Application of the Eating Attitudes Test (EAT-26) in a rural, Zulu speaking, adolescent population in South Africa

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This study was undertaken as part of an exploration of the potential risk for future eating disorders in the black female population of South Africa. Previous research has documented eating attitudes suggesting that such a risk exists in urban populations. A translated version of the Eating Attitudes Test (EAT-26) was applied in a Zulu speaking, rural population (n=361). A prevalence of 3% for abnormal eating attitudes was established. In keeping with the hypothesis, the findings suggest that the risk for developing an eating disorder in a rural population is somewhat lower. In this regard, there does appear to be an urban-rural divide, which may have implications for the prevention of the emergence of eating disorders in black, South African adolescents. However, the validity of the EAT-26 in this population is a consideration in interpreting the data.

Key words: EAT-26, Zulu, adolescent, South Africa

Whilst eating disorders have been described in South Africa since the 1970s (1,2), such descriptions involved exclusively white females, with the first series of cases amongst black females described in 1995 (3). Since then, there have been numerous community based cross-cultural studies examining prevalence rates of eating attitudes and behaviours associated with eating disorders (4-7). These studies have predominantly involved urban samples and English versions of questionnaires used to assess eating attitudes and behaviours. The suggestion from the studies is that eating disorders will emerge within the black community to the same extent as within the white community. Whilst increasing numbers of black sufferers have presented for treatment, this has not as yet reached equivalent levels to the number of those presenting from within the white community (8). In South Africa there has been a dramatic political and social change as a background to the emergence of eating disorders in black, urban females (9).

The current study sought to examine eating attitudes in a rural, Zulu speaking, adolescent female population, using a Zulu version of the Eating Attitudes Test (EAT-26) (10). At the time the study was conducted, no comparable data existed. It was hypothesised that the prevalence of abnormal eating attitudes and the potential risk for the development of eating disorders in the rural setting would be lower than in the urban setting. Such findings would have significant implications not only for resource allocation but also for future research into the basis of any differences.

METHODS

The methodology of the current study did not differ from that of an urban study carried out at the same time (7). The total number of participants in the current study was 361, comprising all female scholars present on the day of the study. There were two participating schools, chosen on the basis of their rural but accessible location. All participants were black and ethnically Zulu. No absentee figures were available.

The choice of a Zulu sample was influenced by the fact that KwaZulu-Natal is the province of South Africa with the largest population (20.3% of the total population of the country) (11). In addition, Zulu is spoken in more homes (22%) than any other language in the country (11). KwaZulu-Natal is predominantly populated in non-urban areas (56.5%), compared to other provinces that are almost exclusively urban (96.4%) (11). The rural sample size was determined primarily by the resources available to the researcher in terms of time, funding and accessibility. In this instance, practical constraints rather than statistical methods determined the sample size of approximately 400.

The EAT-26 is a self report questionnaire. The questions relate to attitudes, beliefs and behaviours concerning food, body shape and weight. A total score and three subscales (dieting, bulimia and oral control) are generated. A score of 20 or above denotes the existence of disturbed eating attitudes and behaviour, which may indicate the presence of eating related psychopathology (12), with the subscales giving a profile. The questionnaire was translated into Zulu even though the language of instruction at the chosen schools, according to the headmasters, was English. This involved translation into Zulu, back translation into English and modification of the Zulu version according to the back translation. The final version was then sent to the headmasters for their comments and suggestions.

RESULTS

The mean age of the recruited girls was 17.87 (SD=2.77) years. The mean weight was 59.16 (SD=11.41) kilograms,

the mean height was 1.57 (SD=0.06) metres and the mean body mass index was 23.8 (SD=3.95).

Socio-economic status was determined primarily through paternal occupation (13). Where none existed, maternal occupation was used. The socio-economic profile of the sample was as follows: I (professional occupations; e.g., engineer, medical doctor): 2.7%; II (managerial and technical occupations; e.g., physiotherapist, teacher): 9.2%; III (skilled occupations; e.g., clerks, typists): 13.6%; IV (partly skilled occupations; e.g., construction worker): 18.0%; V (unskilled occupations; e.g., road sweeper, domestic worker): 56.5%.

Within this sample, 3% (11/361) scored 20 or more on the EAT-26. The mean score for the total sample was 7.47 (SD= 5.5), with mean scores of the subscales as follows: 'dieting' 5.36 (SD=3.7), 'bulimic' 0.81 (SD=1.63), 'oral control' 1.29 (SD=1.94).

For those scoring 20 or above (n=11), the mean total score was 24.63 (SD=4.45), with subscale scores as follows: 'dieting' 13.72 (SD=3.49), 'bulimic' 5.27 (SD=3.6), 'oral control' 5.63 (SD=3). For those scoring below 20 (n=350), the mean total score was 6.93 (SD=2.77). The sub-scale scores were as follows: 'dieting' 5.1 (SD=3.39), 'bulimic' 0.67 (SD=1.31), 'oral control' 1.16 (SD=1.74).

Measuring internal consistency, Cronbach's coefficient alpha was 0.61. A principal component factor analysis with varimax rotation revealed that 24.8% of the variance could be explained by three factors, with factor 1 accounting for 12% of the total variance. The eigen values of the first three factors were 3.1, 1.7 and 1.6 respectively. An orthogonal transformation matrix demonstrated 6/13, 4/6 and 1/7 items for factors 1, 2 and 3 respectively, with a factor loading >0.4.

DISCUSSION

An urban study of black and white respondents, conducted at the same time as the current study, detected a prevalence rate of abnormal eating attitudes of 18.7% in the black and 18.6% in the white sample (7). The prevalence rate of 3% in the rural black sample of the current study demonstrates a substantial difference. This finding is in keeping with the original hypothesis that the extent to which abnormal eating attitudes exist in the rural setting would be less than in the urban setting, for this population group. Directly comparable data do not appear to exist within the South African setting. Regarding the findings amongst rural respondents, potentially comparable data exist from studies conducted in Northern India (14) and Pakistan (15), both of which used translated versions of the EAT-26. The former study (14) conducted in a rural setting, found a prevalence of abnormal eating attitudes of 29%. This finding was regarded as inappropriately high, given the very low prevalence of eating disorders in the community. The latter study, using an Urdu version of the EAT-26, established a prevalence of abnormal eating attitudes of 7% (15). A South African study reported 13.3% of a sample of university attending respondents of urban and rural *origins* scoring above 21 on the EAT-26 (16).

The current study established a mean EAT-26 score of 7.47, which is somewhat lower than that for urban samples (white 12.27; black 12.48) established earlier (7). Senekal et al (16) did not detect significant differences in mean EAT-26 score between respondents of urban or rural origin, which is not necessarily akin to being a dweller in either setting, with a mean score of 12.1 for the entire sample. The study by King and Bhugra (14) provided no information on the total mean score or any of the subscale scores, whereas the study of Choudry and Mumford (15) reported a mean EAT-26 score of 11.1 for their sample.

Researchers have cautioned against the use of the EAT-26, in a translated form, cross-culturally (14). It was felt that questions are misinterpreted and that conceptually the questionnaire is problematic. It must be re-emphasized that the EAT-26 is a screening questionnaire with a relatively low positive predictive value in terms of a high scorer having an actual eating disorder (17). Whilst King and Bhugra (14) were somewhat sceptical of the utility of the EAT-26 in certain settings, the prevalence rate of 3% (for abnormal eating attitudes) of the current study appears to be realistic, specifically in comparison to an urban figure of 18.7% amongst black respondents (7). During the actual process of conducting the study in the rural schools, no problems were encountered with the understanding of the questions. The principal of each school had reviewed the questionnaire and teachers were present and involved in administering the questionnaire, together with the researcher. Further evidence relates to the internal consistency (Cronbach's coefficient alpha) value of 0.61, which is acceptable for research purposes (18). This finding suggests adequate reliability in the sample, certainly comparable to South African data in this regard which cited a value of 0.62 in a black, university sample (16). This value was not mentioned in the study by King and Bhugra (14). A subsequent study conducted in Mirpur, Pakistan (15) found that the EAT-26 could be translated (into Urdu in this instance) and used in a non-Western setting, based on the questionnaire demonstrating adequate linguistic, scale and conceptual validity.

A further procedure involved a confirmatory factor analysis. In the original version of the EAT-26, the three factors accounted for 40.2% of the total variance (10), whereas in the current rural black sample the three factors accounted for 24.8% of the total variance. In our urban white sample (7), 44% of the variance could be explained by the three factors, with factor 1 accounting for 28% of the total variance. In our urban black sample (7), 31% of the variance could be explained by the three factors, with factor 1 accounting for 16.6% of the total variance. In essence, it appears that, relative to the original study (10), in South Africa, urban white respondents perform in a similar fashion (7), whereas rural respondents (current

study) perform somewhat differently, with urban black respondents closer to urban white respondents in this regard (7).

In conclusion, the current study appears to be the first to make use of a Zulu version of the EAT-26 in a black South African, adolescent, female population. There are no earlier or subsequent studies to date that are directly comparable. Whilst the findings are in keeping with the original hypothesis, it would be prudent to regard them as preliminary. Further research is required, specifically related to refining current instruments or developing alternative, culture-specific, instruments used to explore eating related psychopathology. Whilst the suggestion is that there is less risk for eating disorders emerging among rural dwelling black South Africans, there is nonetheless a risk. The basis of the relatively low prevalence of abnormal eating attitudes in rural compared to urban dwellers requires exploration. This may yield information of relevance for community based preventive interventions, related to eating disorders, that may be of utility not only within South Africa but also globally.

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References

1. Norris DL. Clinical diagnostic criteria for primary anorexia nervosa. South Afr Med J 1979;56:987-93.
2. Beumont PJ, George GCW, Smart DE. 'Dieters' and 'vomiters' and 'purgers' in anorexia nervosa. Psychol Med 1976;6:617-32.
3. Szabo CP, Berk M, Tlou E et al. Eating disorders in black female South Africans. A series of cases. South Afr Med J 1995;85:588-90.
4. Szabo CP, Hollands C. Abnormal eating attitudes in secondary-school girls in South Africa, a preliminary study. South Afr Med J 1997;87:524-30.
5. le Grange D, Telch CF, Tibbs J. Eating attitudes and behaviours in 1435 South African Caucasian and non-Caucasian college students. Am J Psychiatry 1998;155:250-4.
6. Wassenaar D, le Grange D, Winship J et al. The prevalence of eating disorder pathology in a cross-ethnic population of female students in South Africa. Eur Eat Disord Rev 2000;8:225-36.
7. Szabo CP, Allwood CW. A cross-cultural study of eating attitudes in adolescent South African females. World Psychiatry 2004; 3:41-4.
8. Szabo CP. Eating attitudes among black south africans. Am J Psychiatry 1999;156:981-2.
9. Szabo CP, le Grange D. Eating disorders and the politics of identity: the South African experience. In: Nasser M., Katzman M., Gordon R (eds). Eating disorders and cultures in transition. London: Routledge, 2001:24-33.
10. Garner DM, Olmsted MP, Bohr Y et al. The Eating Attitudes Test: psychometric features and clinical correlates. Psychol Med 1982;12:871-8.
11. Sidiropoulos E, Jeffery A, Forgey H et al. South Africa survey 1997/1998. Johannesburg: South African Institute of Race Relations, 1998.
12. Williams RL. Use of the Eating Attitudes Test and Eating Disorder Inventory in adolescents. J Adolesc Health Care 1987;8:266-72.
13. Office of Population Censuses and Surveys. Standard occupational classification, Vol. 3. London: HMSO, 1991.
14. King MB, Bhugra D. Eating disorders: lessons from a cross-cultural study. Psychol Med 1989;19:955-8.
15. Choudry IY, Mumford DB. A pilot study of eating disorders in Mirpur (Pakistan) using an Urdu version of the Eating Attitudes Test. Int J Eat Disord 1992;11:243-51.
16. Senekal M, Steyn NP, Mashego TB et al. Evaluation of body shape, eating disorders and weight management parameters in black female students of rural and urban origins. South Afr J Psychol 2001;31:45-53.
17. Williams P, Hand D, Tarnopolsky A. The problem of screening for uncommon disorders - a comment on the Eating Attitudes Test. Psychol Med 1982;12:431-4.
18. Mitchell ML, Jolley JM. Research design explained, 4th ed. Fort Worth: Harcourt Brace, 2001.