

Knowledge, Attitude and Practice of Eating Disorders among Children and Adolescents Engaged in Sports: A Cross-sectional Study

Mridula Goswami¹, Gyanendra Kumar², Aditi Garg³, Sakshi Bhardwaj⁴

ABSTRACT

Aim and objective: To assess the knowledge, attitude, and practices regarding eating disorders among children and adolescents, engaged in sports.

Materials and methods: A total sample of 650 children was recruited and further divided into two groups on the basis of age. Group I comprised of children and adolescents between 10–14 years of age and Group II between 15–18 years of age. A self-instructed open ended questionnaire was used in English and Hindi. The sports included were Basketball, Yoga, Wrestling, Judo, Cricket, Gymnastics, Boxing, Badminton, Table Tennis and others based on the availability of children in each sport.

Result: The mean knowledge, attitude, and practice of Bulimia nervosa in Group I was 0.228 ± 0.41 , 2.69 ± 0.586 , and 0.000 , respectively. The mean knowledge, attitude, and practice of Anorexia nervosa in Group I was 4.76 ± 1.2 , 0.22 ± 0.41 , and 1.17 ± 0.908 . The mean knowledge, attitude, and practice of Binge eating disorders in Group I was 0.22 ± 0.41 , 1.65 ± 0.50 , and 0.18 ± 0.39 , respectively. The mean knowledge, attitude, and practice of Bulimia nervosa in Group II were 3.717 ± 1.21 , 0.34 ± 0.56 , and 0.145 ± 0.35 . The mean knowledge, attitude, and practice of Anorexia nervosa in Group II were 5.26 ± 1.17 , 0.34 ± 0.56 , and 1.12 ± 0.85 . The mean knowledge, attitude, and practice of Binge eating disorders in Group II were 0.34 ± 0.56 , 1.76 ± 0.42 , and 0.28 ± 0.60 .

Conclusion: The likely chance of developing an eating disorder and habits practiced related to Bulimia nervosa and Anorexia nervosa was found higher among adolescents between 15–18 years of age. However, these findings were found similar for Binge eating disorders among both age groups.

Keywords: Anorexia nervosa, Binge eating disorder, Bulimia nervosa, Eating disorder.

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INTRODUCTION

According to Academy of Sports Dentistry (2018) 'Sports Dentistry is the branch of sports medicine that deals with the prevention and treatment of dental injuries and related oral diseases associated with sport and exercise.¹ From previous studies, it has been studied that athletes went through various psychological aspects such as attempts of gaining ideal physique, performance pressure, inappropriate training/overtraining, peer pressure, and disorientation during sports participation.² As a result, the chances of developing psychological disturbances are also found higher among athletes.³

The pressure of having 'ideal' physique leads to disordered eating habits, strenuous exercise is considered to be one of the risk factors for developing eating disorders in such athletes. According to American Psychiatric Association (1994), 'Eating disorders are illnesses in which the people experience severe disturbances in their eating behaviors and related thoughts and emotions.⁴ The common eating disorders prevalent among athletes includes Bulimia nervosa, Anorexia nervosa and Binge eating Disorders. By analyzing the eating patterns, dietary contents, and schedule a clinician can effectively diagnose this alarming condition.⁵

It has been studied that the prevalence of eating disorders is higher among elite athletes who are emphasizing on thin body and utilize weight categories. It has been studied that athletes who participate in sports with applied weight classification such as wrestling are more vulnerable of having eating disorders.⁶ However, studies enlightening the knowledge, attitude, and practice of

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eating disorders are still lacking. Most of the available literature emphasizes on high prevalence of eating disorders among female athletes and its relation with specific sports categories.⁷ Therefore, there is lack of data focusing on the prevalence of eating disorders with wide range of sports. Also, there is no study that focus on age specific knowledge, attitude, and practice regarding eating disorders among children and adolescent engaged in sports activity.⁸ The purpose of present study was to assess the knowledge, attitude, and practice regarding eating disorders among children and adolescents engaged in sports.

MATERIALS AND METHODS

The present study was a cross-sectional study in which total of 650 children and adolescents between 10 and 18 years of

age were included. The study was conducted after obtaining informed consent from the Sports Authority of India, Indira Gandhi International Stadium, New Delhi, India.

A total sample of 650 children was recruited randomly, on the basis of availability of children by simple random sampling. The sample was further divided into two groups on the basis of age, i.e, Group I and Group II. Group I comprised of 325 children and adolescent between 10–14 years of age and Group II comprised of 325 children and adolescent between 15 and 18 years of age. The sample included the availability of children in sports such as Basketball, Yoga, Wrestling, Judo, Cricket, Gymnastics, Boxing, Badminton, Table Tennis, and others. Only the children who were engaged in sports activity and willing to participate in the study were included.

A self-instructed questionnaire with open ended questions in both English and Hindi was used for the collection of data from the children. The demographic details such as name, age, sex, address, education status, and religion were recorded. Parental factors such as their concern for diet, emotional connection of children with parents were also emphasized. The questionnaire was further implied towards knowledge, attitude, and practice of eating disorders among children and adolescents. Open ended questions for further diagnosis of Bulimia nervosa, Anorexia nervosa, and Binge eating disorder were also included based on DSM-V criteria.

Data analysis was performed using the Statistical Package for the Social Science-21 (SPSS Inc, Chicago, USA). Descriptive statistics that included mean, standard deviation, and percentages were calculated for each of the variables. Significance for all statistical tests was predetermined at a probability value of 0.05 or less and t-test was used for data analysis.

RESULTS

Out of total sample of 650, 325 children between 10 and 14 years of age were included in Group I and 325 children between 15-18 years were included in Group II. Within Group I maximum number of participants were 14 years of age and in Group II the maximum number of participants were 16–17 years of age as shown in Figure 1.

In Group I, 180 (58.5%) were males and 145 (42.5%) were females whereas in Group II, 58.1% (189) were males and 41.8% (136) were females as shown in Figure 2. Out of total sample 33%

(220) were Hindu being the highest, 19% (123) were Muslim, 21% (136) were Christian, 16% (101) were Sikhs and 11% (70) were Jain.

The participants were surveyed regarding their consciousness related to body weight, body size, and personality for which 83.8% in Group I and 91.6% in Group II responded that they are conscious as shown in Figure 3. None in Group I and 14.5% in Group II reported that they attempt to vomit forcefully after being uncomfortably full as shown in Figure 4.

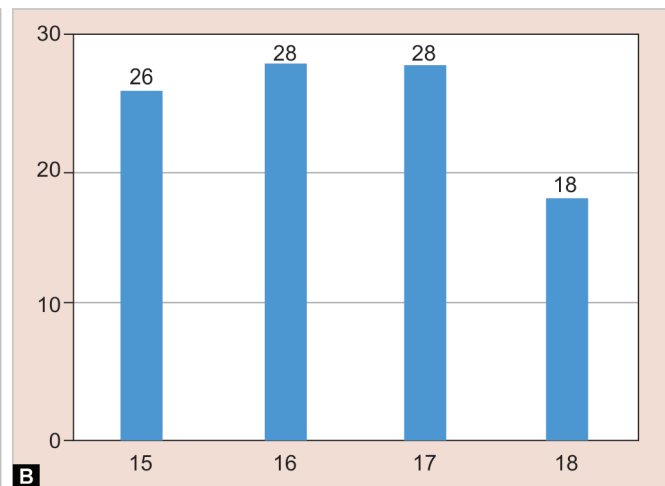
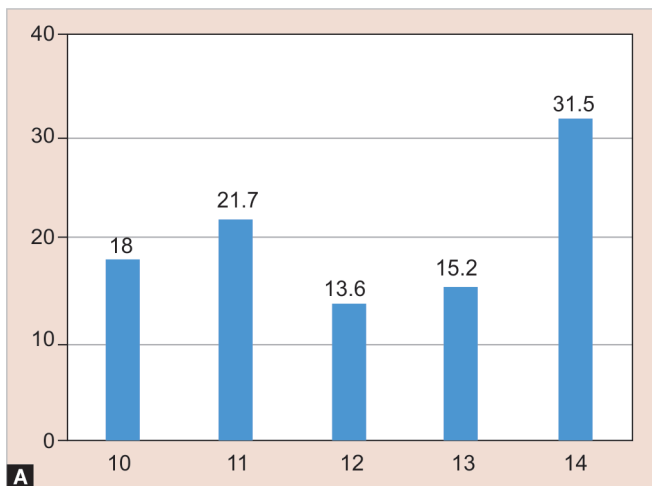
On asking questions regarding weight loss 0.3% in Group II and none in Group I reported that they have lost more than 9 kg of body weight in past 6 months. Also, 67.3% in Group II and 52.7% in Group I reported that they have a family history of obesity, depression, mental illness, and substance abuse as shown in Figure 5. Questions directed towards signs and symptoms of eating disorders were asked for which 59.8% in Group II and 51.9% in Group I reported that they felt dizzy, weak, and also have fainted. Nearly 4% in Group II and none in Group I reported that they experience constipation, diarrhea, and abdominal pain frequently shown in Figure 6. Among Group II, 24.9% and 20.1% in Group I reported that if one is diagnosed with these symptoms medical consultation is required shown in Figure 7.

Out of sample of 145 females in Group I, 56% (81) were conscious about body weight, food habits, and body image whereas out of 136 females in Group II, 66% (90) were conscious about body weight, food habits, and body image. Out of sample of 180 males in group I, 25.8% (45) were conscious about body weight, food habits, and body image whereas out of 189 males in Group II, 27.6% (50) were conscious as shown in Figure 8.

In Group I, 51% (74) females and 76% (103) in Group II were worried about their loss of control on eating whereas 32% (58) males in Group I and 39% (70) males in Group II were worried about their loss of control on eating as shown in Figure 9.

It was found that 56% (81) females in Group I and 72% (98) in Group II were feeling the impulse to vomit immediately after the meals whereas 19% (34) males in Group I and 23% (43) in Group II were feeling the impulse to vomit immediately after the meals as shown in Figure 10.

In Group I, 31% (45) females and out of 136 females in Group II, 48% (65) females reported use of diet pills regularly. However, out of sample of 180 males in Group I, 12% (22) and out of 189 males in Group II, 17% (32) reported use of diet pills regularly as shown in Figure 11.



Figs 1A and B: Distribution of males and females in Group I and Group II based on age in years

28% (41) females between 10 and 14 years of age and 37% (50) females between 15 and 18 years of age reported loss of weight 9 kg or more in the past 6 months. Among males, 11% (20) in Group I and 16% (30) in Group II reported loss of weight of 9 kg or more in the past 6 months as shown in Figure 12.

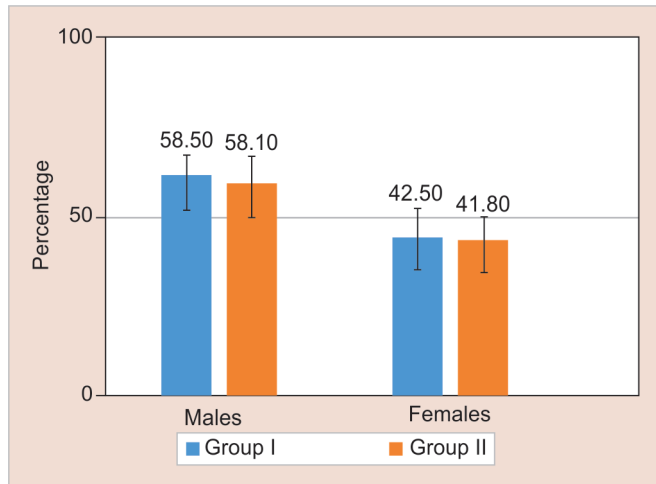
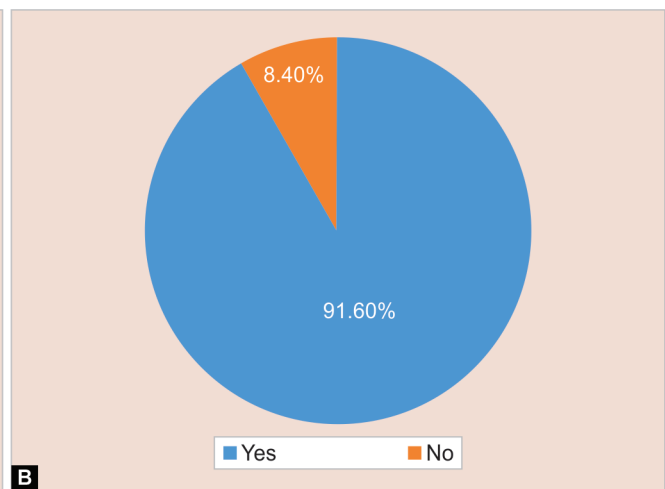
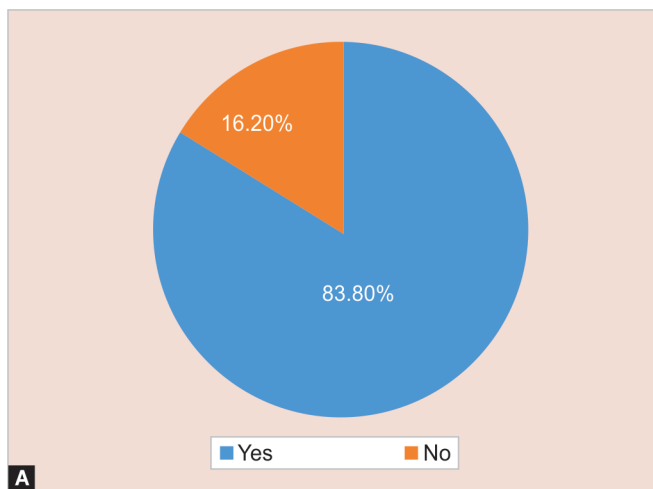


Fig. 2: Sex distribution of males and females in Groups I and II

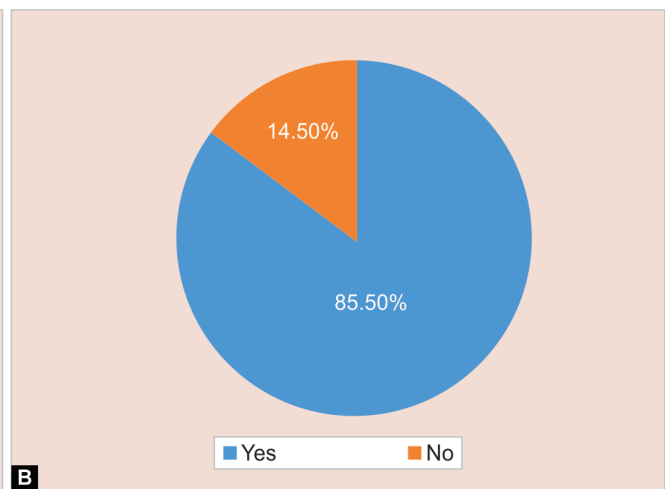
It was found that the total risk of developing eating disorders among females in Group I was 44.4% whereas in Group II it was 59.7%. However, among males in Group I, the risk was 19.96% and in Group II it was 24.52%.

The mean knowledge, attitude, and practice of Eating disorders in Group I was 0.22 ± 0.416 , 3.37 ± 0.848 , and 1.36 ± 1.034 , respectively and in Group II was 0.34 ± 0.565 , 3.84 ± 0.823 , and 1.49 ± 0.991 , respectively. The mean knowledge score of eating disorders in Group I (0.22 ± 0.416) was found to be lower in comparison to Group II (0.34 ± 0.565) with the difference being statistically insignificant ($p > 0.05$). The mean attitude score of eating disorders in Group I (3.37 ± 0.848) was found to be lower in comparison to Group II (3.84 ± 0.823) with the difference being statistically significant ($p < 0.05$). Also, the mean practice score of eating disorders in Group I (1.36 ± 1.034) was found to be lower in comparison to Group II (1.49 ± 0.991) with the difference being statistically significant ($p < 0.05$) as shown in Table 1.

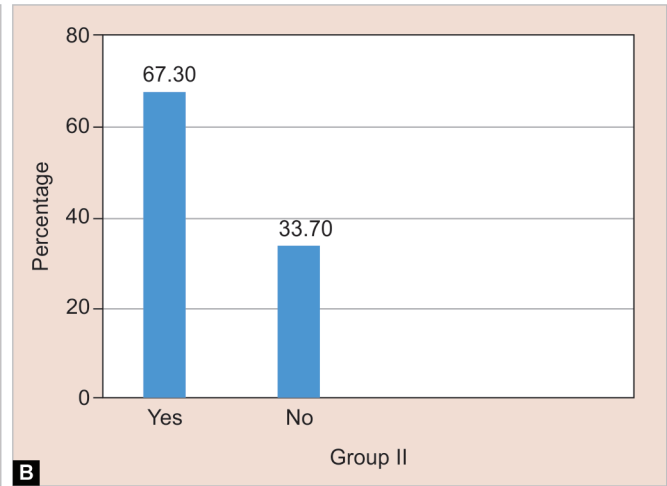
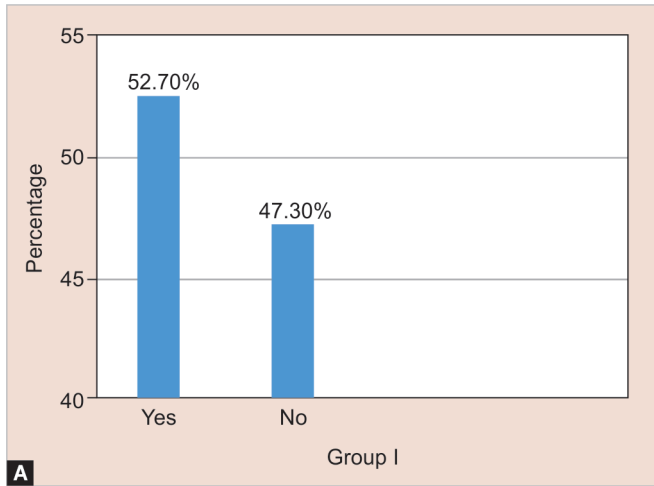
The mean knowledge, attitude, and practice of Bulimia nervosa in Group I was 0.228 ± 0.41 , 2.69 ± 0.586 , and 0.000 , respectively and in Group II was 3.717 ± 1.21 , 0.34 ± 0.56 , and 0.145 ± 0.35 , respectively. The mean knowledge score of Bulimia nervosa in Group I was found to be lower as compared to Group II with the difference being statistically insignificant ($p > 0.05$). The mean



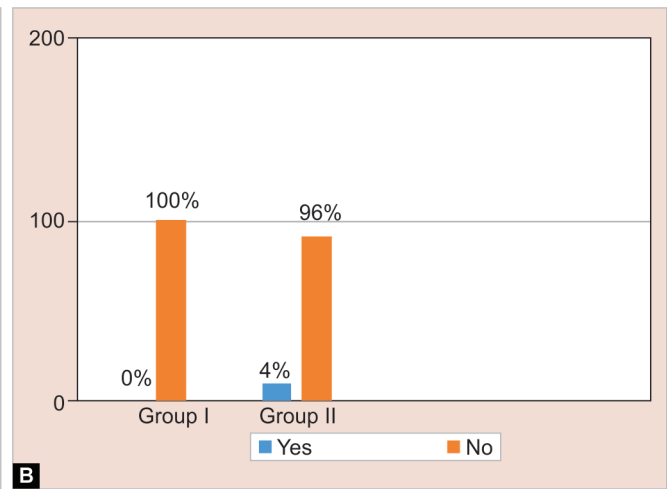
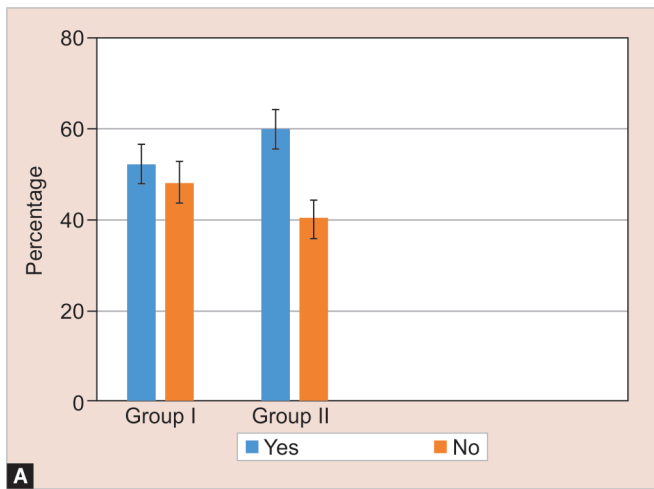
Figs 3A and B: Percentage based upon consciousness about body weight, food habits, and body image in Groups I and II



Figs 4A and B: Percentage based upon their attempt to vomit forcefully after being uncomfortably full in Groups I and II



Figs 5A and B: Percentage based on their family history of obesity, depression, mental illness and substance abuse in Groups I and II



Figs 6A and B: Comparison between Groups I and II based on signs and symptoms

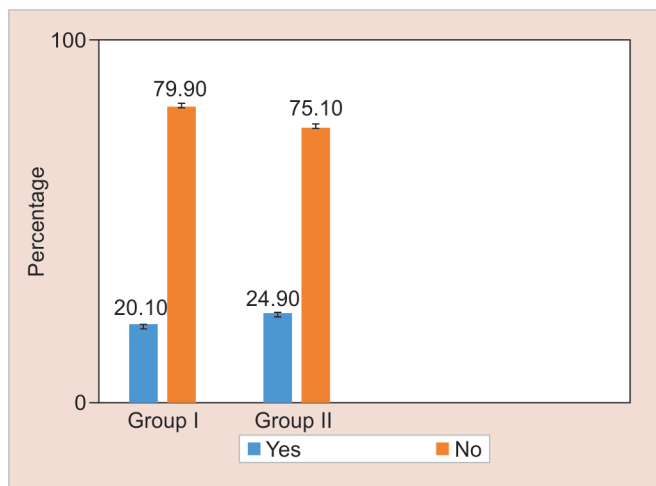


Fig. 7: Comparison between Groups I and II based on their opinion regarding need for medical consultation if one is diagnosed with eating disorder

attitude score of Bulimia nervosa in Group I was found to be higher in comparison to Group II with the difference being statistically significant ($p < 0.05$). The mean practice score of Bulimia nervosa

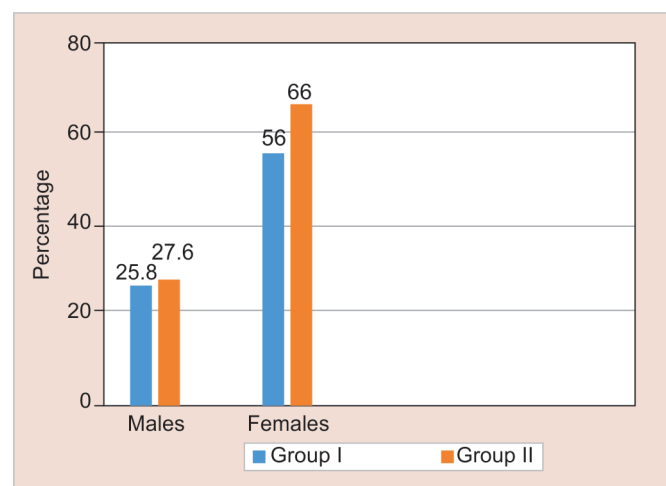


Fig. 8: Distribution of males and females among Group I and II based on their consciousness about body weight, food habits, and body image

in Group I was lower in comparison to Groups II with the difference being statistically significant ($p < 0.05$) as shown in Table 2.

The mean knowledge, attitude, and practice of Anorexia nervosa in Group I was 4.76 ± 1.2 , 0.22 ± 0.41 , and 1.17 ± 0.908 and in

Group II was 5.26 ± 1.17 , 0.34 ± 0.56 , and 1.12 ± 0.85 , respectively. The mean knowledge score of Anorexia nervosa in Group I was lower than Group II with the difference being statistically insignificant ($p > 0.05$). The mean attitude score of Anorexia nervosa in Group I was lower in comparison to Group II with the difference being statistically significant ($p < 0.05$). The mean practice score of Anorexia nervosa in Group I was higher in comparison to Group II with the difference being statistically significant ($p < 0.05$) as shown in Table 3.

The mean knowledge, attitude, and practice of Binge eating disorders in Group I was 0.22 ± 0.41 , 1.65 ± 0.50 , and 0.18 ± 0.39 , respectively and in Group II was 0.34 ± 0.56 , 1.76 ± 0.42 , and 0.28 ± 0.60 , respectively. The mean knowledge score of Binge eating disorder in Group I was found to be lower in Group II with the difference being statistically insignificant ($p > 0.05$). The mean attitude score of Binge eating disorder in Group I which was lower in Group II with the difference being statistically insignificant ($p > 0.05$). The mean practice score of Binge eating disorder in

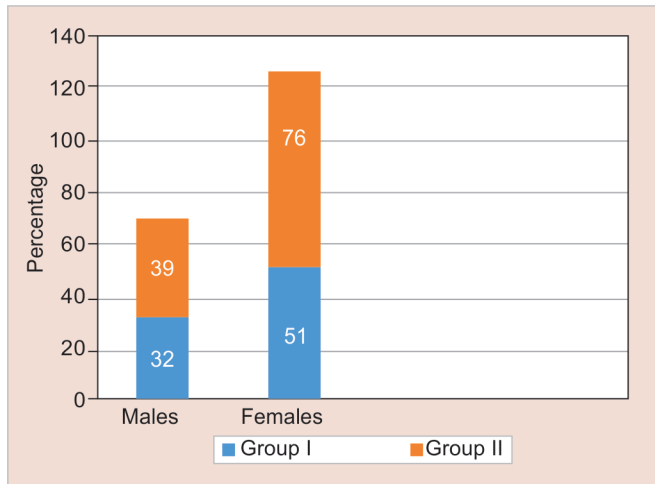


Fig. 9: Distribution of males and females among both the groups whether they are worried about their loss of control on eating

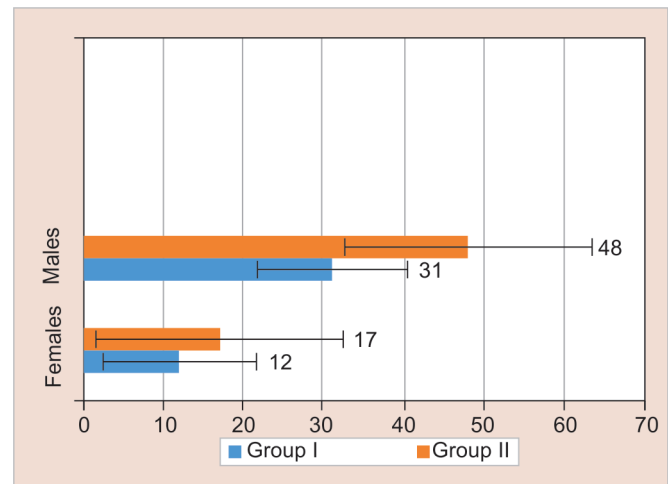


Fig. 11: Distribution of males and females among both the groups using diet pills regularly

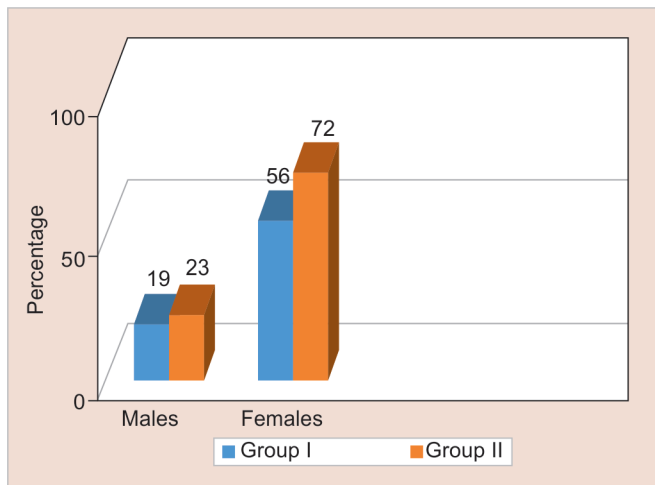


Fig. 10: Distribution of males and females among both the groups about their impulse to vomit immediately after the meals

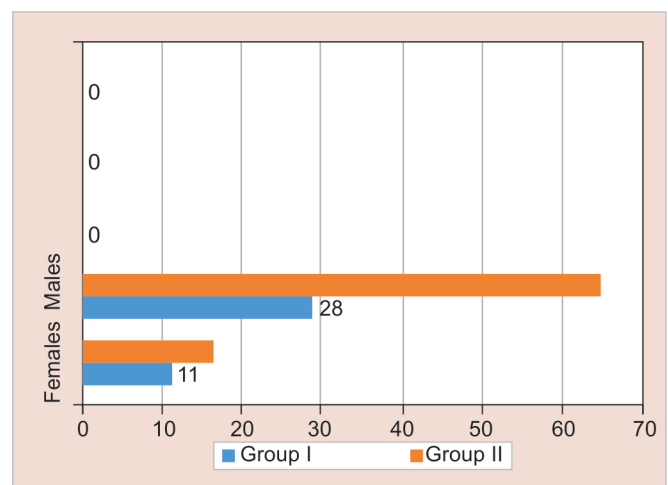


Fig. 12: Distribution of males and females who lost more than 9 kg of weight in past 6 months

Table 1: Mean knowledge, attitude and practice score of eating disorders among Group I and Group II

Mean score	Group I	Group II	Significance P value
Knowledge of eating disorder	0.22 ± 0.416	0.34 ± 0.565	0.1
Attitude of eating disorder	3.37 ± 0.848	3.84 ± 0.823	0.001
Practice of eating disorder	1.36 ± 1.034	1.49 ± 0.991	0.008

Table 2: Mean knowledge, attitude and practice score of bulimia nervosa

Mean score	Group I	Group II	Significance P value
Knowledge of bulimia nervosa	0.228 ± 0.4163	3.717 ± 1.21	0.2
Attitude of bulimia nervosa	2.6948 ± 0.586	0.34 ± 0.56	0.003
Practice of bulimia nervosa	0.000	0.145 ± 0.35	0.000

Table 3: Mean knowledge, attitude and practice score of Anorexia nervosa among Group I and Group II

Mean score	Group I	Group II	Significance P value
Knowledge of anorexia nervosa	4.76 ± 1.29	5.26 ± 1.17	0.7
Attitude of anorexia nervosa	0.22 ± 0.41	0.34 ± 0.56	0.005
Practice of anorexia nervosa	1.17 ± 0.908	1.12 ± 0.85	0.003

Group I which was lower than Group II with the difference being statistically insignificant ($p > 0.05$) as shown in Table 4.

DISCUSSION

Sports dentistry is an emerging branch of dentistry which includes the prevention, diagnosis, and treatment of all the sports related dental or physical injury in a due course of time.⁹ It's a science which deals thoroughly with all the physical and psychological aspects of sports on the body.¹⁰ Among various psychological aspects, tendency of developing eating disorders is most crucial among athletes.¹⁹ As sports participation is seen highest in young adolescent elite athletes the tendency of developing eating disorders is also remarkable among them.¹³⁻¹⁵ This is in accordance to a study conducted by Goossens et al.⁹ where adolescent aesthetic athletes exhibit more eating pathology as compared to the general population.

The impact of improper food habits resulting in eating disorders such as Bulimia nervosa, Anorexia nervosa and Binge eating disorder was assessed among both the groups. The adolescents between 15 and 18 years of age were found to be more conscious related to body weight, body size, and personality as shown in Figure 3. Similar rates of body image dissatisfaction have been found in studies conducted by Goswami et al.¹⁰ (13.5%), Dixit et al.¹¹ (26.6%), and Priya et al.¹² (33.3%). On contrary globally, findings of studies on body dissatisfaction among Asian women have been found inconsistent.

It has been found that factors such as poor emotional support by the parents, stressful environment and parental factors such as diet concern, overweight and underweight are risk factors for developing eating disorder among children. In the present study, 42% in Group I and 44.8% in Group II reported that they are satisfied with their emotional connection with parents. Stressful dietary influence by the parents were also noticed which was 36% in Group I and 53% in Group II. Also, 38% in Group I and 47% in Group II reported that their parents are overweight. Keel and Klump¹³ in their review of studies in non-Western countries, comment that "excluding the criterion of weight concerns, appears to represent a similar proportion of the general and psychiatric populations in several Western and non-Western nations."

From previous studies it has been found that diet modification, leanness towards keto diet, and consumption of high protein content were very common among athletes²¹ therefore, children were asked whether they avoid food containing high carbohydrate content such as bread, potato, rice, etc. The results were not contrasting among both the groups however it was significant as 52.6% in Group I and 53.2% in Group II reported regarding their extensive diet modifications. Weight loss measures such as diet pills, and weight loss supplements were also commonly implemented by the athletes. It was found that 9.1% in Group II and 4.3% in Group I were using diet pills and supplements regularly. As expected,

Table 4: Mean knowledge, attitude and practice score of Binge eating disorder among Group I and Group II

Mean score	Group I	Group II	P value
Knowledge of binge eating disorder	0.22 ± 0.41	0.34 ± 0.56	1.2
Attitude of binge eating disorder	1.65 ± 0.50	1.76 ± 0.42	1.67
Practice of binge eating disorder	0.18 ± 0.39	0.28 ± 0.60	1.8

both groups reported dieting to improve appearance but it was higher in elder adolescents. However, losing weight to enhance performance is one of the most important reasons for dieting among athletes. Because these young athletes are perfectionists and extremely performance-oriented, they could be at increased risk for the development of an eating disorder.²¹

The participants were asked about their loss of control on eating and it was also higher among adolescents between 15 and 18 years of age. They were further asked if they ever had eaten a lot in one sitting that made them feel sick afterward for which 18.8% in Group II and 13.9% in Group I reported. Also, a higher percentage of adolescents among Group II responded that they vomit forcefully when they feel uncomfortably full whereas in Group I, none was reported as shown in Figure 4. Vomiting may be designated as involuntary in these population as an expression of their distress or to avoid bringing shame upon themselves or their family.¹⁹ These results indicate increase tendency of developing eating disorders among Group II with advanced age.

Questions were asked about exercise duration and weight loss history from the children for which 69.7% in Group II and 61% in Group I reported that they do exercise for more than 60 minutes a day. In contrary to this, Khandelwal et al.¹⁴ from New Delhi reported "absence of overactivity" among their patients with eating disorder as restricted eating was the primary method of weight loss in all. From the above findings one could speculate that the higher prevalence of disordered eating and clinical eating disorders in older elite athletes in leanness/non-leanness sports could be due to a longer period than these young athletes of exposure to sport-specific requirements such as a specific weight class and/or extreme leanness.

As prevalent family history of obesity, depression, mental illness, and substance abuse is also considered as a risk factor for eating disorders, it was higher among older athletes. Similar results were found in the study conducted by Priya D et al.¹², among female MBBS students in Mangalore. An overall prevalence of overweight and obesity among adolescents in Delhi, in a study conducted by Stigler et al.¹⁵ was found to be 16.6%. Questions directed towards signs and symptoms of eating disorders were asked for which 59.8% in Group II and 51.9% in Group I reported that they felt dizzy, weak, and also have fainted. Nearly 4% in Group II and none in Group I reported that they experience constipation, diarrhea, and abdominal pain frequently shown in Figure 6. Among Group II, 24.9% and 20.1% in Group I reported that if one is diagnosed with these symptoms medical consultation is required as shown in Figure 7. In addition, Lee et al.¹⁶ suggested that non-fat-phobic anorexia nervosa patients are predominantly characterized by somatic complaints such as epigastric pain, a feeling of abdominal distension, diminished appetite, or an inability to consume adequate amounts of food.

In the present study, gender distribution among Group I and II based on their consciousness about body weight, food habits,



and body image was found higher in Group II males and females whereas among them it was higher in females. This is in accordance to a study conducted by Rashmi et al.¹⁷ reporting significant unhealthy weight changing patterns like skipping meals (13%), increasing quantity and frequency of meals (17%) among college girls between 17 and 21 years of age.

It was also found that 51% of females in Group I and 76% in Group II were worried about their loss of control on eating while 56% of females in Group I and 72% of females in Group II reported that elder females have more impulse to vomit immediately after the meals. Since use of diet pills also considered to be the boon for losing weight and body shaping, females more than males reported with its use with more percentage in Group II. However, in males it was 12% in Group I and 17% in Group II. This high percentage can be contributed to athletes look at the "ideal" sport-specific body that usually is an adult athlete's body. This is especially at issue for pubertal female athletes who may gain a significant amount of fat, which is not considered appropriate in all sports.

It has been reported from the previous studies that the loss of weight of 9 kg or more in duration of 6 months as a risk factor of eating disorders. Among females from Group I, 28% and from Group II, 37% reported about their weight loss strategies. The percentage was significantly higher than males which were 11% in Group I and 16% in Group II as shown in Figure 12. The results were similar to study conducted by Barry et al.¹⁸ in which 90% of patients with anorexia nervosa were girls and 5–10% were boys. Similar results reported as incidence of eating disorder reported by Morande et al.¹⁹ in a Spanish school population was 4.7% among girls and 0.9% among boys. Also, Kjelsas et al.²⁰ from Norway reported a lifetime prevalence of eating disorder to be 17.9% among girls and 6.6% among boys.

People suffering from eating disorders have manifestations such as constipation, diarrhea, and abdominal pain. However, they may feel bloated, muscle cramps, and bone pain as well. In the present study, no participant in Group I and 4% in Group II reported with these symptoms. Also, 22% in Group II and 19% in Group I reported that they feel if these symptoms are present, they are related to some disorder. Around, 24.9% in Group II and 20.1% in Group I reported that they think medical consultation is needed if one is diagnosed with an eating disorder. Similar results were found in a study by Martinsen et al.²¹ where a higher prevalence of disordered eating was only found among girls compared with boys in the same sports groups ($p < 0.001$) assessed based on symptoms.

In the present study, the mean knowledge score of Eating disorders in Group I (0.22 ± 0.416) was found to be lower in comparison to Group II (0.34 ± 0.565) with the difference being statistical insignificant ($p > 0.05$). This indicates that knowledge regarding eating disorders is equivalent among both the groups. The mean attitude score of eating disorders in Group I (3.37 ± 0.848) was also found to be lower in comparison to Group II (3.84 ± 0.823) with the difference being statistically significant ($p < 0.05$) indicating that children among Group II are more likely for developing the disorder. Also, the mean practice score of eating disorders in Group I (1.36 ± 1.034) was found to be lower in comparison to Group II (1.49 ± 0.991) with the difference being statistically significant ($p < 0.05$) depicting the risk of developing an eating disorder in Group II as shown in Table 1.

In the reported study, mean knowledge score of Bulimia nervosa in Group I (0.228 ± 0.4163) was found to be lower as compared to Group II (3.717 ± 1.21) with the difference being statistically insignificant ($p > 0.05$). The mean attitude score of Bulimia nervosa in Group I (2.6948 ± 0.586) was found to be lower in comparison to

Group II (0.34 ± 0.56) with the difference being statistically significant ($p < 0.05$) and the mean practice score of Bulimia nervosa in Group I (0.000) which was lower in comparison to Group II (0.145 ± 0.35) with the difference being statistically significant ($p < 0.05$). This indicates that knowledge regarding Bulimia nervosa is equivalent among both the groups, but the likely chance of developing a disorder or children practicing related habits are higher in Group II shown in Table 2. There is limited literature assessing the knowledge and practice of young athletes regarding bulimia nervosa. However, it has been proven that females perceived bulimic symptoms more common than males, and students perceived them to be more common than their parents. Students perceived bulimic symptoms to be more acceptable than their parents and females had higher levels of bulimic symptomatology, particularly daughters (Jillon S, Vander W, Mark H 1997).

The mean knowledge score of Anorexia nervosa in Group I (4.76 ± 1.29) was lower than Group II (5.26 ± 1.17) with the difference being statistically insignificant ($p > 0.05$). The mean attitude score of Anorexia nervosa in Group I (0.22 ± 0.41) was found lower in comparison to Group II (0.34 ± 0.56) with the difference being statistically significant ($p < 0.05$). The mean practice score of Anorexia nervosa in Group I (1.12 ± 0.908) in comparison to Group II (1.17 ± 0.85) with the difference being statistically significant ($p < 0.05$). This indicates that knowledge regarding Anorexia nervosa is equivalent in both the groups, but the likely chance of developing a disorder or children practicing related habits are more common in Group II shown in Table 3. There is no reported study elucidating the knowledge, attitude, and practice of Anorexia nervosa. The above findings could speculate that the higher prevalence of disordered eating and clinical eating disorders in older elite athletes could be due to a longer period than these young athletes of exposure.

The mean knowledge score of Binge eating disorder in Group I (0.22 ± 0.41) was found to be lower than Group II (0.34 ± 0.56) with the difference being statistically insignificant ($p > 0.05$). The mean attitude score of Binge eating disorder in Group I (1.65 ± 0.50) was lower in Group II (1.76 ± 0.42) with the difference being statistically insignificant ($p > 0.05$). The mean practice score of Binge eating disorder in Group I (0.18 ± 0.39) was found lower than Group II (0.28 ± 0.60) with the difference being statistically insignificant ($p > 0.05$). This indicates that knowledge regarding Binge eating disorder, the likely chance of developing a disorder or children practicing related habits were equivalent among both the groups shown in Table 4.

While evaluating the degree of awareness of eating disorders among the participants, it was found that a very small percentage of them had a vague idea of the concept of eating Disorders and fewer still knew about the general indicators of the disorders. The limited knowledge of eating distress thus, could be attributed to the reported percentage of young children practicing the habits.

CONCLUSION

From the present study, it can be concluded that the knowledge related to Eating disorders, Bulimia nervosa, Anorexia nervosa and Binge eating disorder among children and adolescents engaged in sports was equivalent among both the groups. The attitude of children regarding Eating disorders, Bulimia nervosa, and Anorexia nervosa was found to be more likely among Group II, whereas likely chance of developing Binge eating disorder was found equivalent in both the groups. The practice of Eating disorders, Bulimia nervosa

and Anorexia nervosa was found to be higher in Group II whereas practice of Binge eating disorder was equivalent among both the groups. It was also evident that the risk of developing eating disorder was more prevalent in females between 15–18 years of age than males. Hence, comprehensive health education with a focus on dietary habits and their practice can significantly increase the knowledge related to various eating disorders and thus can reduce the prevalence among young athletes.

REFERENCES

- American Academy of Sports Dentistry. Position statements. 2018.
- Johnson C, Powers PS, Dick R. Athletes and eating disorders: the national collegiate athletic association study. *Int J Eating Disord* 1999;26:179–188. DOI: 10.1002/(sici)1098-108x(199909)26:2<179:aid-eat7>3.0.co;2-z
- Ravaldia C, Vannacci A, Zucchi T et al. Eating disorders and body image disturbances among ballet dancers, gymnasium users and bodybuilders. *Psychopathology* 2003;36:247–254. DOI: 10.1159/000073450
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders 4th ed. 1994, Washington, DC: Author.
- Stice E. Risk and maintenance factors for eating pathology: a meta-analytic review. *Psychol Bull* 2002;128:825–848. DOI: 10.1037/0033-2909.128.5.825
- Sundgot-Borgen J. Eating disorders among male and female elite athletes. *Brit J Sports Med* 1999;33:434–434. DOI: 10.1136/bjism.33.6.434
- Braet C, Claus L, Goossens L, et al. Differences in eating styles between overweight and normal-weight youngsters. *J Health Psychol* 2008; 13:733–743. DOI: 10.1177/1359105308093850
- Smink FRE, Van Hoeken D, Hoek HW. Epidemiology of eating disorders: incidence, prevalence and mortality rates. *Curr Psychiatry Rep* 2012; 14:406–414. DOI: 10.1007/s11920-012-0282-y
- Goossens L, Braet C, Van Durme K, et al. The parent-child relationship as predictor of eating pathology and weight gain in preadolescents. *J Clin Child Adolesc Psychol* 2012;41(4):445–457. DOI: 10.1080/15374416.2012.660690
- Goswami S, Sachdeva S, Sachdeva R. Body image satisfaction among female college students. *Indian Psychiatry J* 2012;21(2):168–172. DOI: 10.4103/0972-6748.119653
- Dixit S, Agarwal GG, Singh JV, et al. A study on consciousness of adolescent girls about their body image. *Indian J Commun Med* 2011; 36(3):197. DOI: 10.4103/0970-0218.86520
- Priya D, Prasanna KS, Sucharitha S, et al. Body image perception and attempts to change weight among female medical students at Mangalore. *Indian J Commun Med* 2010;35(2):316–320. DOI: 10.4103/0970-0218.66886
- Keel PK, Klump KL. Are eating disorders culture-bound syndromes? Implications for conceptualizing their etiology. *Psychol Bull* 2003; 129:747–769. DOI: 10.1037/0033-2909.129.5.747
- Khandelwal SK, Sharan P, Saxena S. Eating disorders: an Indian Perspective. *Int J Soc Psychiatry* 1995;132–146. DOI: 10.1177/002076409504100206
- Stigler MH, Arora M, Dhavan P, et al. Weight-related concerns and weight-control behaviors among overweight adolescents in Delhi, India: a cross-sectional study. *Int J Behav Nutr Phys Act* 2011;8(1):9. DOI: 10.1186/1479-5868-8-9
- Lee S, Chiu HF, Chen CN. Anorexia nervosa in Hong Kong. Why not more in Chinese? *Br J Psychiatry* 1989;154:683–68. DOI: 10.1192/bjp.154.5.683
- Rashmi B, Patil SS, Angadi MM, et al. A cross-sectional study of the pattern of body image perception among female students of BBM college in Vijayapur, North Karnataka. *J Clin Diagn Res* 2016; 10(7):LC05-LC09. DOI: 10.7860/JCDR/2016/20764.8180
- Barry A, Lippman SB. Anorexia nervosa in males. *Postgrad Med* 1990; 87:161–165, 168.
- Morande G, Celada J, Casas JJ. Prevalence of eating disorders in a Spanish school population. *J Adolesc Health* 1999;24(3):212–219. DOI: 10.1016/S1054-139X(98)00025-1
- Kjelsas E, Bjørnstrøm C, Gøtestam KG. Prevalence of eating disorders in female and male adolescents (14–15 y). *Eat Behav* 2004;5:13–25. DOI: 10.1016/S1471-0153(03)00057-6
- Martinsen M, Bratland-Sanda S, Erikson AK, et al. Dieting to win or to be thin? A study of dieting and disordered eating among adolescents elite athletes and non-athlete controls. *Brit J Sports Med* 2010; 44:70–76. DOI: 10.1136/bjism.2009.068668