatisfaction; examples might include easy availability of fashion magazines, weight-loss centres or gyms that emphasize physical appearance and diet food products. It also suggests that the impact of these environmental features is independent of individual-level 'risk factors' including social class and body size.

Summary—age independent factors

Against the backdrop of a society that values thinness in women, it is generally true that regardless of age, larger women are more likely to be dissatisfied with their bodies, and the negative impact of overweight appears to endure, or even to accumulate, over time. For women of any weight, the likelihood of dissatisfaction is greater for Caucasian women, and for women from higher social classes. Particular personality characteristics, as well as the amount of exposure to sociocultural ideals through western media channels, may further modify vulnerability to dissatisfaction.

Determinants across the life span

Against the backdrop of factors operating at all life stages discussed above, we will now consider determinants of body dissatisfaction that exert their effects during particular developmental periods as well as, where applicable, their enduring effects for dissatisfaction later in life.

Childhood. Throughout the early years, the parents are a primary influence on children's developing body image. Parents' own weight-related concerns may influence their child's body image; for example, one study found that mother's investment in her own thinness, father's complaints about his own weight, and father's own dieting all predicted more negative body esteem in their children (Smolak et al., 1999). In addition, daughters have been found to resemble their mothers in terms of body dissatisfaction (Rozin & Fallon, 1988), suggesting that some modeling of dissatisfaction may occur. Girls who believe that their parents think they are overweight have been found to experience reduced satisfaction with their appearance (Walsh Pierce & Wardle, 1993). Girls who believe that it is important to their parents that they are thin were found to be more likely to become weight-concerned over a one-year period of study (Field et al., 2001). Importantly, mothers may also be a source of positive body image development in their daughters (Rieves & Cash, 1996), for instance by modeling body acceptance and positive appearance evaluation. The enduring impact of early parent variables (positive or negative) on later body dissatisfaction is not known, but a lasting effect of these important early influences is certainly plausible.

An increasing amount of research—typically retrospective in nature—has documented the adverse impact of body-related comments or teasing on children's body esteem. Mothers' comments, positive or negative, about their child's weight have been found to be associated with negative body esteem in the child, particularly for daughters (Smolak et al., 1999). A self-reported history of teasing has been associated with greater body dissatisfaction among children (Gardner et al., 1997), and a history

of weight/size-related teasing appears to be more damaging to body esteem than general appearance teasing (Thompson & Heinberg, 1993). One study reported that teasing from family members (particularly brothers) was more damaging than teasing from peers (Collins, 1996), although teasing from both sources undoubtedly carries very negative consequences for some women. Among adult women, retrospective research indicates a potentially long-term adverse impact of teasing: women with poor body esteem in adulthood are more likely to recall criticism of their appearance and weight-related teasing in childhood than women with positive body esteem (Rieves & Cash, 1996; Schwartz et al., 1999; Thompson & Sargent, 2000).

Children may be involved in extra-curricular activities that are more or less conducive to body dissatisfaction. Competitive environments emphasizing weight and appearance are believed to be particularly detrimental; ballet class has perhaps been most widely studied and has consistently been associated with heightened prevalence of eating disturbance (Abraham, 1996; Bettle et al., 1998; Garner et al., 1987). On the other hand, a meta-analysis found that involvement in some sport contexts might be protective against the development of eating problems. Specifically, girls and women involved at the non-elite level in sports that do not emphasize a thin body type (for example, basketball or volleyball as opposed to gymnastics or long-distance running) appear to be at less risk than non-athletes of developing eating problems including body dissatisfaction (Smolak et al., 2000). Since parents may determine their child's activities, the nature of these extra-familial activities will in turn reflect attitudes and values of the parents, and family circumstances such as social class will dictate the accessibility of various activities.

Adolescence. With its dramatic physical, psychological, and social sequelae, the event of puberty is perhaps the most plausible trigger for body dissatisfaction, and is certainly the developmental period most often studied. Girls gain a substantial amount of weight at puberty, much of which is fat (Graber et al., 1999), and this weight gain inevitably represents a movement away from the androgynous body shape of childhood that societal messages indicate is attractive. Thus it is not surprising that

'normal development' is generally a negative experience for girls, a comment substantiated by the dramatic increase in prevalence of body dissatisfaction from pre-pubescence (e.g. 34%) to post-pubescence (e.g. 76%) (Thompson & Chad, 2000). Some studies indicate that the experience of a puberty that is early relative to one's peers is associated with worse body esteem and more disordered eating (Swarr & Richards, 1996), however not all studies have found this association (Stormer & Thompson, 1996). A link between early maturation and body dissatisfaction may be due to body size differences, since girls who experience an early menarche are, on average, larger before puberty than girls who experience an on-time or late puberty (Collins, 1996).

Changes in the nature of social interaction at adolescence are an important precursor to body dissatisfaction. Peers have been found to influence eating disorder symptoms both by modeling particular behaviours and by discussing body concerns (Levine et al., 1994), although one study found that the importance of thinness to peers was not related to girls' development of weight concern (Field et al., 2001). Heterosexual interaction may be a particularly important type of peer influence. Girls who believe that boys will like them more if they are thin showed poorer body image in one study (Oliver & Thelen, 1996). Also, adolescent girls identified as being at increased risk for disordered eating were more likely to be involved in social situations where boys were present, and were more likely to report being physically involved with a boyfriend (Cauffman & Steinberg, 1996). The impact on body concern may be particularly negative among those girls for whom onset of dating and puberty occur synchronously, based on a significant interaction effect found by Levine and colleagues (Levine et al., 1994).

In the absence of research indicating whether events at adolescence affect later body dissatisfaction, two observations can be made. First, since individual differences in physical and emotional maturity are particularly salient during adolescence, events during this period may have an acute impact on body dissatisfaction that diminishes when differences even out (for example, when other girls have 'caught up'). From this

perspective, determinants of adolescent body image would not be expected to have any enduring effect. Second, given that adolescence marks the initiation of the 'adult' body, it is possible that one's body image and events that precipitated its development are important indicators of dissatisfaction later in the life span. In this latter context, a longitudinal examination of the lasting impact of these factors at adolescence is an important task for future research.

Early adulthood. A woman's spouse or partner may become a primary source of body-related and appearance-related social feedback in early adulthood and beyond. The physical appearance of a wife has been hypothesized to be more important to a relationship—in terms of husband commitment and quality and quantity of sexual relations—than the physical appearance of the husband (Blumstein & Schwartz, 1983). Further, research has found that men but not women exposed to photographs of physically attractive, versus average-looking, members of the opposite sex rated their current partner as less attractive and reported less love for them (Kenrick et al., 1989). This supports the position that physical appearance in a partner is more important to men than to women. Another study (Ogden & Taylor, 2000) found that within heterosexual couples, the men were more dissatisfied with their partners' body than the women were with the man's body. This suggests that men do not only value physical appearance in relationships more so than do women, but they are also more likely to evaluate this aspect of their partner negatively. Giesen (1989) found that single women were more likely than married women to believe they were becoming more attractive with age. On the other hand, women who are satisfied with their marriage are also likely to report satisfaction with their body (Friedman et al., 1990), indicating that the partner can also be a source of positive social feedback. The extent to which a romantic partner instils dissatisfaction (or satisfaction) where it previously did not exist or simply reinforces existing satisfaction or dissatisfaction is not known. Furthermore, to our knowledge, research examining the role of lesbian partners on women's body dissatisfaction is non-existent.

Pregnancy, with its concomitant changes in body size and shape, carries much potential to influence body dissatisfaction. Research results on body image in pregnancy and the postpartum have been mixed, with the use of both quantitative and qualitative methods contributing to the complexity of findings. Some studies document increased body satisfaction in pregnant women, as though pregnancy 'legitimizes' a large body and weight gain (Clark & Ogden, 1999; Davies & Wardle, 1994). Other research has found decreased body satisfaction during pregnancy (Fox & Yamaguchi, 1997), and postpartum (Jenkin & Tiggemann, 1997). Changes in body image during pregnancy have also been found to depend on prepregnancy weight status, with overweight women reporting an increase in satisfaction and normal weight women reporting a decrease in satisfaction during pregnancy (Fox & Yamaguchi, 1997). Still other research has demonstrated considerable stability in women's orientations to their body weight across pregnancy and the postpartum (Devine et al., 2000). A possible explanation for dissatisfaction during pregnancy is offered by Davies and Wardle (1994) who found that women maintained their view of what constituted an 'ideal' body throughout the pregnancy transition, despite a significant change in their 'actual' body size. Negative attitudes by men regarding their partners' pregnancy weight were found to be rare in one study (Davies & Wardle, 1994), suggesting that women's potential body image concerns during this event are not unduly influenced by negative social feedback from their intimate partners.

The middle years. As women age, their body becomes further removed from the 'ideal' in many respects—size, shape, composition, colouring, and texture. In the light of the thin, youthful standard of beauty, these normal changes may be among the most important determinants of body dissatisfaction in middle-aged and older women. The impact of this developmental period on women is likely to be more detrimental than for men as indicated by the widely cited 'double standard of ageing' whereby physical ageing is believed to be judged more harshly in women than in men (Berman et al., 1981). There may be an acute effect of the menopause on women's body dissatisfaction: one study found substantially higher social physique anxiety among perimenopausal women (i.e. age 45–54 years) than among older women (McAuley et

al., 1995). Body-related comments from husbands may still be important contributors to dissatisfaction, although qualitative research suggests that some women feel less distressed by such comments as they get older (Tunaley et al., 1999). One study found that middle-aged women who felt less in control of their lives were less satisfied with their bodies (Rackley et al., 1988).

In general, research on the determinants of body dissatisfaction at midlife is limited. As mentioned earlier, women who are now entering middle age were teenagers when the 'thin ideal' first became popular (the mid-1960s), and these women have thus been exposed to a lifetime of unreasonably thin beauty ideals. Against the backdrop of this sociocultural trend, it is reasonable to hypothesize that body dissatisfaction will become more common among women in their middle years.

Conclusions

Body dissatisfaction arises from a confluence of factors. The biological (e.g. body size), psychosocial (e.g. self-esteem), and social/interpersonal (e.g. parental influence, ongoing social feedback, body-related teasing) operate in interaction with developmental events (puberty, pregnancy, menopause) and developmental trends (e.g. increase in weight with age) within a particular context (sociocultural standards for attractiveness). Although empirical evidence for long-term pathways is lacking, particular events and characteristics evident at earlier life stages may contribute to dissatisfaction at midlife.

It was shown, retrospectively, that a large body size and body-related teasing during childhood predicted body dissatisfaction in adulthood. It is possible that these early influences have an enduring impact on body dissatisfaction; for example, a woman who is overweight during early life and then loses weight may retain a poor body image from her earlier overweight period. Alternatively, the pathway underlying midlife dissatisfaction may show less continuity: for example, the aforementioned woman who loses weight may experience an improvement in body image following

weight loss. Two studies indicate reasonable continuity in body image across adulthood (Joiner et al., 1997; Rizvi et al., 1999), although these studies are limited to ten and six years' duration, respectively. Extent of continuity or change assessed prospectively over a longer time period is not known.

Any life span pathway is likely to show evidence of social patterning. Body dissatisfaction is less common among lower social class and non-White women, and these social groups appear to value thinness less. A young White girl from a higher social class background is likely to grow up in an environment characterized by social pressure for thinness, with parents who diet or who are concerned about their weight. This social environment is probably maintained throughout development within peer groups and romantic relationships, emphasizing a lifelong social environment in which risk factors for body dissatisfaction are both more prevalent and more powerful among White, middle and upper class girls and women. This social class patterning is likely to be continued in an intergenerational manner, although it may change as a function of social mobility.

As is evident from the speculative nature of these pathways, research that directly examines the influence on longer-term trajectories is lacking. Presently, within the context of the Medical Research Council National Survey of Health and Development (Wadsworth, 1991; Wadsworth & Kuh, 1997), we are working towards the development of a more coherent life course model of body dissatisfaction. Being a long-term, prospective cohort study of a nationally representative sample of British individuals, this survey provides the unique opportunity to examine midlife health outcomes as a function of lifelong developmental trajectories. Data on body dissatisfaction and its functional consequences are being collected among the female survey members, currently in their mid-fifties. With these data, we plan to evaluate the viability of the life course framework that shaped this chapter.

Commentary on 'Body image: a life course perspective'

J. Kevin Thompson

The field of body image has experienced a rapid growth over the past 10–15 years (Thompson et al., 2001). Once a topic of interest primarily of researchers and clinicians interested in the study of eating disorders, body image issues are now examined routinely in men and women of diverse ethnicities, ages, avocations (gymnasts, dancers, runners, weightlifters, etc.), and sexual orientation. Indeed, appearance concerns once confined supposedly to adult White women in western societies now appear in much younger ages and across a variety of individuals regardless of ethnic or cultural background (Thompson & Smolak, 2001). The time could not be more appropriate for a new theoretical perspective to guide future research in the area of body image.

Such a formulation is provided by McLaren and Wardle. In this excellent review and synthesis of the confusing field of body image research, these researchers succinctly review the essentials related to prevalence and health consequences, then provide an integration of research using the life course perspective. This reformulation of a vast array of studies into sections on age-independent risk factors and determinants across the life span forms the framework and analysis that may guide much future research. Factors that appear to produce or perpetuate body image problems at all life stages include: social class, ethnicity, individual dispositional variables (i.e. self-esteem), social/cultural context, body size, and gender. Some factors or 'determinants' appear to operate uniquely to affect body image at a certain developmental period. For instance, appearance-related feedback (i.e. teasing) may operate selectively or predominantly during the childhood years. Peers and menarcheal development may have unique effects on adolescents. Partners, spouses, and the role of pregnancy on body image may play a large role for young adults. Menopause may affect women of the middle years.

This chapter identifies particular factors associated with body image problems at unique age periods and reviews some of the few findings indicative of a prospective prediction from one epoch to another (such as body size and teasing). It speculates on additional pathways, such as social patterning (i.e. some individuals of a higher social class may encounter and experience familial and peer group appearance pressures throughout life). Although there is actually very little prospective work currently available to draw on, the authors manage to articulate clear cut ideas for future such investigations. Importantly, they also review two ongoing studies—the Medical Research Council National Survey of Health and Development (Wadsworth, 1991; Wadsworth & Kuh, 1997) and the Women's Health Australia project (Brown et al., 1999)—that should reveal relevant data in the near future.

Additional studies might consider evaluation of theoretical models for body image and eating disturbance (applied to the prediction of body image problems) tailored for females, or perhaps males, of various life stages. Some of these multivariate models were reviewed by Stice (2001) and include Levine and Smolak's cumulative stress model, Heatherton and Polivy's spiral model, Stice's dual pathway approach, and Thompson *et al.*'s tripartite influence (peers, parents, media) and two-part mediational (internalization of the 'thin ideal' and appearance comparison) model of body image development. Such models might be tested cross-sectionally using regression or covariance structure modelling, yielding information regarding unique predictors of body image for different life stages.

Future reviews will probably view this chapter as the primary impetus for an examination of body image from a life course perspective. The authors present the theory, examine the quantitative and qualitative data, explain the methods, and offer a heuristic guide for the work. Body image researchers take note: the next stage of body image research is the life course perspective.

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Appendix 2

Body Dissatisfaction Questionnaire Items

This year we are asking some questions about body weight and shape (questions 40 to 55). While some women may not feel these things are important in their lives or spend much time thinking about them, others have strong feelings and think about them a lot. We hope you will be willing to answer these questions which follow on the next page.

40. How much do you currently weigh?

___ kgs or

___ lbs or

___ stones ___ lbs

41. Are you happy with your body weight or would you like to weigh less or more than you do?

	(circle one)
Happy with current body weight *(go to Q45)*	0
Would like to lose a little weight	1
Would like to lose a lot of weight	2
Would like to gain a little weight	3
Would like to gain a lot of weight	4

42. How much would you like to weigh?

___ kgs or

___ lbs or

___ stones ___ lbs

43. Are you actively trying to change or maintain ('watch') your weight?

	(circle one)
No *(go to Q47)*	0
Yes, trying to lose weight	1
Yes, trying to maintain ('watch') my weight	2
Yes, trying to gain weight	3

44. How are you trying to change or maintain your weight?

	(circle all that apply)
Through dietary changes	1
Through physical activity	2
Other (please specify)	3

_____

_____

45. Because of how you feel about your body weight or shape do you avoid:

	(circle a number for each example)		
	Often	Sometimes	Never
a) public changing facilities?	1	2	3
b) physical activities where others may see you?	1	2	3
c) wearing bathing suits or similar clothing?	1	2	3
d) social situations?	1	2	3
e) physical intimacy?	1	2	3

46. When you are anxious, depressed, bored or lonely do you eat more, less, or about the same as usual?

	(circle one)
Eat more	1
Eat less	2
Eat about the same as usual	3

47. Does your husband or partner make **negative** comments about your body weight or shape?

	(circle one)
No	0
Yes, occasionally	1

Yes, frequently	2
Yes, all the time	3
No husband or partner	8

48. Does your husband or partner make **positive** comments about your body weight or shape?

	(circle one)
No	0
Yes, occasionally	1
Yes, frequently	2
Yes, all the time	3
No husband or partner	8

49a. When you were growing up did people make **negative** comments or tease you about your body weight or shape?

	(circle one)
No *(Go to Q52)*	0
Yes, occasionally	1
Yes, frequently	2
Yes, all the time	3

49b. Who made these negative comments?

	(circle all that apply)
Mother	1
Father	2
Other family member	3
Children at school	4
Other (please specify)	5

50a. When you were growing up did people make **positive** comments about your body weight or shape?

	(circle one)
No *(Go to Q52)*	0
Yes, occasionally	1
Yes, frequently	2
Yes, all the time	3

50b. Who made these positive comments?

	(circle all that apply)
Mother	1
Father	2
Other family member	3
Children at school	4
Other (please specify)	5

_____

51. How satisfied were you with your body weight/shape at each of these different ages? *(circle an answer for every age group)*

	Adolescence	20-29 yrs	30-39 yrs	40-49 yrs	since age 50
Very satisfied	1	1	1	1	1
Satisfied	2	2	2	2	2
Somewhat satisfied	3	3	3	3	3
Somewhat dissatisfied	4	4	4	4	4
Dissatisfied	5	5	5	5	5
Very dissatisfied	6	6	6	6	6

52. Please indicate how often you agree with the following statements.

(circle the appropriate number beside each statement)

		never	seldom	some-times	often	always
a.	I like what I look like in pictures.	1	2	3	4	5
b.	I am proud of my body.	1	2	3	4	5
c.	I am preoccupied with trying to change my body weight.	1	2	3	4	5

d.	I like what I see when I look in the mirror.	1	2	3	4	5
e.	There are lots of things I'd change about my looks if I could.	1	2	3	4	5
f.	I am satisfied with my weight.	1	2	3	4	5
g.	I wish I looked better.	1	2	3	4	5
h.	I really like what I weigh.	1	2	3	4	5
i.	I wish I looked like someone else.	1	2	3	4	5
j.	My looks upset me.	1	2	3	4	5
k.	I'm pretty happy about the way I look.	1	2	3	4	5
l.	I feel I weigh the right amount for my height.	1	2	3	4	5
m.	I feel ashamed of how I look.	1	2	3	4	5
n.	Weighing myself depresses me.	1	2	3	4	5
o.	My weight makes me unhappy.	1	2	3	4	5
p.	I worry about the way I look.	1	2	3	4	5
q.	I think I have a good body.	1	2	3	4	5
r.	I'm looking as nice as I'd like to.	1	2	3	4	5

53a. Is there any other aspect of your appearance that particularly distresses you?

No *(Go to Q54)*	0
Yes	1

53b. Could you tell me what that is?

_____

54. Have you ever had an eating disorder, such as ANOREXIA NERVOSA (extremely underweight, intense fear of gaining weight, and failure to recognise the seriousness of low body weight) or BULIMIA NERVOSA (regular bingeing i.e. eating an extremely large amount of food in a short period of time with a feeling of being out of control, AND purging to prevent weight gain, such as self-induced vomiting or laxative abuse)?

(circle all that apply)

No *(Go to Q56)*	0
Anorexia nervosa	1
Bulimia nervosa	2
Other (please specify:)	3

_____

55a. How old were you when you FIRST suffered from an eating disorder?

(*age in years*: _____)

55b. How old were you when you LAST suffered from an eating disorder?

(*age in years:*_____)

55c. Was your eating disorder ever diagnosed by a doctor?

(circle one)

Yes	1
No	0

55d. Were you ever admitted to hospital for your eating disorder?

(circle one)

Yes	1
No	0