

## Original Article

## FREQUENCY OF DISORDERED EATING AND MENSTRUAL DYSFUNCTIONS IN FEMALE ATHLETES

Shumaela Kanwal, Sibgha Zulfiqar, Hamid Javaid Qureshi and Sohail Aslam

**Objectives:** To determine the frequency of disordered eating and menstrual dysfunctions in female athletes.

**Material and Method:** This was a cross sectional study. A Total of 66 female athletes from different colleges of Lahore participated in the study. Disordered eating was assessed using eating disorder examination questionnaire (EDE-Q) and menstrual dysfunctions were determined using standardized questionnaire.

**Results:** Disordered eating was present in 15.2% while menstrual dysfunctions were present in 4.5% of the female athletes.

**Conclusion:** It is concluded that frequency of disordered eating is high in female athletes while menstrual dysfunctions are not common in female athletes of major teaching institutions of Lahore.

**Keywords:** disordered eating, menstrual dysfunctions, female athletes.

### Introduction

During the last few years, participation of female athletes in sports has been remarkably increased.<sup>1</sup> Female participation in competitive sports is appreciated but due to sports activities, they may have increased risk of developing disordered eating (DE).<sup>2</sup> Disordered eating is a form of abnormal eating that does not fulfill the criteria for a specific clinical disorder (anorexia nervosa, bulimia nervosa and eating disorders not otherwise specified).<sup>3,4</sup> Disordered eating includes abnormal eating behaviors like restrictive dieting, bingeing, purging, excessive exercising, use of laxatives, diuretics and diet pills in order to lose weight.<sup>5</sup> Disordered eating not only affects the physical and mental health of a person but it can also develop into clinical eating disorder.<sup>6</sup> The female athletes are at greater risk of having disordered eating as compared to general population.<sup>3</sup> Requirements to achieve low body weight in certain types of sports, desire to perform better, pressure from coaches and lack of nutritional knowledge some of the factors that increase the risk of disordered eating in female athletes.<sup>7</sup> Abnormalities of menstrual function also occur in female athletes engaged in strenuous physical activity.<sup>8</sup> Menstrual dysfunctions usually manifest as oligomenorrhea or amenorrhea.<sup>9</sup> The cause of menstrual dysfunctions is decreased secretion of anterior pituitary gonadotropins.<sup>10,11</sup> The outcome of both DE and menstrual dysfunction is that the athletes suffer from chronic fatigue, increased risk of musculoskeletal injuries and endocrinal abnormalities.<sup>3</sup>

The aim of this study was to determine the frequency of disordered eating behaviors and menstrual disturbances in female athletes of major teaching institutions of Lahore.

### Methods

This is a cross-sectional study. The study population consisted of female college athletes. A female participating in competitive sports was considered as athlete. A total of 66 female athletes of the age 16-24 years engaged in competitive sports participated in this study. The participants were recruited from Lahore College for Women University, Kinnaird College for Women, Government Girls College, Samanabad and University of the Punjab, Lahore. They were involved in competitive sports played at intermediate board and university level. This study was approved by institutional ethical review committee. Informed consent was taken from each participant of the study and procedure was explained to each participant. Age of the participants, age at start of athletic activity, duration of athletic activity, type of sports and hours of exercise per day was recorded in standardized proforma.

### Evaluation of disordered eating:

Disordered eating was evaluated using eating disorder examination questionnaire (EDE-Q). This questionnaire assessed the main behavioral and attitudinal features of disordered eating over a period of 28 days. The abnormal eating behavior has four subscales; dietary restraint, eating concern, weight concern and shape concern subscale. Presence of a particular behavior over a period of time was

determined using the questionnaire. Scores for four subscales of disordered eating were calculated as follows; Score zero showed absence of behavior. Score 1 was given for the feature present for 1-5 days, score 2 for the feature present for 6-12 days, 3 for feature present for 13-15 days, score 4 for feature present for 16-22 days, score 5 for feature present for 23-27 days and score 6 for the feature present for 28 days. The four subscale scores were averaged to calculate global scores. Athletes having 4 or higher scores on weight or shape concern subscale or global score were classified to have DE behavior.<sup>9,10</sup>

**Evaluation of menstrual disturbances:** Menstrual history was taken using a standardized questionnaire.<sup>11</sup> On the basis of menstrual history, athletes were divided into three groups.

**Eumenorrhic:** Athletes with normal menstrual cycle (10-13cycles/year) Oligomenorrhic: Athletes having 4-9 menstrual cycles/year.

**Amenorrhic:** Athletes having absent menstrual cycle for 3 consecutive months.<sup>12</sup>

Data was entered and analyzed by using SPSS version 15.

## Results

**Table-1** illustrates the mean  $\pm$  SD of age, age at start of athletic activity and hours of exercise per day. Sports played by athletes included lean and non lean sports (**Table-2**) Mean scores of EDE-Q subscales and global scores are given in (**Table 3.**) DE behavior was found in 15.2% of female athlete Whereas oligomenorrhea was present in 4.5% of the participants; none of them had amenorrhea (**Table 4 and 5**).

**Table-1:** General characteristics of female athletes (n=66).

Characteristics	Mean $\pm$ SD	Range
Age (years)	18.5 $\pm$ 1.81	16 - 23
Age at start of athletic activity (years)	14.24 $\pm$ 2.03	10 - 18
Training volume (hours/day)	2.77 $\pm$ 0.9	1.5 - 6

**Table-2:** Sports categories of athletes (n=66).

Non Lean Sports (n=58)	Lean sports (n=8)
Basket ball/Volley ball/net ball 26	Athletics (2)
Cricket (15)	Gymnastics
Javelin Thro (1)	Running (3)
Hockey (15)	Swimming
Table Tennis (1)	

**Table-3:** EDE-Q subscale and global scores (n=66).

Subscale	Mean $\pm$ SD	Range
Restraint subscale	0.49 $\pm$ 0.63	0.00 - 2.80
Eating concern subscale	0.27 $\pm$ 0.5	0.00 - 2.25
Weight concern subscale	1.35 $\pm$ 1.33	0.00 - 5.00
Shape concern subscale	1.83 $\pm$ 1.37	0.00 - 5.14
Global score	1.11 $\pm$ 1.28	0.00 - 7.74

**Table-4:** Disordered eating behaviors in female athletes (n=66)

Disordered eating behavior	Frequency	Percentage
Present	10	15.2%
Absent	56	84.8%
Total	66	100%

**Table-5:** Menstrual status in female athletes.

Menstrual status	Frequency	Percentage
Eumenorrhea	63	95.45%
Oligomenorrhea	3	4.66%
Amenorrhea	3	0%
Total	66	100%

## Discussion

In this study, disordered eating and menstrual dysfunctions were determined in female athletes involved in competitive sports. In this study, 15.2% of female athletes were suffering from disordered eating. Marianne et al (2013) in their study found that prevalence of DE behaviors was more common in female athletes (7.0%) as compared to general population (2.3%).<sup>13</sup> However in other studies; a much higher prevalence of disordered eating was reported. In another study conducted by Torres et al (2011), 42% of the female athletes were reported to have DE behaviors.<sup>14</sup>

The frequency of menstrual dysfunction in the present study was found to be 4.5%. All athletes had oligomenorrhea. None of them had amenorrhea. This result shows a lower frequency of menstrual dysfunctions as compared to other studies. Julie et al (2012) reported that 19.7% of the athletes had menstrual dysfunctions.<sup>15</sup> Of these 14.7% had oligomenorrhea while 5.0% had amenorrhea. Thein-Nissenbaun et al (2012) found that 19.7% athletes had menstrual irregularities.<sup>16</sup>

The differences in reported frequencies of these disorders and the present study may be due to a number of factors like type of sport, level of competition, volume of exercise and sample size.<sup>18,19</sup>

eating is high but abnormalities of menstrual function are not common in female athletes

## Conclusion

This study concludes that frequency of disordered

*Department of Physiology  
Akhtar Saeed Medical & Dental Collage Lahore  
[www.esculapio.pk](http://www.esculapio.pk)*

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