Ethnic differences in age of onset and prevalence of disordered eating attitudes and behaviours: a school-based South African study

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Abstract

Objectives: To determine the age of onset and prevalence figures for disordered eating for diverse ethnic groups among a sample of South African schoolgirls.

Method: A cross-sectional design was implemented. Two questionnaires were used to elicit prevalence figures and attitudes towards eating.

Results: The study population (n = 418) consisted of black and white schoolgirls in various educational phases. Black students were found to experience a significant increase in reported bulimia-associated behaviours in grades seven to nine (mean age 13.7 years) but did not report any significant increases in drive for thinness, body dissatisfaction or poor eating attitudes across the different phases. White students reported significant increases in all measured disordered eating attitudes and behaviours in grades 10-12 (mean age 16.7 years). In grades four to six, black and white students did not differ with respect to their reported disordered eating attitudes and behaviours. However, in grades seven to nine, black students were more likely to report bulimia-associated behaviours than their white counterparts. The most apparent differences emerged in grades 10-12. White students reported significantly higher drive for thinness, greater body dissatisfaction and poorer eating attitudes than their black counterparts. Furthermore, the ethnic differences that emerged during grades seven to nine with respect to bulimia disappeared in grades 10–12.

Conclusion: This study fills the hiatus in the existing South African literature with respect to age of onset and prevalence of disordered eating attitudes and behaviours across ethnic boundaries. Furthermore, it creates a foundation for developing appropriate strategies to address eating disorders in the multicultural South African context.

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Introduction

According to international research findings, eating disorders and disordered eating attitudes and behaviours are becoming increasingly prevalent, not only among women in Western societies, but also among diverse adolescent and young adult populations across cultural boundaries.[1,2] Furthermore, the age of onset of these disorders may be decreasing, thus contributing significantly to the increased prevalence thereof.[3,4]

Historically, eating disorders were predominantly found among white adolescent and young adult females within the upper socio-economic classes, who lived in socially competitive environments.[5] However, according to Abrams and Stormer, black females are seemingly starting to adopt whites' unhealthy attitudes about being thin.[6] They are becoming more dissatisfied with the appearance of their bodies and are developing disordered eating behaviours.

There has been increasing interest in the role that social and cultural norms play, either in protecting against, or in precipitating these problems. A study by Grilo, Masheb and Wilson found that for many young Western women, fulfilling an ideal of a slender body is of greater importance than maintaining a healthy body.[7] This seems true across racial divides.[2] Cultural norms and expectations about thinness could be a direct cause of disordered eating attitudes and engagement in dieting behaviour, which, according to Gluck and Geliebter, "are the first dangerous steps down the slope to eating disorders such as anorexia nervosa and bulimia nervosa".[8] O'Dea and Abraham explain that disordered eating may be attributed to the fact that when people of different cultural and racial backgrounds and norms acculturate, being extremely thin as the ideal body shape triumphs and a greater incidence of disordered behaviour emerges.[9]

Traditionally, the South African society has been segregated socially, economically and politically along racial divides.[10] However, these divides have become less prominent over the past decade. In a South African study Szabo suggested that within the urban setting, there is homogenisation of eating-related psychopathology across different ethnic groups.[11] According to Szabo, the first published cases of eating disorders among black female South Africans only appeared

in 1995.[11] In studies involving high school girls and university students, Szabo and Hollands[12] found that black students had a higher prevalence of abnormal eating attitudes than the other ethnic groups participating in the study. Therefore, the notion that eating disorders are primarily a Caucasian phenomenon is challenged, and the possibility that the risks of eating disorders are increasing in developing countries such as South Africa is raised.[13] Given the increased integration of ethnic groups in South Africa since Szabo's 1999 study, there is clearly a need for more current research.

Another important contributing factor to the increased prevalence of disordered eating may be found in the growing perception that although eating disorders are more prevalent among older adolescent girls,[12,13] concerns about weight and body size also appear to be emerging at increasingly younger ages.[14] Initial studies suggest that disordered eating behaviour is even reported among a significant number of prepubescent girls.[15] Sherwood and Neumark-Sztainer found that young girls are aware of the stigma associated with an overweight body shape, and these young girls judge physical attractiveness using the same criteria as adults.[4] Existing literature is largely directed at treatment outcomes in adults (18 years and above), and thus it is necessary to establish whether it is possible to extrapolate these data to a younger population.

International research by Swain indicated a change in the focal point of research, to include a focus on cultural and racial diversification, younger populations and different socio-economic groups.[16] Current South African research in these areas is limited. Johnson, Rohan and Kirk emphasise the need for population-based surveys that sample these behaviours across race and age.[17] On the one hand, there is a suggestion that existing intervention strategies are unsuccessful in decreasing the prevalence of disordered eating attitudes, and on the other hand, there is a suggestion that existing interventions are both age- and race-inappropriate.[3,4] The current study thus aimed to determine the age of onset and current prevalence figures for disordered eating for diverse ethnic groups among a sample of South African schoolgirls. It is hoped that more effective intervention strategies will arise on the basis of the results.

Method

The dual purpose of this study was, firstly, to determine whether any significant changes occurred in prevailing eating attitudes and behaviours across three educational phases (age of onset) for black and white schoolgirls separately and, secondly, to compare black and white students with respect to their disordered eating attitudes and behaviours during these three educational phases. For this purpose, the schoolgirls were divided into three groups representing three different educational phases: phase 1 (grades four to six, age 10-12 years), phase 2 (grades seven to nine, age 13-15 years) and phase 3 (grades 10-12, age 16-18 years).

The students were tested in groups. Each girl was given a test booklet consisting of a biographical questionnaire, the Eating Attitudes Test (EAT-26) and the three subscales of the Eating Disorder Inventory (EDI).[18] Clear instructions were given for the completion of the questionnaires. Group cohorts were compared in the same time frame with respect to their eating attitudes and behaviours, and thus nonexperimental research was conducted while a cross-sectional design was implemented.[19]

Ethical considerations

Approval to conduct the study was obtained from the ethics committees of both the Psychology Department and the Faculty of Humanities of the University of the Free State. Permission was granted by the school principals and informed consent/assent was obtained from all participants, as well as the parents or guardians[20] of participants younger than 18. The purpose of the research was explained and participants were informed that they were free to withdraw at any stage. The privacy and anonymity of the participants and the confidentiality of all information obtained were maintained.

Sample

A total of 418 black (N = 107) and white (N = 311) female students were selected from one single-sex, English-medium school (comprising a junior and senior school) in Bloemfontein. The nuisance variable (academic performance) was controlled for by selecting the academically superior class of each grade (from four to 12).

Student biographic profile

The frequency distribution according to ethnicity and educational phase was roughly similar for students in phases 1, 2 and 3. This was also indicative of the ethnic representation of the school as a whole.

No significant differences were present in the mean ages for black and white students in each educational phase.

Measuring instruments

The EAT-26 and the EDI are widely used and accepted standardised self-report measures of symptoms and concerns characteristic of eating disorders and have been shown to be reliable and valid screening measures for eating disorders.[18] Reliability, as well as construct, convergent and discriminant validity, has been demonstrated for the EDI in its use on repeated occasions, which has included use with adolescent populations.[21] The three core subscales of the EDI (drive for thinness, body dissatisfaction and bulimia) were used in this study. The EAT-26 assesses a broad range of symptoms and provides a total score for disturbed eating attitudes and behaviours. The EAT-26 has acceptable criterion-related validity, by significantly predicting group membership. The reliability (internal consistency) of the EAT-26 shows a high α score of 0.90 for an anorexia nervosa group. Total scores on the EAT-26 are derived as a sum of the composite items, ranging from nil to 78. Scores that are greater than or equal to 20 on the EAT-26 are frequently associated

with abnormal eating attitudes and behaviour and may identify respondents with an eating disorder,[21] although it is important to note that raw scores were used in this study as opposed to norms, because the tests have not been standardised for the South African context.

For the current sample, Cronbach's α coefficients were used to determine the internal consistency for items in each of the three subscales of the EDI and those of the EAT-26. The results suggested that reasonably high internal consistency measures existed for the bulimia subscale (0.692), while drive for thinness (0.823) and body dissatisfaction (0.879) reflected even higher internal consistency indices. An α coefficient of 0.833 was found for the EAT-26. Information obtained by means of these instruments could therefore be used with confidence in further analyses.

Data analysis

Regarding both research questions, investigations were carried out with respect to the significance of differences in mean scores on the three subscales of the EDI, as well as on the total score of the EAT-26. Because one independent variable and four dependent variables consistently occurred, a one-way multivariate analysis of variance (MANOVA) was performed.[22] The skewness and kurtosis of the four scales were examined to determine whether the analysis of variance could be performed. In all four cases the data revealed only a slightly positive skewness (varies between 0.592 and 0.813) with a negative kurtosis varying between -0.441 and -0.562. A relatively small standard error (0.116) was attained for all four scales. It may consequently be accepted that the sample statistic is a good reflection of the population parameter, the basis for the decision to continue the analysis. A significant result (F-value) found with the MANOVA was followed by a single-variable analysis of variance for each of the dependent variables. If more than two categories (as in the case of the educational phases) occurred for an independent variable, the Scheffé procedure was utilised to determine which of the subgroups' mean scores differed significantly on the dependent variables.

To be able to comment on the value of the statistically significant results found during the analysis, the practical significance of these results was investigated. As criterion of practical significance, effect size was determined. Corresponding effect sizes were determined only when statistically significant results were found (at the 1% or 5% levels).

Results

The values obtained for the four subscales were not normally distributed, thus the medians and interquartile ranges of the four subscales are shown in Table I.

These findings were compared to those obtained in a similar Canadian study in which 1 739 adolescent girls (aged 12 to 18 years) were assessed with the same instruments.[3] The mean scores for both the drive for thinness and the eating attitudes scales for the current study differed significantly (at the 1% level) from those in the Canadian study. The South African students therefore showed a greater drive for thinness and poorer eating attitudes than their Canadian counterparts.

Table I: Median values and interquartile ranges for the four subscales

Eating attitudes and behaviours	Median	Interquartile range (25^{th}–75^{th} percentile)
Drive for thinness	5.0	2–10
Bulimia	0.0	0–2
Body dissatisfaction	8.5	3–15
Eating attitude	9.0	5–17

The research question pertaining to the age of onset of disordered eating attitudes and behaviours was explored separately for the two ethnic groups.

Changes in black students' eating attitudes and behaviours

There were significant differences (at the 5% level) across the different phases in the responses from the black students. The results indicated that the difference was significant (at the 5% level) for the bulimia scale ($p = 0.03$) for the black students across different educational phases. The corresponding F value shows that the result is indicative of a medium effect size.

The mean bulimia score for black students in the junior phase was lower than that for black students in the intermediate phase (Table II). The mean score for the senior phase (1.70) was somewhat lower than the score for the intermediate phase (2.46) but not significantly so. This is suggestive of a peak in disordered eating behaviour (bulimia) during the intermediate phase.

Table II: F-values of the one-way analysis of variance to determine differences in mean scores on the four subscales for black students

Eating attitudes and behaviours	Phase 1		Phase 2		Phase 3		F-value	p	f
	$\bar{X}$	s	$\bar{X}$	S	$\bar{X}$	s			
Drive for thinness	4.97	4.91	5.95	5.34	3.62	5.21	1.815	0.168	
Bulimia	0.62	1.09	2.46	3.05	1.62	3.79	3.607	0.031	0.28
Body dissatisfaction	7.71	6.18	9.31	7.25	9.50	7.09	0.665	0.516	
Eating attitudes	12.56	8.23	11.34	8.90	8.78	8.57	1.621	0.203	

Changes in white students' eating attitudes and behaviours

White students had significant differences (at the 1% level) in the mean eating attitude and behaviour scores across the different educational phases (Table III).

Differences in group means for the different educational phases exist for white students with respect to all four measures. There was a significant difference in the mean scores between students from phase 3 and students from phase 1, as well as between phase 3 and phase 2 students on all four of the measured subscales for the white students. Mean scores do not differ significantly for phases 1 and

Table III: F-values of the one-way analysis of variance to determine differences in mean scores on the four subscales for white students

Eating attitudes and behaviours	Phase 1		Phase 2		Phase 3		F-value	p	f
	$\bar{X}$	s	$\bar{X}$	S	$\bar{X}$	s			
Drive for thinness	5.35	4.67	5.94	5.28	8.11	6.64	7.11	.001	0.27
Bulimia	0.59	1.27	1.37	2.13	2.80	3.59	21.45	.0001	0.46
Body dissatisfaction	7.55	6.83	10.03	7.72	12.65	7.98	11.64	.0001	0.34
Eating attitudes	10.96	8.17	11.58	9.79	15.35	11.74	6.50	.0017	0.25

2. Students from phase 3 showed a significant increase in all four subscale measures (drive for thinness, bulimia, body dissatisfaction and eating attitudes) compared to students from phase 1.

Ethnic differences in disordered eating attitudes

The research question pertaining to possible ethnic differences in the prevalence of disordered eating attitudes and behaviours was investigated separately for the three educational phases, and results are presented separately for each group.

The results for phase 1 students reflected no significant differences in the mean eating attitudes and behaviours scores for the two ethnic groups.

For phase 2 students, the results indicated significant differences in mean eating attitudes and behaviours scores between the two ethnic groups (5% level), with the bulimia subscale being significantly greater in black than in white students (p value less than 0.01) (Table IV).

Table IV: F-values for the one-way analysis of variance to determine differences in mean scores on the four dependent variables for the two cultural groups (phase 2)

Eating attitudes and behaviours	F-value	p	f
Drive for thinness	0.01	0.9068	
Bulimia	7.28	0.0079	0.23
Body dissatisfaction	0.20	0.6560	
Eating attitude	0.01	0.9072	

The results of the one-way analysis of variance and calculated effect sizes (F) for phase 3 appear in Table V.

Table V: F-values of the one-way analysis of variance to determine differences in mean scores on the four dependent variables for the two cultural groups (Phase 3)

Eating attitudes and behaviours	F-value	p	f
Drive for thinness	12.22	0.0006	0.31
Bulimia	2.53	0.1143	
Body dissatisfaction	4.00	0.0476	0.17
Eating attitude	8.41	0.0044	0.25

The results above show significant differences for mean scores on the drive for thinness (1% level), body dissatisfaction (5% level) and eating attitudes (1% level) scales for phase 3 students, with white schoolgirls having higher scores than their black peers in three of the four subclasses.

Discussion

Results pertaining to the age of onset of disordered eating attitudes and behaviours were obtained by comparing the mean scores for drive for thinness, bulimia, body dissatisfaction and eating attitudes across the three educational phases that were identified for black and white students separately, while the results for the prevalence of disordered eating attitudes and behaviours were obtained by comparing the mean scores for drive for thinness, bulimia, body dissatisfaction and eating attitudes for the two ethnic groups within each educational phase.

Black students were found to experience a significant increase in reported bulimia-associated behaviours during phase 2. It would appear that this phase marks the age of onset of significant increases in, for example, uncontrollable eating episodes, attempts at vomiting in order to lose weight and eating or drinking in secret among these students. This phenomenon would appear to support earlier findings that identified a tendency among black South African sufferers of eating disorders to present with bulimic symptoms as part of their pathology.[11] These results would suggest that this tendency may be traced back to a mean age of 13.7 years and would have definite implications for intervention and treatment programmes. It is also noteworthy that ethnic differences occur with respect to this phenomenon at this educational level. Black girls are significantly more likely to report problems related to bulimic behaviour in this phase than their white counterparts. These findings seem to support those reported by Senekal et al, who indicated a higher prevalence of disordered eating behaviours (bulimia) among black student participants than among similar white student groups.[13]

Apart from the reported bulimic symptoms, black students did not report any significant increases in drive for thinness, body dissatisfaction or eating attitudes across the different educational phases. In contrast to this, white students reported significant increases in all measured disordered eating attitudes and behaviours in phase 3. This educational phase (mean age 16.7 years) reflected marked increases in all measures included in this study, and this mean age may therefore be considered to be the age of onset of significant increases in drive for thinness, bulimia, body dissatisfaction and poor eating attitudes for white students. These findings correlate well with those reported by Jones et al in which disordered eating attitudes were seen to be more prevalent among their second age group of participants (15-16 years).[3]

Investigations pertaining to the second research question, namely ethnic differences with respect to the prevalence of disordered eating attitudes and behaviours in three different educational phases, produced valuable insights. During phase 1 black and white students did not differ with respect to their reported disordered eating attitudes and behaviours. However, during phase 2 ethnic differences with respect to bulimia were evident. Black students were significantly more likely to report bulimia-associated behaviours than their white counterparts. All other measures of disordered eating behaviours

and attitudes utilised in this study reflected no significant mean differences for the two ethnic groups during this educational phase.

The most apparent differences emerged during phase 3. It would appear that the white students in this stage of development reported a significantly higher drive for thinness, greater body dissatisfaction and poorer eating attitudes than their black counterparts. Furthermore, the ethnic differences that had emerged during the second educational phase with respect to bulimia disappeared in the third phase. This was the only scale (bulimia) that did not reflect a significant mean difference for the two ethnic groups at this level. These results only partially support those of Le Grange et al, who found that black female students scored significantly higher than the other participating ethnic groups on the Bulimic Investigatory Test and the Eating Attitudes Test.[23] The current results would be more supportive of those reported by Edwards and Moldan, who maintain that the mean scores of the white female university students participating in their study were higher than those of the black university students concerning disordered eating attitudes.[24] However, the latter two studies were conducted with older female participants.

Because the ethnic groups were unequally represented in the current sample, the results of this study need to be interpreted circumspectly, and more vigorous research in this regard is called for. The fact that participants from only one middle-class school were used also limits the generalisability of the results to ethnic groups, particularly in poorer communities. Furthermore, many questions pertaining to the generalisability of the findings to co-educational and other language-medium school settings arise from this study. However, these findings clearly emphasise the necessity of early intervention and allude to possible ethnic differences that need to be accommodated when developing appropriate interventions for a diverse South African society.

Conclusion

The main aim of this study was to determine the age of onset and current prevalence figures for diverse ethnic groups for disordered eating amongst a sample of South African schoolgirls. This study is the first to present findings in more than 15 years.[11] The findings of the study reveal that more effective intervention strategies are indeed necessary. This study helps to fill the identified hiatus in the existing South African literature with respect to the age of onset and prevalence of disordered eating attitudes and behaviours across ethnic boundaries. Furthermore, it creates a foundation for the development of appropriate strategies and programmes to address eating disorders in the multiethnic and multicultural South African context, as the need for such strategies undeniably exists.

Additional studies are needed that will more fully assess the role of peer group pressure within cultures, that places individuals at an even higher risk of developing disordered eating patterns. Peer group pressure will have an effect not only on women in Western societies, but also on diverse adolescent and young adult populations across ethnic boundaries.

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