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Paper

The Prevalence of Eating Disorder Pathology in a Cross-Ethnic Population of Female Students in South Africa

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Objective: *The purpose of this study was to determine the prevalence of eating disorder pathology in female students representing South Africa's ethnically diverse population. A secondary aim was to explore relationships between eating disorder pathology, Body Mass Index (BMI), and socioeconomic status (SES).*

Method: *In a questionnaire survey of a cross-section of South African college students, the Eating Disorder Inventory (EDI) was administered to a convenience sample of 628 students (52 per cent white, 38.6 per cent black, and 9.4 per cent Asian, persons from Indian descent). EDI subscale scores were calculated and compared by ethnicity. BMI scores were related to EDI subscale scores and to categorizations of respondents' SES status and rural versus urban origins.*

Results: *White women showed the highest EDI* body dissatisfaction *($p < 0.01$), while blacks the highest* drive for thinness *and* perfectionism *($p < 0.01$). Asians scored highest on* interpersonal distrust *($p < 0.01$). There were marked differences between ethnic groups with regard to BMI, eating pathology and SES. High BMI was associated with urbanization and low SES. Rising SES was associated with lower BMI scores. Blacks had higher BMI scores than whites and Asians.*

Discussion: *The results show significant eating disorder pathology in South African women across ethnic diversity. Our findings challenge the assumption that eating disorder pathology is confined to Western societies and raise the possibility that the risk for eating disorders in developing countries may be increasing.*

Keywords: eating disorders inventory; cross-ethnic sample; South Africa

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INTRODUCTION

Theoretical models of eating disorders emphasize Western socio-cultural factors as important in the aetiology of these disorders. Consequently, most studies examine the prevalence of pathological eating behaviours in white females from Western Europe and North America (e.g. Cooper *et al.*, 1987; Warheit *et al.*, 1993). The result is that eating disorders have been conceptualized as Western phenomena (Becker and Hamburg, 1996), and that within these societies, white women are assumed to be at risk for developing eating disorders while black women often are believed to be immune.

There is evidence to suggest that this focus of investigation is changing and increasing attention is being paid to disordered eating in non-Western cultural groups (e.g. Chun *et al.*, 1992; Mumford *et al.*, 1992). Nevertheless, there remains a paucity of research in this field that may cause some to believe that non-Western populations are 'protected' from developing eating disorders. Findings that white women demonstrate greater weight and shape concerns compared with black women support this hypothesis (Kumanyika *et al.*, 1992; Abrams *et al.*, 1993), while more generous weight and body shape standards among black women, may lower their risk for eating disorders (Rucker and Cash, 1992). However, this debate has not been settled as recent studies in the United States have shown a marked degree of discontent about weight and shape in both black and white women (Wilfley *et al.*, 1996).

While current investigations of eating pathology have begun to include non-Caucasian cohorts, information regarding eating disorders in the developing world remains limited. One of only a handful of examples is the study by Hooper and Garner (1986) that established eating disorder pathology in a sample of black, white and mixed race schoolgirls in Zimbabwe. South African research, coming from a developing, rapidly changing and ethnically diverse society could add significantly to our understanding of the eating disorders. Epidemiologic data about the prevalence of eating disorders in South Africa is rare with only a small number of reports about the white female population available (e.g. Norris, 1979; Ballot *et al.*, 1981; Le Grange *et al.*, 1995). Only two prevalence studies of eating pathology in adolescents or young adults across all ethnic groups in South Africa have been published (Szabo and Hollands, 1997; Le Grange *et al.*, 1998). Both these studies have shown that eating disorder pathology is at least as common among black females as it is among Caucasian females. In contrast to studies in the United States (e.g. Striegel-Moore *et al.*, 1996), South African black female students generally score significantly higher on measures of disordered eating and body shape dissatisfaction than their Caucasian counterparts. This may be due to the suggestion that acculturating groups are at greater risk for disordered eating than white women as these groups seek affirmation from the dominant cultural group (Nasser, 1997; Davis and Katzman, 1998). This hypothesis may apply to

South African blacks, who have had to contend with legally sanctioned racism until recently, and are currently experiencing a high degree of cultural flux. More data concerning the prevalence of eating disorder pathology across ethnic groups in South Africa may shed light on this hypothesis.

Therefore, in the present study we investigated the presence and severity of disturbed eating habits and attitudes in female university students of different South African ethnic groups. Our primary aim was to establish a comparative database on South African women, and our hypothesis was that Caucasians would show more eating disorder pathology than other ethnic groups. A second goal was to examine the relationship between Body Mass Index (BMI), socioeconomic status (SES), and eating disorder pathology across ethnic groups.

METHOD

Participants

During 1994–1995 we administered a survey to a convenience sample of 628 South African students accessible to the authors. After consent was obtained, undergraduate students were invited to volunteer for an anonymous survey of eating disorders and behaviours. This invitation was extended during class time, and students were asked to give time towards this study instead of a lecture. The study group was representative of South African students at most English language universities. Male and mixed race participants were excluded from the database due to small numbers. The final study group numbered 520 female university students (9.4 per cent technical college or high school senior students). The majority of participants (84 per cent) were studying for a bachelors degree with an average age of 21.9 years (SD = 4.7 years). The majority were single (95 per cent), 53 per cent spoke English as their home language, 27 per cent Zulu, 9 per cent Afrikaans, and the remainder another African language. Twenty-four per cent reported their fathers as 'professionals', and 21 per cent reported their fathers as owning a business. The study group comprised 270 (52 per cent) whites, 201 (38.5 per cent) blacks, and 49 (9.5 per cent) Asians (persons of Indian descent). SES (determined by fathers' occupation) differed for the ethnic groups. Forty-seven participants (8.9 per cent of study group) reported an absent father and were treated as missing cases. More than half of white (62 per cent) and Asian (51 per cent) participants had professional fathers, while significantly fewer black participants (21 per cent) had professional fathers ($\chi^2 = 65.731$, df = 2, $p < 0.001$).

The Eating Disorders Inventory (EDI) (Garner *et al.*, 1983) was administered to all participants in addition to collecting biographical information. The EDI consists of 64 items rated on a 6-point scale, of which the three most extreme responses are scored, rendering eight subscales. Norms for these

subscales are based on North American samples. The suitability of the EDI for African samples remains uncertain.

Data analysis

Very incomplete questionnaires were not entered into the database, while missing data was treated on a case-wise deletion basis. In terms of the eight EDI subscales, each respondent was given a missing value if one or more of the scale items were absent. No patterns were found in the missing data. The EDI subscale scores were calculated and compared by ethnicity. BMI was calculated from response to questions regarding height and weight. BMI scores were related to EDI subscale scores and to categorizations of the respondents' SES and urban/rural origin.

ANOVAs were conducted for all continuous variables. The EDI subscale scores were not distributed normally (they were 'J distributions') as few respondents achieved high scores on these scales. To facilitate data analysis without using transformations, scores were divided into quartiles (to even out distribution into four categories), and then analyzed categorically. The BMI scores were also divided into quartiles to facilitate categorical analysis.

RESULTS

The EDI subscales

Descriptive statistics and intercorrelations for each of the EDI subscales were calculated for the entire study group and for black subjects separately. The standardized Cronbach's alpha calculated for the overall data set was 0.77, which is close to the 0.8 alpha level expected of widely used tests. The standardized Cronbach's alpha for blacks considered alone was 0.64.

Table 1 shows ANOVAs comparing the different EDI group means. All three groups differed significantly on *drive for thinness* (blacks had the highest mean score, followed by whites), and on *maturity fears* (blacks highest, followed by Asians). Whites scored significantly higher than the other groups on *body dissatisfaction*, while blacks scored significantly higher than the other groups on *perfectionism*. *Interpersonal distrust* scores for Asians were significantly higher than those for the other groups. No significant differences were found for the *bulimia*, *ineffectiveness* and *interoceptive awareness* subscales. These results are also demonstrated in Figure 1.

The first three subscales of the EDI are measures of disordered eating. A comparison between the intercorrelations for these three scales for whites and blacks was made. Correlations were lower for blacks than for whites. This was particularly so for *drive for thinness* and *bulimia* (0.30 for blacks versus 0.56 for

Table 1. South African ethnic group differences in EDI subscales (excluding *respondents* > *28* years of age)

	Mean scores			
	Black	**White**	**Asian**	***F*-value**
Drive for thinness	7.92	6.56	4.77*	$F(2,466) = 10.46$†
Bulimia	1.6	1.98	1.04	$F(2,464) = 2.3$
Body dissatisfaction	8.41	12.65	9.17‡	$F(2,468) = 15.8$†
Ineffectiveness	2.96	3.04	2.42	$F(2,469) = 0.45$
Perfectionism	9.61	5.24	6.31‡	$F(2,467) = 48.58$†
Interpersonal distrust	4.25	3.28‡	4.56	$F(2,470) = 4.96$†
Interoceptive awareness	4.02	3.1	3.37	$F(2,465) = 2.44$
Maturity fears	6.46	2.56	3.51*	$F(2,473) = 72.55$†

*All three groups differ significantly (Newman–Keuls multiple comparisons).
†ANOVAs, $p < 0.01$.
‡Underlined groups do not differ significantly (Newman–Keuls multiple comparisons).

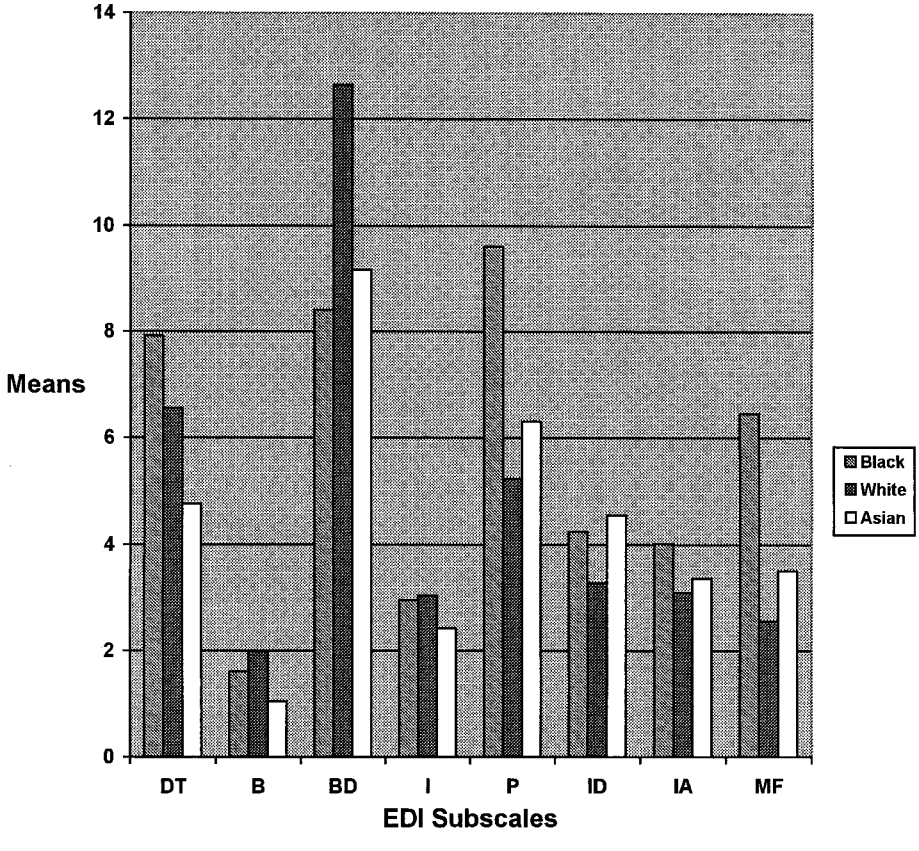

Figure 1. EDI subscales for ethnic groups

whites), and for *drive for thinness* and *body dissatisfaction* (0.46 for blacks versus 0.67 for whites).

Ethnicity and EDI subscales

Since the underlying distributions for these subscales were not normally distributed, the ANOVAs should be compared with the non-parametric results reported below. Categorical analysis carried out after dividing the EDI subscale scores into quartiles (excluding Asians due to small *N*) provides information about the distributional pattern for the differences between black and white respondents. Three patterns emerged. The first occurred when there was no linear trend and both ethnic groups contributed the same proportion of respondents to each of the four quartiles. This pattern occurred on the *bulimia* subscale. The second pattern occurred when black respondents contributed proportionately more to the lower two quartiles and white respondents contributed proportionately more to the higher two quartiles. This pattern occurred for *body dissatisfaction*. The final pattern occurred most frequently: proportionately more white respondents fell into the two lower EDI subscale quartiles, while proportionately more black respondents fell into the two higher EDI subscale quartiles. This pattern was also apparent on the *distrust*, *interoceptive awareness*, *maturity fears*, *drive for thinness*, and *ineffectiveness* subscales.

The relation between ethnicity and the three EDI eating disorder subscales echoed the ANOVA results. Higher proportions of black respondents were found in the third and fourth quartile of *drive for thinness*, and had the highest average score for *drive for thinness*. Higher proportions of whites were found in the fourth quartile of *body dissatisfaction*, and had the highest score for *body dissatisfaction*. Nearly identical proportions of whites and blacks fell into all four *bulimia* quartiles.

Relationships involving Body Mass Index

Ethnic differences in BMI are set out below. BMI was also analysed according to location (urban versus rural), father's occupation (high SES versus low SES), and EDI subscales.

Ethnicity and BMI

Mean BMI for the overall sample was 22.4 (SD = 4.7). The three ethnic groups differed significantly on BMI ($F(2,460) = 46.43$, $p < 0.0001$). Whites (M = 21.1, SD = 2.6) and Asians (M = 21.3, SD = 3.7) had the lowest BMIs, and blacks the highest (M = 24.9, SD = 5.8).

Urbanization and BMI

BMI quartile scores were not associated with urban, semi-urban or rural categories, but a significant linear relationship was found between these two sets of categories ($\chi^2 = 7.363$, df $= 1$, $p < 0.007$). The linear relationship may be expressed as the more urban the respondents the less likely they are to fall into the third and fourth BMI quartiles (higher BMI), and the more likely they are to fall into the first and second BMI quartiles (lower BMI).

Socioeconomic status and BMI

Father's occupation was found to relate to respondent's BMI quartile location ($\chi^2 = 65.187$, df $= 27$, $p < 0.001$). Our data reveal that respondents with clerical or administrative fathers or 'no fathers' fell into extreme BMI classifications (very high or very low), while respondents with artisan, unclassified, or professional fathers were associated with moderate BMI quartile classifications.

EDI subscales and BMI

A significant association was found between six EDI subscale quartiles (excluding DT, BD and ID) and BMI quartiles. In each case first and second quartile EDI subscale scorers tended to fall into first and second BMI quartile groups, while third and fourth quartile EDI subscale scorers tended to fall into third and fourth BMI quartile groups. In other words, respondents who scored low on the EDI subscales also tended to have a low BMI, and respondents who scored high on the EDI subscales had a higher BMI.

Disordered eating and BMI

The first three subscales of the EDI may be grouped together as measures of disordered eating. Significant positive relationships were found between *drive for thinness* and BMI and *body dissatisfaction* and BMI (i.e. high levels of disordered eating attitudes were associated with higher BMI). The overall relationship between BMI and *bulimia* was not significant.

DISCUSSION

Findings from our study revealed that black South African females scored significantly higher than their white counterparts on the EDI *drive for thinness*, *perfectionism*, and *maturity fears* subscales. This may indicate high levels of concern about body shape that is reinforced by ideals about perfectionism and concerns about expectations others may have of them. This is speculative, but these findings are supported by at least two published South African studies (Szabo and Hollands, 1997; Le Grange *et al.*, 1998) showing high levels of abnormal eating attitudes and habits among black South African female

students. It is especially the relatively high *drive for thinness* score among black women in our study group that challenges the notion that black women in general value plumpness. However, it is likely that more urban university students, such as in the present study, may have to negotiate different challenges compared to their rural counterparts.

White South African females scored significantly higher than both black and Asian women on *body dissatisfaction*. This finding lends support to earlier investigations that have found white female students in South Africa (M. F. Geach, unpublished Masters thesis, Rhodes University, 1995), and in the United States (Rucker and Cash, 1992), to hold less favourable body-image attitudes than their black peers. These findings may in part be attributable to the role of the white Western media in emphasizing slimness as desirable, and the traditional cultural acceptance of heavier body weights among blacks. As argued before, this hypothesis is confounded by the high *drive for thinness* scores among blacks in our study. Reference to the media or Westernization, however, may be an oversimplification of a more complex set of sociocultural factors that are contributing to our findings and that of previous South African studies. Also, *drive for thinness* may have a different meaning for many black participants in our study, and in the absence of appropriate norms for this study group, our findings should remain tentative. There were no differences between the ethnic groups in terms of the *bulimia* scores.

Black subjects scored highest on two of the 'psychological' EDI subscales. In addition to their high scores on *drive for thinness*, this may indicate a propensity toward unhealthy attitudes and behaviours associated with eating disorders among black students in our study group. This is an alarming finding and could imply that these women can no longer be considered 'immune' to eating disorders, a finding echoed by others (Wilfley *et al.*, 1996).

Acculturative stress, although not formally assessed in our study, seems a feasible explanation for the high scores for blacks, particularly in view of the major sociopolitical changes that South Africans are experiencing. Berry and Kim (1988) refer to the impact of acculturative stress that may occur as a result of social integration and personal crisis. Hooper and Garner (1986) make reference to the possible role played by acculturative stress and the erosion of traditional values in accounting for high scores among black women on the psychological subscales of the EDI. Studies by Ahmad *et al.* (1994), Furukawa (1994) and Mumford *et al.* (1992) point to the important role played by acculturative stress in producing internal conflict, which in turn may become a predisposing factor for an eating disorder or other behavioural pathology (Wassenaar *et al.*, 1998).

Of particular interest, though, were the high scores for *perfectionism* and *maturity fears* for black subjects. It can be argued that black women in our study group have had to be high achievers (associated with *perfectionism*) to attain university admission, given the social, political and educational

constraints during the Apartheid years in South Africa. Similarly, the highly significant difference between black and white subjects on *maturity fears* might imply that the responsibilities facing adult black women are perceived as more arduous in general than those facing white women in South Africa. White subjects obtained significantly lower BMI scores on average than black subjects. Higher rather than lower BMIs correlated positively with *body dissatisfaction* and *drive for thinness*. Thus, high BMI corresponds with dissatisfaction with body shape and size and the desire to lose weight. Our findings seem similar to that of a recent study by Davis and Katzman (1999) among immigrant Chinese in the United States. They argue that some women may report greater *perfectionism* in an effort to assimilate. In understanding our findings, one can follow Davis and Katzman's proposal that efforts to perfect oneself may become focused on altering one's body (high *drive for thinness* because of high BMI), and the greater *fear of maturity* may be the result of struggling with the demands of 'living between two cultures', i.e. expectations of the 'old' versus the 'new' South Africa. The high black scores may reflect the psychology of cultural transition reflected in a need to better one's status and adopt new (Western or African) values.

Findings from our study showed that the more urbanized respondents reported the highest BMIs. This may suggest that increased weight is associated with urban living. However, the higher the SES, the lower the BMI, suggesting that BMI rises in lower SES urban settings. There were also clear race differences in BMI with blacks having the highest BMIs compared to whites and Asians. Taken together, it can be argued that eating disorder pathology is associated with urban living and low SES, a proposal similar to that of Baptista *et al.* (1996).

Comparing our findings with the only published report using the EDI in a Southern Africa study group, white South Africans scored higher on all three EDI subscales relating to disordered eating when compared to the white students in Hooper and Garner's (1986) Zimbabwean study. Similarly, black South Africans scored higher on average than their Zimbabwean peers on the first three EDI subscales. One hypothesis is that both black and white female students in Southern Africa are more concerned with eating and weight issues in the mid-1990s than they were in the mid-1980s. The difference in locations and age groups for these studies make a straightforward comparison problematic. The difference in findings between the mean scores and the high score comparisons for the South African and Zimbabwean studies provides a pertinent reminder that the development of a clinical eating disorder cannot be predicted by eating and weight attitudes alone. This makes the combination of high *drive for thinness* scores and high scores on the 'psychological' subscales in the black South African sample particularly worrying.

Some limitations to our study should be considered. The validity of the EDI in Africa has not been well-established other than by Hooper and Garner's

(1986) study, and one unpublished South African report (cf. M. F. Geach, unpublished Masters thesis, Rhodes University, 1995). Our conclusions should therefore be interpreted with caution. However, two factors serve to strengthen the argument that our findings were a true indication of unhealthy eating attitudes as opposed to language or cultural differences. First, recent investigations have shown that black South African women report alarmingly high levels of disordered eating (Szabo and Hollands, 1997; Le Grange *et al.*, 1998). Second, the black cohort in our study obtained a satisfactory Cronbach's alpha for the EDI, albeit lower than for whites. The limitations of a convenience sample should also be taken into account. Female university students represent a high-risk group for eating disorders, and this study may therefore overestimate the prevalence of eating disorder symptomatology. Clearly, random sampling among all age groups for males and females, as well as translating the EDI into African languages are called for in future investigations. Future studies should also select high EDI scorers for a clinical interview to determine the true level of eating pathology.

In conclusion, this study found significant disordered eating among black South African women. This may reflect a temporal trend towards increased eating disorder pathology in acculturating societies. Whether these correlates are predictive of an increase in eating disorders among urbanized blacks in metropolitan Southern Africa is a more difficult research question. This should be addressed by future studies that include systematic diagnostic monitoring of presenting problems at high school and university health and counselling centres.

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