Evaluation of Menstural Attitude of Collegiate Athletes

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Abstract: The purpose of this study was to evaluate the attitudes of collegiate athletes (CA) toward menstruation and compare them with their sedentary college student (CS) counterparts. So 181 female collegiate athletes and 148 female college students participated voluntarily in this study. Menstrual Attitude Questionnaire (MAQ) was used as a data collection device. Data were compared by using SPSS (ver. 16.0) at the level of 0.05. The results showed there is no significant differences between menarche age of groups since p=0,09≥0.05. The total of 74,5 % participants stated that they have a regular menstrual cycle and there is no significant differences between menstrual cycle order of athletes and sedentaries since p=0,65≥0.05. By looking at the average overall score of CA and CS ($X_{(CA)}$=3,13 and $X_{(CS)}$ =3,17), it can be said that both groups have positive attitudes toward menstruation.
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1. Introduction

Although menstruation is a universal phenomenon experienced by almost all women, it is still poorly understood and considered a taboo thus preventing individuals to speak about it. Silence, privacy, and even invisibility have been the basic concepts that define menstruation until the middle of the 20th century (Cumming et al, 1991). While it has been discussed broadly; negative and positive cultural elements about menstruation are still effective on attitudes towards menstruation (Brooks-Gunn & Ruble, 1980). Menstruation has important implications on the physical and emotional well-being of adolescents' reproductive health. The way females perceive menstruation has an effect on their own body image, gender identity, self-acceptance, sexual and health behavior (McMaster et al, 1997). Beliefs and approaches about menstruation are acquired before puberty. Menstruation is a sign of transition from childhood to womanhood and perceptions of menstruation is effected by sociocultural factors during pre-pubertal period[4]. These perceptions are shaped by personal knowledge and experience, age, myths, traditions, social learning, and cultural beliefs (Chua & Chang, 1999). Menstruation related information of people determines their response to this event (İnce, 2001). Some studies have shown that, negative physical and psychological changes during menstruation period are associated with the perception of menstruation (Karavuş et al, 1997; Houston et al, 2006). It has been assumed that, women's mental performance capacity and physical work capacity is impaired prior and during mensturation (Gamberale et al, 19975). This same approach prevails among women athletes. The menstrual cycle has been the root of discrimination against women in sports until the 1972 Olympics. In the 1972 Munich Olympics the American swimmer Melissa Belotti at the height of her menstrual cycle captured three gold medals in three days including an individual world record, a share in a relay team world record and an individual Olympic record. After that event many people have started to believe that "women can win gold medals and break new records during all phases of menstrual cycle". All the current studies indicated that menstruation has little or no effect on athletic performance (Çakmakçi et al, 2005; Giacomoni et al, 2000). Cultural environment and religion play important roles on attitudes toward menstruation. Most of the former female athletes believe that menstruation affects their performance negatively and recently many girls and women refuse to join physical activities during menstruation. Most women who are professional or non-professional athletes probably form their attitudes toward "menstruation and sport" in their elementary school gym classes. Fears about bleeding in front of the rest of the class and too much embarrassment are the main causes of those fears. Such fears have bothered young women for centuries and two principles of menstrual beliefs have been discussed. First; girls in any condition do not participate in strenuous exercise because it might harm their reproductive organs, and women cannot compete successfully in sports because their menstrual blood might "stain" the playing fields (Laney et al, 1988). Current studies indicated that perceptions and severity of psychological and physical symptoms during menstruation mostly affected by negative or positive attitudes toward menstruation (Marván et al, 2005). The aim of this study is to evaluate the attitudes of collegiate athletes (CA) toward menstruation and compare them with their sedentary college student (CS) counterparts.

2. Material and Methods

Female collegiate athletes (n=181) and female college students (n=148), totalling 329 college students participated voluntarily in this study. Collegiate athletes are students at Schools of Physical education and Sport of different universities in the Ankara region in Turkey. Menstrual Attitude Questionnaire (MAQ) was used as a data collection device in this study. Written consent was obtained from the converter and adapter of scale to the Turkish and oral consent was obtained from students. The original MAQ developed by Brook-Gunn and Ruble is the gold standard measurement of menstruation[2]. The 33-item MAQ consist of five subscales and items are scored on a likert scale of 1(strongly disagree) to 7 (strongly agree). The original scale is scored per subscale, and reported Cronbach's alpha coefficient of 0.95 to 0.97[2]. The validity and reliability of questionnaire was tested by Kulakaç in Turkey[13]. The scale was translated in to Turkish and re-translated in to English by specialists. For the content validity, opinions of experts were obtained and the scores of the experts found to be consistent with each other (W: .190, p= .084). The test-retest reliability coefficients were found to be statistically significant (p=.000). The internal consistency reliability coefficient was 0.79 for the total MAQ. The questionnaire consists of 33 items and 5 factors. **1)** Menstruation as a debilitating event (DEBILITATING-12 items). **2)** Menstruation as a bothersome event (BOTHERSOME-6 items). **3)** Menstruation as a natural event (NATURAL-4 items). **4**) Anticipation and prediction of the onset of menstruation (PREDICTION-4 items) and 5) Denial of any effects of menstruation (DENIAL-7 items). The converted MAQ is a likert type scale and has five rating scales of 1 (strongly disagree) to 5 (strongly agree). Data, which obtained from questionnaire evaluated and compared statistically by using SPSS (ver. 16.0 for Windows). The Alpha level was set as 0, 05 for statistical significance.

3. Results

Table 1. Attitudes of both groups toward menstruation

Subscales	$X_{(CS)}$	$X_{(CA)}$	p
DEBILITATING	3,01±0,33	2,94±0,40	0,07
BOTHERSOME	3,42±0,67	3,42±0,68	0,81
NATURAL	2,90±0,71	2,89±0,55	0,00
PREDICTION	2,78±0,44	2,63±0,44	0,97
DENIAL	2,79±0,64	2,83±0,52	0,06

The mean age of the sample (n= 329) was found 20.5 ±1.9. The mean menarche age of CA was 13,70± 1.07 and CS was 13.50±1.12 and there is no significant differences between menarche age of groups since p=0.09≥0.05. The total of 74.5 % participants stated that they have a regular menstrual cycle and there is no significant differences between menstrual cycle order of athletes and sedentaries since p=0.65≥0.05. By looking at the average overall score of CA and CS ($X_{(CA)}$=3,13 and $X_{(CS)}$ =3,17), it can be said that both groups have positive attitudes toward menstruation. When we look at the lower scales, menstruation as a "bothersome event" has highest score and "anticipation and prediction of onset of menstruation" subscale has lowest score for both group (Table 1). In the perception of menstruation as a debilitiating event and as a natural event there is significant differences between athlete and sedentary group (Table 1).

Although college athletes do not perceive menstruation as a debilitiating event, college students perceive it more negatively. Additionaly college students have more positive perception toward menstruation as an natural event than college athletes.

Table 2. Attitudes of both groups on the basis of the answers

	CA	**CS**	**p**
DEBILITATING			
Q1:A woman's performance in sports is not affected negatively by menstruation	2.29	3.43	0.00
Q2: Women are more tired than usual when they are menstruating	3.50	3.83	0.00
Q5:Menstruation can adversely affect my performance in sport	2.82	3.40	0.00
Q7:I don't allow the fact that I'm menstruating to interfere with my usual activities	3.39	3.33	0.00
Q10: I don't believe my menstrual period affects how well I do on intellectual tasks.	3.38	3.20	0.01
BOTHERSOME			
Q13: Menstruation is something I just have to put up with	3.19	3.64	0,02

NATURAL			
Q22: The recurrent monthly flow of menstruation is an external indication of a woman's general good health	3.92	3.75	0.02
DENIAL			
Q28:Cramps are bothersome only if one pays attention to them	3.00	2.62	0.32

Table 2 shows significant differences that have been found on the basis of the answers given to some of the questions.

Table 3. Percentage of given answer to the whole questionnaire for both groups

Menstruation Attitute Questionaire		SCALE %				
		1	2	3	4	5
1.A woman's performance in sports is not affected negatively by menstruation	**CA**	8,8	13,8	27,6	24,3	25,4
	CS	21,6	41,2	27,0	6,1	4,1
2.Women are more tired than usual when they are menstruating	**CA**	6,1	11,6	32,0	26,0	24,3
	CS	1,4	5,4	25,0	45,3	23,0
3.I expect extra consideration from ny friend when I am menstruating	**CA**	21,5	38,7	22,1	9,9	7,7
	CS	9,5	38,5	30,4	10,1	11,5
4.The physiological effects of menstruation are normally no greater than other usual fluctuations in physical state	**CA**	19,9	49,2	19,9	10,5	0,6
	CS	23,0	44,6	25,6	6,1	2,7
5.Menstruation can adversely affect my performance in sport	**CA**	14,9	35,4	15,5	20,4	13,8
	CS	2,0	20,3	25,7	39,2	12,8
6.I feel as fit during menstruation as I do during any other time of the month	**CA**	7,2	32,0	30,9	23,2	6,6
	CS	14,2	42,6	28,4	9,5	5,4
7.I don't allow the fact that I'm menstruating to interfere with my usual activities	**CA**	3,3	8,3	47,5	33,1	7,7
	CS	6,1	13,5	32,4	31,1	16,9
8.Avoiding certain activities during menstruation is often very wise	**CA**	6,6	18,6	23,8	30,4	22,7
	CS	10,1	16,2	31,8	31,1	10,8
9.I am more easily upset during my premenstrual or menstrual periods than at other times of the month	**CA**	8,3	10,5	29,8	28,7	22,7
	CS	9,5	7,4	25,0	28,4	29,7
10.I don't beleive my menstrual period affects how well I do on intellectual tasks.	**CA**	4,4	13,8	37,6	27,6	16,6
	CS	8,8	23,0	24,3	26,4	17,6
11.I realize that I cannot expects as much of my self during menstruation compared to the rest of the month.	**CA**	30,4	37,0	17,7	11,6	3,3
	CS	10,8	23,6	36,5	23,6	5,4
12.Women just have to accept the fact that they may not perform as well when they are menstruating.	**CA**	33,1	33,1	20,4	7,2	8,1
	CS	12,8	28,4	23,6	23,6	11,5
13.Menstruation is something I just have to put up with	**CA**	11,6	21,0	19,3	32,0	16,0
	CS	3,4	12,2	23,0	39,2	22,3
14.In someways I enjoy my menstrual periods	**CA**	5,5	12,7	31,5	35,4	14,9
	CS	1,4	13,5	24,3	29,1	31,8
15.Man have a real advantage in not having monthly interruption of a menstrual period	**CA**	5,0	9,9	23,2	25,4	36,5
	CS	4,1	7,4	7,9	24,3	43,2
16.I hope it will be possible someday to get a menstrual period over within few minute	**CA**	10,5	8,3	17,2	26,5	37,0
	CS	8,8	16,9	22,3	25,0	27,0
17.The only thing menstruation is good for is to let me know I'm not pregnant	**CA**	8,3	32,0	27,1	14,4	18,2
	CS	28,4	24,3	20,9	17,9	8,8
18.Menstruation provides a way for me to keep in touch with my body	**CA**	3,9	12,2	33,7	36,5	13,8
	CS	7,4	18,9	31,1	29,7	12,8
19.Menstruation is a reoccurring affirmation of womanhood	**CA**	2,8	15,5	33,1	33,1	15,5
	CS	6,1	11,5	23,6	40,5	18,2
20.Menstruation allows women to be more aware of their body	**CA**	3,3	17,7	30,9	30,9	17,1
	CS	5,4	14,2	21,6	42,6	16,2
21.Menstruation is an obvious example of the rhythmicity which pervades all of life	**CA**	2,8	8,8	30,4	32,0	26,0
	CS	2,7	9,5	23,6	41,2	23,0
22.The recurrent monthly flow of menstruation is an external	**CA**	3,9	2,8	19,9	44,2	29,3

indication of a woman's general good health	**CS**	2,0	14,9	18,9	33,8	30,4
23. I can tell my period is approaching because of the breast tenderness, backache,cramps or other physical signs	**CA**	2,2	7,7	16,0	43,6	30,4
	CS	1,4	5,4	20,3	29,1	43,9
24. I have learned to anticipate my menstrual period by the mood changes which precede it	**CA**	3,9	12,2	32,6	31,5	19,9
	CS	7,4	6,8	21,6	36,5	27,7
25.My own moods are not influenced in any major way by the phase of my menstrual cycle	**CA**	11,6	43,1	24,9	13,8	6,6
	CS	16,2	28,4	26,4	18,9	10,1
26.Most women show a weight gain just before or during menstruation	**CA**	4,4	27,6	30,9	22,7	14,4
	CS	6,1	20,3	29,7	21,6	22,3
27. Other should be critical of a women who is easily upset before or during menstruation	**CA**	7,2	27,1	31,5	24,3	9,9
	CS	4,7	8,1	27,0	34,5	25,7
28.Cramps are bothersome only if one pays atention to them	**CA**	9,4	21,5	38,1	21,5	9,4
	CS	18,2	30,4	29,1	15,5	6,8
29.A woman who attributes her irritability to her approaching menstrual period is neurotic	**CA**	26,5	42,5	21,0	6,1	3,9
	CS	20,3	33,8	29,1	12,2	4,7
30. I barely notice the minor physiological effects of my menstrual period.	**CA**	5,0	2,71	24,9	30,9	12,2
	CS	15,5	34,5	28,4	17,6	4,1
31.Women who complain of menstrual distress are just using that as an excuse	**CA**	14,9	39,2	28,7	11,0	6,1
	CS	14,9	32,4	27,7	18,2	6,8
32.Premenstrual tension/irritability is all in a woman's head	**CA**	16,0	33,1	31,5	13,8	5,5
	CS	11,5	31,8	32,4	18,2	6,1
33. Most women make too much of minor physiological effects of menstruation	**CA**	9,9	13,3	32,0	23,2	21,5
	CS	14,9	28,4	33,8	14,9	8,1

It was found that college athletes are more likely to believe that sport performance are not negatively affected by menstruation (49.7 % Cummulative percentage of strongly agree and agree) on the other hand only a small number of the sedentary college students think the same way (10.2%). The perception that women are more tired during menstruation is dominant for both groups but sedentaries' perceptions are more intensive. The percentage of the CAs who stated that their performance ise adversely affected by menstruation is % 34.2 on the other hand sedendary CSs are more likely to believe that statement (52%). The 40.8% of college athletes stated that they do not allow the menstruation to interfere with their usual activities, but 48% of college students think that way. The percentage of the CA's, who do not believe that, their menstrual period affects how well they do on intellectual tasks, is 42,2%, the percentage of CSs who think that way is 44%. Altough 61,5% of CSs think that menstruation is something that they have to put up with , just 48% of CA's stated that same way. The percentage of CAs who believe that menstruation is an external indication of being healthy is 73% on the otherhand 64.2% of sedentary CSs believe it. 73.5% of CAs believe that cramps are bothersome only if one pays atention to them , but just 22.3 % of sedentary CSs belive in that.Table 3 shows percentage of given answer to the whole questionnaire for both groups.

4. Discussion

The attitututes toward menstruation of athletic women has been changing. The results of this study reported that 49.7% of college athletes do not believe that menstruation negatively affects their sport performance, on the other hand this negative perception is still more common among non-athletes. Despite this high frequency, menstruation is still perceived by athletes as something that they have to put up with. While attitudes toward menstruation is positive for athletes and non-athletes, non- athletes perceived menstruation to be more debilitating. In one of the previous studies,seventy-six of the specialist PE students (69.7%) considered that menstrual problems affected their performance but whether these problems had a physiological or a psychological effect is not clear (Bale 1983). Early studies examined this issues by retrospective self report measures. In the graduated thesis study of Johnsons' chronological summary of eary studies that focus on female athletes' beliefs that menstruation influnces sport performance is presented as follows; Decrements: 8%, Improvements:29 %, No Changes 63% (Karl and Markalous,1937), Decrements: 38%, Improvements: 19%, No Changes 43% (Ingman. 1952), Decrements: 31%, Improvements:12-15%, No Changes 42-48% (Eldelyi,1962), Decrements: 17%, Improvements:19 %, No Changes 37% (Zaharieva, 1965; Johnson 2008) . In the mid 1970s, it was acknowledged that performance during menses may

be influenced by psychological factors that are due to attitudes toward menstruation (Erdelyi, 1976). Wells, in 1991, described the term self-expectancies to mean that a perceived effect regarding behavior will likely produce that behavior (Wells 1991). Therefore, if a woman expects to perform in a certain way, whether positive or negative, as a result of menstruation, she may indeed do so. In the present study 34.2% of college athletes stated that their menstruation adversely affected their physical performance. The reason of this detection can be premenstrual symptoms. Even mentions some of the negativity towards menstruation on the basis of the question, in total evaluation, it is clear that athletes perceptions toward menstruation is positive. In the study of Andrist (2004),221 healthy white American college students completed self- administrative questionaire on attitudes toward menstruation and menstrual supression. 158 of them belive it is a nuisance, 81 of 221 feel unclean during menstruation. (andrist,2004). Brooks scale has been used on a study on Nigerian athletes and the perception of menstruation of women athletes was found to be positive and very high (M=4,33) (Toriola,1989). While in my study there has been no meaningful difference in the perception of menstruation among collegiate athletes and college students, in Nigeria it was found that non-athlete students' perception of menstruation was statistically different and negative than the perception of the athletes. According to another study, using the same scale, the attitudes of female members of the American army has been measured (Trego, 2009). Mean scores for the five subscales were; DEBILITATING 3.84; BOTHERSOME; 5.04; NATURAL 4.28; PREDICTION 5.06; DENIAL 3.4.Acording the original scoring system of Brooks' questionnaire menstrual attitutes were generally neutral in this sample. The majority of a women athletes in the present study do not believe that menstruation is a debilitating event (x=3,01).In this study other subscales results are smilar with Tregos' study, the only difference is the score of perception of menstruation as an natural event is lower (x=2.89). There are several different attitudes which have been documented from different countries. Israeli women perception toward menstruation is most debilitiating and bothersome (Anson 1999). In a more recent study, it was shown that Indian women college students perceived menstruation more natural than American college students (Hoester, 2003). In the Turkish study done by Çevirme et al. (2010), results are indicated that the level of education is the most effective factor on mensturation attitude. Majorty of illiterate participants (76.4%) defined menstruation as an unfavorable event, on the other hand 44.8% of graduates from secondary school felt same way (Çevirme, 2010). As a result it is known that the cultural enviroment and educational processes are changing the attitudes toward menstruation.Well-educated contemporaray athletes began to believe that menstruation does not negatively affect their performance and these positive attitudes toward menstruation reduce menstruation related symptoms and prevent reduction in labor force and athletic success.

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