

Body weight, body image and eating behaviours: relationships with ethnicity and
acculturation in a community sample of young Australian women

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Abstract

A study was conducted to investigate associations between ethnicity and acculturation status, and risk factors for eating disorders among young adult women. A community sample of 14,779 women aged 18-23 completed a comprehensive mail-out survey which incorporated questions on country of birth, length of time spent in Australia, body weight, weight dissatisfaction, dieting, binge eating and compensatory disordered eating behaviours. Results showed that risk factors for eating disorders were present across a range of ethnic groups. Further, a strong acculturation effect was observed, such that the longer the time spent in Australia, the more women reported weight-related values and behaviours similar to those of Australian-born women. Results challenge claims that risk factors for disordered eating are restricted to Caucasian females in Western societies. Implications for understanding ethnic and sociocultural influences on body weight, dieting and disordered eating are considered.

Keywords

Eating disorders, ethnicity, acculturation, women, sociocultural influences

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Body weight dissatisfaction, dieting for weight loss, and disordered eating were considered in the past to be largely restricted to Western societies, and particularly prevalent among Caucasian females (e.g., Nasser, 1988). For example, studies comparing weight and weight-related attitudes of black women with those of white Caucasian women have shown that, while black women tend to be heavier, and more likely to be overweight, they demonstrate lower levels of body weight dissatisfaction, dieting, and disordered eating than white women (Abood & Chandler, 1997; Abrams, Allen, & Gray, 1993; Dawson, 1988; Dolan, 1991; Edwards-Hewitt & Gray, 1993; Gray, Ford, & Kelly, 1987; le Grange, Stone, & Brownell, 1998; Rucker & Cash, 1992; Striegel-Moore, Wilfley, Caldwell, Needham, & Brownell, 1996).

Much of the research in this area to date has focussed on body weight and eating-related behaviours of African-American women in the United States. Few studies have examined these factors among different ethnic groups, and results of existing studies are contradictory. For example, while some studies have shown the prevalence of body weight dissatisfaction and disordered eating to be low in Asian women (Akan & Grilo, 1995; Buhrich, 1981; Chen & Swalm, 1998; Zhang et al., 1992), other studies of Chinese students in Hong Kong (Lee, 1993; Lee, Leung, Lee, Yu & Leung, 1996) demonstrated high levels of body dissatisfaction and strong desires for slimness amongst females. In a review of relevant case studies, Davis and Yager (1992) reported that disordered eating symptoms (including fear of fatness, drive for thinness, and distorted body image) among non-Caucasian populations (including Asian, Hispanic, African and Middle-Eastern groups) were similar to those reported by Caucasian women with eating disorders. Furthermore, some studies have reported

that rates of eating pathology, dieting and/or weight concerns among Asian, Indian or black women are actually higher than those of Caucasian women (Field, Colditz, & Peterson, 1997; Mumford, Whitehouse, & Platts, 1991; Robinson et al., 1996; Sjostedt, Schumaker, & Nathawat, 1998; Smith, Thompson, Raczynski, & Hilner, 1999; Striegel-Moore, Shrieber, Pike, Wifley & Rodin, 1995). While few comparative studies appear to have directly assessed these factors in subgroups of European women, findings of several studies indicate that the body weight, levels of weight dissatisfaction and disordered eating practices of European women are not dissimilar to those of women in the United States (e.g., Krch, 1995; Santonastaso, Zanetti, Sala, & Favaretto, 1996; Tordjman, Zittoun, Anderson, Flament, Jeammet, 1994). Findings of another recent study indicated significant eating disorder pathology among women of various ethnic origins in South Africa (Wassenaar, le Grange, Winship, & Lachenicht, 2000). Together, such findings challenge the assumption that eating disorders, dieting and weight concerns are characteristic of Western, Caucasian populations only.

Recently several studies have investigated “acculturation” effects on eating and weight-related factors in minority groups. Popkin and Udry (1998) examined patterns of obesity by generation of birth in adolescent immigrants in the United States. A strong acculturation effect was found for both Hispanic and Asian groups - children born in the United States of immigrant parents, were more likely to be obese than Asian or Hispanic children born outside the US. Similarly, Sundquist and Winkleby (2000) reported that both country of birth and acculturation status were significantly associated with abdominal obesity in Mexican-American men and women.

Lauderdale and Rathouz (2000) reported that among Asian Americans born outside the US, the longer the duration in the US, the higher the risk for overweight. Studies

have also reported evidence of comparable high levels of weight concerns or eating disorder symptoms for females of Asian minority groups and British females in Britain (e.g., Button, Reveley, & Palmer, 1998; Furnham & Patel, 1994; Hill & Bhatti, 1995; McCourt & Waller, 1995). However, evidence in this area is limited, and further research is necessary to clarify the extent to which Western acculturation and other factors impact on body weight dissatisfaction and eating practices in ethnic minority groups.

Little research has investigated ethnicity and acculturation effects on weight-related attitudes and behaviours in Australia. One study surveyed Hong Kong and Australian females from two Australian Universities about attitudes towards eating and body dissatisfaction (Lake, Staiger, & Glowinski, 2000). Australian females reported more dissatisfaction with their bodies. However, when the Hong Kong group was split into Western acculturised and traditional, the acculturised group reported lower scores on measures of pathological eating attitudes, with the traditional Hong Kong group reporting similar scores on the surveys compared with the Australian group. The reasons for these differences are unclear. Another study (Mildred, Paxton, & Wertheim, 1995) assessed risk factors for eating disorders in Anglo-Australian and Greek-Australian girls. Findings showed that, whereas some weight-related factors, such as pressure to eat and mother's shape, discriminated the two groups, other weight-related factors did not. It was suggested that this may have been due to cultural assimilation among Greek-Australian girls, although this could not be conclusively established. Associations between dieting, weight concerns and disordered eating, and length of time since immigration to Australia among other ethnic groups, remain largely uninvestigated.

The present study aimed to investigate the relationships between ethnicity and several aspects of eating and weight pathology, in a community sample of young Australian women. A second aim was to investigate acculturation effects by examining the association between duration of time since immigration, and degree of weight/eating pathology. It was hypothesised that women reporting longer time since immigration to Australia would report body weight, body weight dissatisfaction and eating behaviours more similar to those of Australian-born women. Since the importance of comparing multiple ethnic groups, rather than only Caucasians and non-Caucasians, on measures of weight concerns has been emphasized (Altabe, 1998), the present study included comparisons of Australian-born women with those of Asian, European and other descent.

Method

Participants

Participants were 14,779 young women (18-23 years) who took part in the Women's Health Australia (WHA) project, a nation-wide longitudinal study of factors impacting on women's health. WHA participants were selected randomly from the Australian national health care database, which includes all women who are resident in Australia, including immigrants and refugees. Participants were randomly selected, with over-sampling from rural and remote areas. Details of WHA recruitment methods and baseline surveys are described elsewhere (Brown et al., 1998). All women completed a baseline survey, assessing a broad range of women's health issues, in 1996.

Measures

The questionnaire included items assessing the following: demographic and ethnicity characteristics, weight, body weight dissatisfaction, dieting and disordered eating behaviours.

Demographic/Ethnicity Characteristics: Ethnicity was assessed with a question about country of origin (*in which country were you born? Australia, United Kingdom, Italy, Greece, New Zealand, Vietnam, other*). Responses, including all ‘other’ responses, were grouped into five categories: Australian-born; other English-speaking background (other ESB; e.g., USA, Canada, UK, Ireland, New Zealand); Asian countries; European countries; and other non-English speaking countries (other NESB; e.g., USSR, Middle East, Egypt). Year of arrival in Australia (*if you were not born here, when did you first arrive in Australia with the intention of living here for one year or more? 1975 or earlier, 1976-1985, 1986-1990, 1991 or later*) was used as a proxy indicator of acculturation status.

Body Mass Index: Questions on height and weight were used to calculate BMI (weight (kg) divided by height (metres)²).

Body weight dissatisfaction: Respondents were asked to indicate their level of weight dissatisfaction in the past month on 7-point Likert scales, from *0-Not at all* to *6-Markedly* (Fairburn & Beglin, 1994).

Dieting: Dieting behaviour was assessed with a question derived from French, Story, Downes, Resnick, and Blum (1995), “*How often have you gone on a diet (that is, limited how much you ate) in order to lose weight during the last year?*” (*Never, 1-4 times, 5-10 times, More than 10 times, I am always on a diet to lose weight*). For the present analyses this variable was dichotomised into yes/no responses.

Disordered Eating: Several questions adapted from the EDE-S (Beglin & Fairburn, 1992) assessed the presence of disordered eating behaviors. The first question assessed the presence of binge eating - “*Have there been times when you felt that you have eaten what other people would regard as an unusually large amount of food GIVEN THE CIRCUMSTANCES?*” (*Yes, in the past month; Yes, more than one month ago; Never*). This was followed by the question “*On how many days out of the last 28 have you had episodes like this when you have felt either unable to prevent them or unable to stop them once they had started?*” Responses were used to calculate the number of women reporting having ever binge eaten with a sense of loss of control. Four items assessed the presence of restrictive or extreme weight loss measures: “*Have you used any of the following to control your weight or shape?... Vomited on purpose after eating; laxatives; diuretics; fasting* (*Yes, in the past month; Yes, more than one month ago; Never*). The proportion of women reporting having ever used any of these behaviours was calculated.

Statistical Analyses

Descriptive statistics (frequencies, means), one-way ANOVAs and chi-square statistics were used to describe the relationships between ethnicity (country of origin), acculturation (years in Australia), and body weight, body weight dissatisfaction, dieting and disordered eating.

To further investigate the associations between acculturation status and eating and weight variables, a series of linear and logistic regression models were conducted for those eating and weight variables which were significantly associated with acculturation status in univariate analyses. These models predicted eating and weight variables using acculturation status as a predictor, and controlling for socioeconomic status (education level: School Certificate/no qualifications, Higher School Certificate, Trade/Diploma/Certificate, Degree/Higher Degree) and BMI where appropriate.

The proportions of women born overseas were relatively small in comparison to those born in Australia. To address the large discrepancies in sample sizes, analyses conducted on the full data set were subsequently conducted using only a randomly selected subset of 5% of the Australian-born women, retaining data from all other groups in full, to provide more comparable sample sizes.

Results

The mean BMI for the entire sample was 22.8 (SD=4.5), and the mean weight dissatisfaction score was 3.15 (SD=2.0). A total of 46.8% of the sample reported having dieted in the last year. The proportion of women reporting having ever binge eaten with a sense of loss of control was 20.2%, and the proportion reporting having ever used any compensatory behaviours was 30.6%.

Table 1 shows the ethnicity and acculturation characteristics of the sample. While the vast majority of the sample were Australian-born, approximately 10% were born overseas, with most migrating to Australia during 1976-1985.

Table 1 about here

Table 2 shows the means and percentages for BMI, weight dissatisfaction, dieting and disordered eating behaviours by country of origin. Significant associations were demonstrated between country of origin and BMI, weight dissatisfaction, and dieting in the past year. Post-hoc tests using a Bonferroni adjustment for multiple comparisons showed that women born in Asia had significantly lower BMI than all other groups, $p < .01$. Asian-born women also reported lower levels of body weight dissatisfaction than either Australian-born women or other ESB women, $p < .01$. Weight dissatisfaction was also lower among other NESB women compared with Australian-born women, $p < .01$. Relatively fewer Asian-born women (39%) reported having dieted in the past year, with around 45-50% of women in all other groups reporting that they did diet, $p < .01$. The use of binge eating and compensatory behaviours did not differ significantly across groups defined by country of birth.

Table 2 about here

The means and percentages for BMI, weight dissatisfaction, dieting and disordered eating behaviours by acculturation status (time in Australia) are shown in Table 3. With the exception of compensatory behaviours, significant associations were found between acculturation status and all of the weight and eating variables. Post hoc analyses with a Bonferroni adjustment demonstrated that Australian-born women had a higher BMI ($p < .01$) than all other groups except those migrating 1975 or before, who had similar BMI. Those migrating in 1975 or before also had higher BMI than those migrating in 1991 or later, $p < .01$. Weight dissatisfaction was higher among Australian born women than those migrating any time after 1986, $p < .01$; and lower among those migrating 1991 or later compared with those migrating 1976-85, $p < .01$.

Dieting and binge eating were reported by fewer women in the more recently migrated groups, particularly those migrating in 1991 or later, $p < .01$.

Table 3 about here

Those factors found to be significantly associated with acculturation status in univariate analyses were entered into regression models to test the prediction of weight and eating variables from acculturation status controlling for known influences on outcome variables. Table 4 shows results of the stepwise regression models predicting BMI (Model 1) and weight dissatisfaction (Model 2) from acculturation status. Since socioeconomic status is well known to be associated with BMI (Sobal & Stunkard, 1989), both models adjusted for socioeconomic status (assessed by education level). Model 2 also adjusted for BMI to investigate the effects of acculturation on weight dissatisfaction, independent of actual body mass. Results for the models showed that acculturation status added significantly to the prediction of both BMI, and body weight dissatisfaction, $p < .01$.

Table 4 about here

Table 5 presents the adjusted odds ratios from logistic regression models predicting dieting in the past year (Model 1); and ever binge eating (Model 2). Both models adjusted for effects of education and BMI. An acculturation effect was observed for dieting, such that women migrating after 1991 were 36% less likely to have dieted in the past year than Australian-born women, $p < .01$. Women migrating after 1991 were 41% less likely to have ever binge eaten, $p < .05$. Those migrating

1976-1985 were actually 36% more likely to have binge eaten than Australian-born women, $p < .05$.

Table 5 about here

Given the large discrepancy in the sample sizes of women born in Australia ($n=13383$) compared with those born overseas (ranging from $n=142$ born other NESB; to $n=563$ born other ESB), the data were re-analysed using a randomly selected subset of 5% ($n=675$) of the Australian-born women (total n for these analyses = 1939). The results obtained from these reanalyses were on the whole comparable to those obtained using the full sample, with the exceptions of several associations including acculturation status and weight dissatisfaction, dieting and binge eating. Significance values for these associations changed slightly from significant to borderline (e.g., $p=.07$), most likely due to the loss of power from the smaller sample size. Generally, however, results of all reanalyses were consistent with those obtained using data from the whole sample.

Discussion

The investigation of body image, dieting for weight loss, and disordered eating among different ethnic groups can provide insight into sociocultural factors potentially important in the development of body image disturbance and eating pathology. Until recently, few studies had examined these phenomena across different ethnic and minority groups in Australia.

The findings of the present study demonstrate that, contrary to previous claims (e.g., Nasser, 1988), risk factors for weight and eating pathology were present across a range of ethnic groups. In particular, women from European countries, and other

English-speaking countries demonstrated similar levels of weight dissatisfaction, dieting and binge eating behaviours as Australian-born women. While women born in Asia or other NESB countries showed slightly lower risk for these attitudes and behaviours, sizeable proportions of women in these groups reported some degree of body weight dissatisfaction, dieting and binge eating. Moreover, the prevalence of compensatory disordered eating behaviours was similar across all ethnic groups.

Findings also supported the hypothesis that women reporting longer time since immigration to Australia would report body weight, weight dissatisfaction and eating behaviours more similar to those of Australian-born women. With the exception of compensatory behaviours, results were consistent with an “acculturation” effect. This effect held even when controlling for potential confounding effects of education, and BMI where appropriate. Findings are consistent with previous studies showing evidence of an acculturation effect on body weight/obesity (e.g., Lauderdale & Rathouz, 2000) and on weight concerns or disordered eating symptoms (Button, Reveley, & Palmer, 1998; Furnham & Patel, 1994; Hill & Bhatti, 1995; McCourt & Waller, 1995).

The adoption of some of the social standards of Western countries, including concern about and conscious control of body weight, may contribute to the prevalences observed. That is, exposure to the eating practices and weight-related attitudes of a dominant culture may impact on those attitudes and/or practices of women in minority ethnic groups. The present findings support the argument that individuals in ethnic minorities may be more likely to conform to certain values or behaviours in order to assimilate into Western society (Abrams, Allen, & Grey, 1993). Results may reflect increasing adherence to values of Australian society, concerning views that a slim body is desirable. The length of exposure to these values and

practices may be directly related to degree of adherence to them. However, these inferences must be made with caution, since the length of time in Australia does not necessarily equate directly with cultural assimilation or acculturation. Further research could assess acculturation more directly as a mediating factor between ethnicity and weight concerns and eating pathology.

Future research could also investigate ethnic differences in the relationships between weight concerns/dieting, and general symptoms of psychological disturbance. One study (Dolan, Lacey, & Evans, 1990) found that, while weight concerns/body dissatisfaction of three ethnic groups of women were similar, unlike the Caucasian women, for Afro-Caribbean and Asian British women, these feelings were not correlated with feelings of anxiety and depression.

Several limitations of the present study should be acknowledged. The data presented are cross-sectional and retrospective, so no causal relationships can be unequivocally established. All data were based on self-report responses. It is unlikely, however, that self-report of country of birth or time since immigration would be subject to significant recall biases. Finally, the usefulness and validity of Western scales, assessment instruments and BMI as a measure for non-Western samples requires further evaluation (Mumford, 1993).

Nonetheless, the present findings highlight the importance of sociocultural factors in the determination of body weight, body image, and disordered eating. Further investigation is necessary to determine the mechanisms accounting for this relationship. It is possible, for instance, that ethnicity itself is not strongly predictive of disordered eating, but cultural values or beliefs associated with ethnicity are more strongly predictive. Ogden and Chanana (1998) have emphasized the need to consider ethnicity not merely as a categorical variable, but as part of a wider cultural model in

which cultural values (e.g., found parental/sibling attitudes towards role of women, competitiveness) may be of predictive significance. Future studies could examine those beliefs and values that are important.

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Table 1: Ethnicity characteristics of the sample

| Country of birth | n (%) |
|-------------------------|--------------|
| Australia | 13383 (90.6) |
| Other ESB | 563 (3.8) |
| Europe | 155 (1.0) |
| Asia | 404 (2.7) |
| Other NESB | 142 (1.0) |

| Acculturation status (time since immigration) | n (%) |
|--|--------------|
| Australian-born | 13380 (90.5) |
| 1975 or earlier | 96 (0.6) |
| 1976-1985 | 657 (4.4) |
| 1986-1990 | 339 (2.3) |
| 1991 or later | 216 (1.5) |

Table 2: Means (SDs), percentages, and significance values for associations between country of origin, and BMI, body weight dissatisfaction, dieting, binge eating and compensatory behaviours

| | Country of Origin | | | | | p ^a |
|---------------------------------------|-------------------|-----------|--------|------|-------|----------------|
| | Australia | Other ESB | Europe | Asia | Other | |
| BMI (mean) | 22.9 | 22.9 | 22.1 | 20.7 | 22.2 | <.01 |
| Weight Dissatisfaction (mean) | 3.2 | 3.2 | 2.9 | 2.7 | 2.6 | <.01 |
| Dieted past year (%) | 47.2 | 50.5 | 45.1 | 39.0 | 44.7 | <.01 |
| Ever binge eaten (%) | 20.6 | 21.1 | 22.1 | 18.4 | 21.7 | ns |
| Ever used compensatory behaviours (%) | 30.9 | 32.4 | 31.6 | 25.2 | 27.7 | ns |

^a p values based on univariate F statistics for continuous variables and chi-square statistics for categorical variables

Table 3: Means (SDs), percentages, and significance values for associations between acculturation status (time since immigration), and BMI, body weight dissatisfaction, dieting, binge eating and compensatory behaviours

| | Acculturation Status | | | | | p ^a |
|---------------------------------------|----------------------|-----------------|-----------|-----------|-------|----------------|
| | Australian born | 1975 or earlier | 1976-1985 | 1986-1990 | 1991+ | |
| BMI (mean) | 22.9 | 23.2 | 22.0 | 21.7 | 21.5 | <.01 |
| Weight Dissatisfaction (mean) | 3.18 | 3.00 | 3.07 | 2.81 | 2.41 | <.01 |
| Dieted past year (%) | 47.2 | 47.9 | 49.2 | 45.1 | 31.9 | <.01 |
| Ever binge eaten (%) | 20.6 | 17.7 | 24.7 | 17.5 | 12.0 | <.01 |
| Ever used compensatory behaviours (%) | 30.9 | 24.2 | 31.9 | 28.9 | 27.0 | ns |

^a p values based on univariate F statistics for continuous variables and chi-square statistics for categorical variables

Table 4 Stepwise regression models predicting: Model 1: BMI from acculturation status, adjusting for education; and Model 2: Weight dissatisfaction from acculturation status, adjusting for education and BMI

| | β weights | | R^2 | ΔR^2 | F of Δ | df |
|---------------------|-----------------|--------|-------|--------------|---------------|--------|
| | Step 1 | Step 2 | | | | |
| Model 1 | | | | | | |
| Step 1 | | | | | | |
| Education | -.03 | | .001 | .001 | 13.2* | 12,961 |
| Step 2 | | | | | | |
| Acculturation | | .07 | .005 | .004 | 56.8* | 12,960 |
| Model 2 | | | | | | |
| Step 1 ^a | | | | | | |
| BMI | .39 | | .15 | .15 | 2255.2* | 12805 |
| Step 2 | | | | | | |
| Acculturation | | .02 | .15 | .00 | 7.5* | 12804 |

* $p < .01$

^a: Education variable did not meet entry criterion and was excluded from model

Table 5 Adjusted^a odds ratios from logistic regression models predicting: Model 1: Dieting in past year; and Model 2: Binge eating

| | Adjusted Odds Ratios | 95% CI | p |
|-----------------|----------------------|-----------|------|
| Model 1 | | | |
| Acculturation | | | |
| Australian-born | 1.00 | | |
| 1975 or earlier | 0.95 | 0.61-1.46 | ns |
| 1976-1985 | 1.16 | 0.98-1.38 | ns |
| 1986-1990 | 1.02 | 0.81-1.29 | ns |
| After 1991 | 0.64 | 0.47-0.88 | <.01 |
| Model 2 | | | |
| Acculturation | | | |
| Australian-born | 1.00 | | |
| 1975 or earlier | 0.83 | 0.47-1.43 | ns |
| 1976-1985 | 1.36 | 1.12-1.66 | <.01 |
| 1986-1990 | 0.90 | 0.67-1.21 | ns |
| After 1991 | 0.59 | 0.37-0.92 | .02 |

^a Models adjusted for education level and BMI