

Knowledge and Attitude Towards Female Athlete Triad among University Female Athletes

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Abstract

Past four decades have led to increased participation of female athletes in athletic programs by more than 1000 percent. This has led to an increase in the female athletic population. Despite numerous benefits, increased participation of females in athletics has raised a number of medical issues.

Keywords:

Female athletes triad; Amenorrhoea; Bone mineral density; Knowledge

Introduction

The basic objective was to evaluate female athletes' knowledge about female athlete triad and also to appreciate the attitude among them about the consequences of this triad. Cross sectional study was done on a sample size of 239 female athletes currently enrolled in public and private sector universities recognized by Higher Education Commission of Pakistan. Participants were asked to fill a consent form prior to participation in this study and then a questionnaire was presented to them by the researcher to assess the knowledge and attitude of female athletes. The data was entered in SPSS v16 and analyzed.

According to the results, the female athletes lacked the appropriate knowledge of female athlete triad. 55 % of the female athletes had never heard of the term "Female athlete triad" and 16 % were unsure about what it is. About 42.3 % of female athletes strongly considered it important to maintain their body weight which they consider is ideal. There was seen a deficit of adequate attitude towards female athlete triad among the female athletes. Awareness seminars and focus on health education of athletes is crucial. Preventing female athlete triad should be the goal of the female athletes to ensure better performance. With time, female participation in community activities has seemingly increased in academics and extra-curricular activities. Participation in physical activity has resulted in many prosperous results in the health and fitness of female athletes but along with numerous benefits come some medical issues that typically present in females. Most female athletes are stigmatized with the "thin is in" concept. Having a lean figure is one of the very popular societal pressures on females. In order to succeed in athletic performance and gain the perfect lean athletic appearance the

young females try everything ranging from uncontrollable dieting to undue exercises. This attitude leads to excessive energy consumption and less calorie intake.

The main component of Female athlete triad is low energy availability. The amount of energy remaining for all physiological functions after being consumed by exercise is called the energy availability. Research shows low energy availability may occur with or without an eating disorder. In the presence of an eating disorder the continuum model ranges from disturbed eating habits to clinical eating disorders including bulimia nervosa and anorexia nervosa. The nutrients that we intake are highly important as they are crucial to sustain muscle bulk, repair the damage in tissues in response to exercise and to recover from illness or injury. Thus the response to intense training in energy deficient people are injuries and reduced recovery.

High physical activity has been found to be a leading cause of gynecological issues in female athletes. Especially such female athletes who are considered to have a lean body or low body weight to participate in particular sports have had a high occurrence of menstrual disorders. The indicators of menstrual disorders can include late menarche or oligomenorrhea leading to amenorrhea. Nutritional negligence and menstrual dysfunction can lead to low bone mineral density. Nutritional negligence leads to low energy at hand to be consumed for bone growth and athletic activities. In amenorrhoeic females BMD is comparatively lower than the females with normal menstrual cycles even though performing the same weight bearing exercises. Low BMD leads to stress fractures, inability to participate in sports actively and many other musculoskeletal issues. A study reveals that the athletes with amenorrhea are 2 to 4 times at a greater risk to develop stress fracture than the eumenorrhoeic athletes

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Knowledge is the key component to identify, prevent, treat and manage any condition. In order to timely incorporate behavioral alterations in female athlete triad patients, the knowledge of triad and its components is very necessary. Knowledge and recognition of all components of female athlete triad is the first step to prevent or diagnose it. This can prevent serious consequences of female athlete triad like stress fractures, amenorrhea and behavioral problems. Attitude of coaches, athletic trainers, physical therapists and female athletes themselves towards female athlete triad is not optimal. Most of the time female athlete triad leads to serious complications due to lack of the proper guidance and solemnity in female athletes. Assessment of the knowledge and seriousness of the female athletes towards this dilemma will help us recognize the weaknesses or strengths of the athletic population. The main purpose of this study was to determine if female athletes had the adequate knowledge of female athlete triad, their attitude towards it and its potential risk to their performance and health. This study will be fruitful for the female athletic population and the medical health care team associated with it for timely recognition and intervention and better performance.

Materials and Methods

Ethical approval to conduct the study was granted by ethical approval committee, University of South Asia. The survey was conducted on university female athletes between 15 to 30 years of age and were currently enrolled in public sector universities of Lahore which were Kinnaird College for Women, Lahore College for Women University, King Edward Medical University, and University of the Punjab and private sector universities which include University of South Asia and University of Lahore recognized by Higher Education Commission of Pakistan. Any other female athletes who were not enrolled in a university or were not currently part of athletics were excluded from the research. The study was completed in a time duration of 6 months.

The outcome measure instrument was modified from a previous research to assess the knowledge and attitude of female athlete triad in female athletes. This survey was already developed on the basis of four constructs i.e. knowledge, attitude, skills and practice. A thorough literature review had also been performed and recommendations about what participants should know, believe and do related to prevention of female athlete triad was discussed in the previous research. The survey involves basic demographics, 8 items to assess knowledge and 7 items assessing the attitude of athletes towards female athlete triad. The data gathered was entered in IBM Statistical package for social sciences (SPSS v.21). For quantitative data, mean \pm Standard Deviation (S.D) was calculated. For qualitative data, frequency and cross tab was prepared for the analysis.

Discussion

Female athlete triad is a commonly occurring disease with prevalence of at least one or more of its components in the

female athletes. Previous researches stated lack of knowledge of female athletes, coaches, medical professionals towards female athlete triad. According to JW. Lasister's research on Knowledge, attitudes, behavior and skills of student coaches regarding female athlete triad, only 7 % identified all three components of female athlete triad and 44 % could not even identify half the signs and symptoms of female athlete triad. He highlighted the importance of relationship of knowledge and communication self-efficacy to be able to report such symptoms in female athletes. The results of this research with only 2 % of the total population of female athletes being able to identify all three components of female athlete triad. Regarding knowledge of female athletes towards female athlete triad in America, only 9 out of 170 athletes had heard of the triad. This research highlights new areas of education that could be addressed as 29.3 % of athletes strongly agreed and 31% agreed to adopt extreme weight loss measures in order to maintain their ideal body weight. They did not consider it as a threat to the health of a female athlete. The results of this research align with the literature. Female athletes were unable to identify female athlete triad to be as a medical condition. As expected, they did not consider female athlete triad to be one of the reasons behind reduced performance, recurrent fractures and poor health. The agreement to female athlete triad being a severe disease, considering it to be fatal and the attitude towards preventing this disease was somewhat likely to be the same as the recent researches. Most of the athletes were unaware of the fact that the effects of female athlete triad persist even after leaving sports. This may be due to lack of attention towards education of female athletes. The level of training, instructions and resources provided to female athletes all over the world is much lesser than the male athletes.

This study is an attempt to measure the sentience and understanding of the female athletes and to determine their attitude towards the severity and prevention of this disease. This study is a reflection of the importance of educating the female athletes, preventing this disease, learning new skills for better health and focusing our attention towards serious issues. This study made many of the participant athletes conscious about their health and generated an impulse to gain knowledge about the possible signs and symptom and preventive measures against female athlete triad.

The weakness in the extent of most responses revealed that a lot of room to increase the knowledge and attitudes of female athletes towards female athlete triad is present. English is a second language to majority of people in Pakistan. Many female athletes faced great difficulty in understanding the statements in English. Explaining each and every section to most of them was time consuming.

A significant cultural barrier was that when asked if the female athletes could discuss their personal issues with their coaches. The response was that they would discuss their issues with their coach only if the coach is a female. Discussing menstrual abnormality or pain anywhere in body was impossible for the female athletes.

Results

239 female athletes participated in the research with a mean age of 21 years. All the participants were either Physical education and Sports Major or part of the sports society/team of their universities.59% of athletes were training 18 hours or less per week when the research was conducted.

When knowledge of female athletes was recorded, 74.5% of female athletes identified menstruation age to be between

10-15 years. 55% (n=133) of the female athletes were not familiar with this term, 16.3 % (n=39) said they were not sure about what it was. Only 2.1% of the athletes could name all the components of the triad. 92.1 % of the female athletes were not able to name even a single component of the female athlete triad (Table 1).

Table 1: Knowledge of Female Athlete triad.

		Frequency (n)	Percentage (%)
Menstruation Age	42278	178	74.5
	16-20	61	25.5
Heard of FAT	Yes	67	28
	No	133	55.6
	Not Sure	39	16.3
Named Components of FAT	Named None	220	92.1
	Named one	4	1.7
	Named two	10	4.2
	Named all	5	2.1
Group at risk	Mature Female who play sports	30	12.6
	Physically active and lean		
	Physically active and obese	87	36.4
	All sport players	38	15.9
		84	35.1
Women above 25 at higher risk	TRUE	136	56.9
	FALSE	103	43.1
FAT is fatal	TRUE	142	59.4
	FALSE	97	40.6
FAT persists after leaving athletics	TRUE	153	64
	FALSE	86	36
Eating disorder persist in FAT	TRUE	193	80.8
	FALSE	46	19.2

36.4 % of female athletes considered that all the females who are physically active and lean are more prone to develop female athlete triad.43.1% of athletes reported that women of age more than 25 are at higher risk of developing female athlete triad and 59.4% (n=142) identified it to be fatal. In response to the question stating that female athlete triad effects health only when the athlete is playing and it goes away as soon as they stop playing 64 % of athletes considered it to be true. 80.8 % considered eating disorder to be an associated factor of FAT.

Female athletes did not consider hyperactivity, frequent coughing, eumenorrhea and weight gain to be a sign or symptom of female athlete triad. Female athletes would consult different sources for intervention assistance. The most common source reported was the physical therapist (63%, n=152), followed by fellow athletes (57.3%, n=137) and friends (55.2 % , n=132).As shown in (Table 2).

Table 2: Attitude towards Female Athlete Triad.

	Strongly Agreed		Agreed		Neutral		Disagreed		Strongly Disagreed	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
FAT is a severe disease	69	28.9	111	46.4	17	7.1	11	4.6	31	13
Ideal body weight maintenance to be important	101	42.3	89	37.2	31	13	8	3.3	10	4.2
Extreme measures to maintain weight	70	29.3	74	31	55	23	21	8.8	19	7.9
Athlete's responsibility to win	109	45.6	44	18.4	63	26.4	11	4.6	12	5
Comfortable discussion with coaches	38	15.9	29	12.1	73	30.5	30	12.6	69	28.9
Athlete's responsibility to prevent FAT	91	38.1	87	36.4	31	13	20	8.4	10	4.2
Nutritionist Consultation	90	37.7	73	30.5	26	10.9	26	10.9	24	10

The attitude of the female athletes towards female athlete triad was measure by using a 5-point Likert scale.46.4 % of female athletes strongly agreed FAT to be a severe disease. About 42.3% (n=101) strongly agreed and 37.2%(n=89) agreed that “it is extremely important for a female athlete to maintain body weight what she considers as ideal body weight”. 31 % of athletes would do any extreme measures to maintain their ideal body weight.45.6% (n=109) of female athlete strongly agreed and 18.4% (n=44) agreed that it is the responsibility of athlete to win.

Female athletes face a big issue when they have to discuss their personal problems relating to health, sports and menstruation etc. with their coaches (as most coaches are males). 30.5% (n=73) were unsure whether to discuss their issues with coaches or not and 28.9% (n=69) strongly disagreed to the idea of discussing personal issues with coaches (Table 3).

Table 3: Possible Signs and Symptoms of Female Athlete Triad.

Signs and Symptoms	Yes		No	
	Frequency	Percentage	Frequency	Percentage
	(n)	(%)	(n)	(%)
Stress Fracture	148	0.619	91	0.381
Fatigue	135	0.565	104	0.435
Eumenorrhea	65	0.272	174	0.728
Weight gain	100	0.418	139	0.582
Skipping meal	139	0.582	100	0.418
Cessation of menses	63	0.264	176	0.736

Frequent coughing	27	0.113	212	0.887
Depression	117	0.49	122	0.51
Use of laxative	71	0.297	168	0.703
Amenorrhea	71	0.297	168	0.703
Hyperactivity	88	0.368	151	0.632
Slow recovery	103	0.431	136	0.569
Weight loss	56	0.234	183	0.766
Anxiety	135	0.565	104	0.435
Lightheadedness	128	0.536	111	0.464

About 38.1% (n=91) of female athletes strongly agreed 36.4% (n=87) agreed to take the responsibility of preventing female athlete triad, 37.7 % (n=90) strongly agreed and 30.5% (n=73) would consult a nutritionist to control her weight.

Acknowledgements

Further research on university female athletes and other athletes should be conducted to measure the difference of responses between the two populations. Bringing female athlete triad into light for female athletes will not only prevent stress fractures, amenorrhea and eating disorders but will also provide them with a healthy lifestyle and better performance.

Conclusion

The results truly highlight the importance of awareness of female athletes about this issue. Only knowledge can lead to better preparedness of actively preventing and treating this triad. The absence of appropriate attitude along with lack of awareness about female athlete triad put athletes at potential menace of developing female athlete triad.

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