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Original article

Disordered eating among a multi-racial/ethnic sample of female high-school athletes

Yael Pernick, M.S.[a], Jeanne F. Nichols, Ph.D.[a,*], Mitchell J. Rauh, M.P.H., Ph.D., P.T.[a,b], Mark Kern, Ph.D., R.D.[a], Ming Ji, Ph.D.[c], Mandra J. Lawson, M.S., R.D.[a], and Denise Wilfley, Ph.D.[d]

[a]*Department of Exercise & Nutritional Sciences, San Diego State University, San Diego, California*
[b]*Rocky Mountain University of Health Professions, Provo, Utah*
[c]*Graduate School of Public Health, San Diego State University, San Diego, California*
[d]*Departments of Psychiatry, Medicine, Pediatrics, and Psychology, Washington University School of Medicine, St. Louis, Missouri*

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Abstract

Purpose: To determine the prevalence of disordered eating (DE) attitudes and behaviors in a multi-racial/ethnic sample of female high-school athletes.

Methods: The Eating Disorders Examination Questionnaire (EDE-Q) was administered to 453 suburban female high-school athletes (277 Caucasian, 103 Latina, and 73 African American; aged 15.7 ± 1.2 years) during their competitive season.

Results: The prevalence of DE in the total sample was 19.6%; among the three ethnic groups, prevalence estimates were 19.2%, 18.4%, and 23.3% for African Americans, Caucasians, and Latinas, respectively. The prevalence estimates of binge eating (12.6%) and vomiting (7.8%) were significantly higher in Latinas as compared to African Americans (5.5%, 1.4%) and Caucasians (5.4%, 2.2%; χ^2 $p < .05$). The prevalence of diuretic and laxative use was low among all athletes ($< 3\%$), with no differences by ethnicity ($p > .05$). After adjusting for body mass index (BMI) and sport, analysis of covariance (ANCOVA) with Bonferroni post-hoc pair-wise comparisons indicated that Caucasian and Latina athletes scored higher than African Americans on all EDE-Q subscales except eating restraint, which was higher only in Caucasians compared to African Americans ($p =$ .001–.046).

Conclusions: Caucasian and Latina female high-school athletes may be at greater risk for eating disorders than their African American peers. Furthermore, Latina athletes may be particularly at risk for binge-eating disorder. Culturally-sensitive behavioral interventions targeted specifically for high-school athletes are needed to reduce the risk of eating disorders and associated long-term health consequences in this population.

Keywords: Adolescents; Eating disorders; Ethnicity; Exercise; Sport

Participation in competitive sports has greatly increased among female adolescents over the past few decades. With more girls being coached and trained at a very young age, and due perhaps to excessive pressure exerted by coaches and parents, female athletes are becoming more susceptible at a younger age to extreme weight control practices to enhance performance [1]. Eating disorders and subclinical disordered eating (DE) attitudes and behaviors have been reported in girls as young as 6 years [2].

Although the prevalence of clinical eating disorders, including anorexia nervosa and bulimia nervosa, is low in both athletes and non-athletes [1], prevalence estimates of subclinical DE attitudes and behaviors have been reported

*Address correspondence to: Jeanne F. Nichols, Ph.D., Department of Exercise & Nutritional Sciences, San Diego State University, San Diego, CA 92182-7251.

E-mail address: jeannebernhard@cox.net

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as high as 62%, with most studies conducted in collegiate athletes [3–6]. Less is known regarding the prevalence of DE in high-school athletes. As DE puts women at greater risk for eating disorders and associated co-morbidities [7], early recognition of DE attitudes and behaviors is essential. DE behaviors such as restricting food intake to maintain low body weight while training, while seemingly less severe than binging, purging, or use of laxatives or diet pills, may lead to menstrual dysfunction and bone mass loss [8–10]. A recent study of young military women found that restricted food intake under controlled conditions elevated rates of biomarkers of bone turnover after just 5 days of moderate food restriction [11]. Thus, young female athletes who chronically restrict energy may not be optimizing bone mineral accrual during their critical adolescent years, and therefore may be placing themselves at risk for future osteoporosis.

Most clinical reports of eating disorders in adolescents indicated that this serious health concern occurred mostly in Caucasian women [8,12]. However, several recent studies have shown the existence of eating disorders and DE behaviors in women and girls from other ethnic groups [13,14]. Higher prevalences of binging, vomiting, and bulemia [14,15] have been reported in adolescent female Asian Americans compared to Caucasians, whereas African American women typically report fewer eating disorder symptoms compared to Caucasian women [8,13]. Much less is known regarding eating attitudes and behaviors of Latina women and girls. A study of non-athletes reported more body dissatisfaction in Latinas compared to Caucasian girls [16], whereas another study that included Latina, Asian, and Caucasian college women reported few ethnic differences in DE after controlling for group differences in body mass index (BMI) [17]. Thus, the different findings may be due to group differences in body weight, which has been shown to influence scores on eating behavior questionnaires [18].

While most data on DE in athletes are from studies in college women, many female collegiate athletes reported that their DE behaviors began in high school or earlier [19]. To our knowledge, only one study has reported ethnic comparisons of DE attitudes and behaviors in high-school athletes [20]. Those investigators found higher scores on the Eating Disorder Inventory (EDI) in an urban sample of Caucasian and Latina high-school athletes as compared to African Americans [20]. Thus, more information is needed to better understand the influence of race/ethnicity on eating attitudes and behaviors among young athletes.

Cultural norms regarding body image and weight control practices are important considerations when developing interventions to reduce health risks associated with DE. Identifying cultural differences in DE attitudes and behaviors is the first step toward designing such interventions. Therefore, the purposes of this study were to determine and compare prevalence estimates of DE in a multiethnic sample of female high-school athletes, and to determine the influence of BMI and sport on eating attitudes and behaviors in high-school athletes.

Methods

Participants

A total of 513 female athletes, 13–18-years-old, were recruited from six high schools in southern California. The sample represented a response rate of 79.6% of all athletes listed on the team rosters at the time of data collection. Girls were included if they were actively competing in one of the school's 10 sports teams during their respective sport season. Six racial/ethnic groups were originally assessed: African American, Caucasian, Latina, Asian, Filipino, and "Other." The athletes were asked to indicate on a questionnaire the group they considered their primary ethnicity. If an athlete identified herself as more than one racial/ethnic group, the categorization used by Neumark-Sztainer et al [21] was applied. For example, participants indicating Latina and Caucasian ethnicity were coded as Latina. Due to the small number reporting Asian, Filipino, or "Other" race/ethnicity (12% of the total sample, combined), these girls were excluded from analyses. Thus, the final sample was comprised of 453 athletes, including 277 Caucasian (61%), 103 Latina (23%), and 73 African American (16%) athletes. The sports represented in the sample (most to least participants) were: track and field, cross-country running, tennis, volleyball, basketball, softball, soccer, swimming, lacrosse, and field hockey. The athletes and their parent or legal guardian (if under 18 years) gave written consent to participate. The study received approval by the university's Institutional Review Board.

Procedures

The Eating Disorders Examination Questionnaire (EDE-Q) was used to identify DE. The EDE-Q is the self-report version of the EDE [22], which was designed as a structured interview for diagnosing eating disorders. Fairburn and Beglin [23] adapted the items from the EDE and made them suitable for a self-report measure. The EDE-Q assesses the core pathology of eating disorders using a time-frame of the past 4 weeks. Four subscales, including dietary restraint, eating concern, shape concern, and weight concern; a global score (mean of all subscales); and pathogenic behaviors, including binge eating, vomiting, use of diuretics, and laxative use are scored on a six-point rating scale, with higher numbers indicating more eating disturbances. The four subscales of the EDE-Q correlate well with the EDE ($r = .79–.81$) [23,24]. Pathogenic behaviors have moderate to very high correlations with the EDE ($r = .60–.88$), with the exception of binge eating ($r = 0.45$) [23]. The EDE-Q has also been shown to have excellent test-retest reliability [25].