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Assessment of menstrual disorders among adolescent girls

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Abstract

Menstrual disorders are common among women in reproductive age group and they are responsible for a number of physical and emotional changes in women's life. These disorders affect the social life along with limiting their daily activities. Present study was conducted to assess the menstrual disorders among adolescent girls. Hundred school going girls between the ages of 15-19 years were randomly selected from two districts of Uttarakhand. Students were asked demographic details, gynecological history, menstrual disorders and menstrual status before and during stress. Data was statistically analyzed using frequency, percentage, mean and standard deviation. Result of the study reveals that dysmenorrhea was most common problem (75.00%) among adolescent girls. Almost one third adolescent girls (32.00%) missed their period, 23.00% had irregular menstruation, 19.00% had prolonged bleeding, 17.00% had heavy menstrual flow and 89.00% had two or more pre-menstrual syndrome.

Keywords: Menstrual disorders, adolescence, pre-menstrual syndrome

1. Introduction

Menstruation is a universal event during a woman's reproductive life, and up to 90% women report perceiving one or more symptoms during the days before menstruation (Campagne *et al.*, 2007) [4]. Menstrual disorders are common among women in reproductive age group and they result in a number of physical and psychological changes around the time of menstruation. Some of the most prevalent physical changes include breast tenderness, diarrhea, back pain, vomiting and fluid retention. Psychological changes that mostly occur are irritability, mood swings, depression and anxiety.

Adolescence is a period of intensive growth and change in nearly all aspects of child's physical, mental, emotional and social life. Adolescence is probably the most challenging and complicated period of life. Menstrual disorders such as irregular cycles, dysmenorrhea, and amenorrhea are common in adolescent girls. Periods may be irregular, heavy, and painful, especially in the first few years following menarche. The duration of the menstrual cycle, which usually occurs every 28 days, varies from 4-10 days with an average of 6 days (Omu *et al.*, 2011) [15]. Menstrual disorders affect the social life of adolescent girls along with limiting their daily activities. They are also an important cause of college/school absenteeism among adolescents. The menstrual periods also affect the academic performance of many students. Women with heavy and painful menstrual periods have more problems affecting their academic and social lives (Roberts *et al.*, 2012) [18]. A woman's experience of premenstrual symptoms has been found to reduce work efficiency, increase absenteeism, and negatively impact on family, (Mona *et al.*, 2013) [11]. The focus of this research was to investigate menstrual symptoms, their severity among adolescent girls and their relationship with perceived stress.

2. Objectives

- To know the menstrual characteristics of adolescent girls.
- To assess the menstrual disorders among adolescent girls.
- To study the changes in menstrual characteristics during stress.

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3. Materials and methods

A school-based cross-sectional descriptive study was carried out among 100 adolescent girls of 15–19 years in two districts viz. Udham Singh Nagar and Almora district of Uttarakhand state. The research was conducted in the month of October-December, 2019. Pre-tested self-structured questionnaire was used to elicit the response. Students were asked demographic details, gynecological history, and menstrual disorders along with menstrual status before and during examination. Data was statistically analyzed using frequency, percentage, mean and standard deviation.

4. Results

Findings of the study has been reported under various headings and subheadings as baseline characteristics of respondents, menstrual characteristics, academic stress level of respondents and relationship of academic stress on menstrual cycle of adolescent girls.

4.1 Menstrual characteristics of respondents

Table 1: Menstrual characteristics of respondents

S. No.	Variables	Percentage
Menarche age		
1.	• Early menarche (<12 yrs.)	21.00
	• Medium menarche (12-14 yrs.)	62.00
	• Delayed menarche (above 14 yrs.)	17.00
	• Mean age at menarche	13.41(±1.10)
Cycle length		
2.	• Less than 21days	7.00
	• 21-35 days	84.00
	• More than 35 days	9.00
Duration of flow		
3.	• Less than 4 days	30.00
	• 4-6 days	57.00
	• More than 6 days	19.00
Menstrual Flow		
4.	• Light	9.00
	• Moderate	68.00
	• Heavy	23.00
Number of heavy days		
5.	• > 2	47.00
	• 3-4	44.00
	• <_ 5	9.00
Irregular periods		
6.	• Yes	19.00
	• No	81.00
Missed periods(Amenorrhea)		
7.	• Yes	32.00
	• No	68.00
Painful periods(Dysmenorrhea)		
8.	• Yes	75.00
	• No	25.00
Severity of pain		
8.	• Mild	25.00
	• Moderate	50.00
	• Severe	25.00

Finding reveals that more than half of the adolescent girls (57.00%) had 4-6 days of menstrual bleeding, 30.00% adolescents had short bleeding period (3 or less than 3 days) whereas 19.00% of the adolescent had longer bleeding periods (more than 6 days). Majority of the adolescents

(68.00%) had moderate menstrual flow, followed by 23.00 percent adolescents having heavy menstrual flow. A little less than half of the adolescents (44.00%) had 3-4 days heavy bleeding. 47.00 percent had 2 or less than 2 days of heavy bleeding whereas 9.00 percent had 5 or more than 5 days of heavy bleeding. Study further reports that 19.00 percent adolescent girls had irregular periods and 32.00 percent had missed their periods, out of which 21.00 percent missed periods 1-2 times, 8.00 percent missed 3 times whereas 3.00 percent missed more than 3 times. Dysmenorrhea (painful periods) were reported by 75.00% of the adolescents, out of which 50.00 percent experienced moderate pain whereas 25.00 percent had severe pain.

4.2 Pre-menstrual and menstrual disorders

Fig.1 shows that almost all the respondents had one or more pre-menstrual symptoms. More than half of the adolescents (53.00%) had stomach ache, 36.00 percent had backache, and 35.00 percent had feeling of heaviness, nausea (28.00%), loss of appetite (18.00%) and breast tenderness (11.00%).

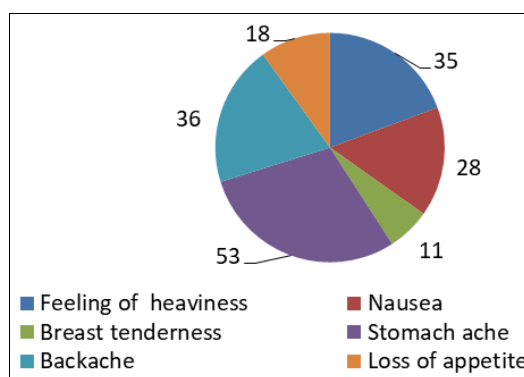


Fig 1: Pre-menstrual symptoms

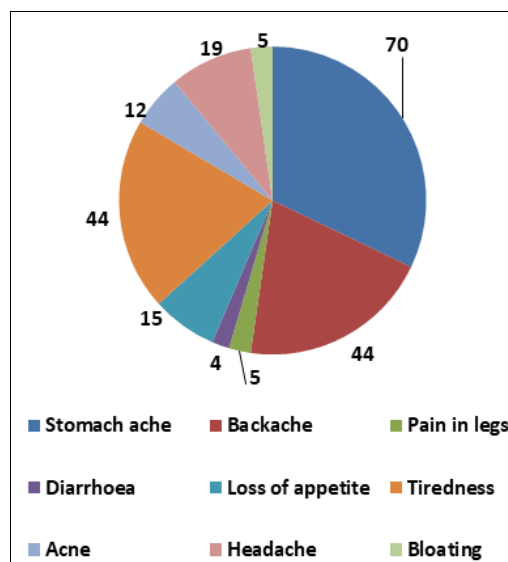


Fig 2: Menstrual disorders

Fig.2 reveals the menstrual disorders of adolescent girls. 70.00 percent adolescents had stomach ache, 45.00 per cent had backache, and 44.00 percent adolescents felt tiredness during menstruation. Other problems as reported by adolescent girls were headache (19.00%), loss of appetite (15.00%) and acne (12.00%), pain in legs (5.00%), bloating (5.00%), diarrhea (4.00%), and insomnia (4.00%).

Table 2: Prevalence of Psychological problems during menstruation

S. No.	Symptoms	Percentage
1.	Mood swing	37.00
2.	Negative feelings	24.00
3.	Behavioral changes	51.00
4.	Concentration problem	36.00

* Multiple responses

Psychological problems during menstruation as revealed by respondents were behavioral changes (51.00%), mood uplift (37.00%), concentration problem (36.00%) and negative feelings (24.00%) (Table 3).

4.3 Changes in menstruation cycle during stress

Adolescent girls reported change in date of menstruation, intensity of flow and intensity of pain whenever they have stress. Forty five percent had early periods whereas 27.00 percent had late periods due to stress. 47.00% adolescents reported increases in menstrual flow whereas 15.00% percent reported decreases in menstrual flow during stress. 40.00% adolescents reported increases in menstrual pain. Several studies report that stress can affect the part of the brain responsible for producing hormones, it can lead to changes in the frequency and duration of menstrual period.

Table 3: Prevalence of changes in menstruation cycle during stress

S. No.	Characteristics	Changes	Percentage
1.	Date of menstruation	On date	28.00
		Early	45.00
		Late	27.00
2.	Intensity of menstrual flow	No change	38.00
		Increases	47.00
		Decreases	15.00
3.	Intensity of menstrual pain	No change	52.00
		Increases	40.00
		Decreases	8.00

5. Discussion

Adolescence is the transition period from puberty to early adulthood where physical, emotional and psychological changes are taking place in the body. Menarche is the important landmark of the adolescence which prepares a girl for the future motherhood. Present study was conducted to assess the menstrual problems of adolescent girls. In the study 21.00% adolescents had early menarche that is at the age of 11-12 years whereas 17.00% had delayed menarche (14 -17 yrs. of age). Mean age of menarche was 13.41 which is similar to the studies conducted in India by Sachan B. *et al.*, 2012 [20], Nair *et al.*, 2007 [12] and Patil *et al.*, 2013 [16] whereas studies conducted by Verma *et al.* 2011 [24], showed higher mean age of menarche that is 13.9 years. Few studies conducted by Ravi *et al.* 2014 [17], Godbole *et al.*, 2013 [8] showed lower age at menarche that is 12.4 and 12.9 years.

This shows that the mean age of menarche varies from population to population depending upon nutritional, geographical and environmental conditions as well as genetic factors. But if there is too much variation, it must be taken care of. Early menarche is associated with various cardiovascular and reproductive disease related outcomes. Late menarche is associated with osteoporosis and increased fracture risk. The reasons may be nothing to worry about or they could be a sign that you have a health condition that needs to treat.

Regular menstrual cycle occurs every 28-35 days \pm 2-3 days in which the menstrual flow lasts for 3-5 days. In the present

study 84.00% adolescent girls had menstrual cycle of 21-35 days, 9.00% had oligomenorrhoea i.e. menstrual interval of more than 35 days and 4.00% adolescents had polymenorrhoea i.e. less than 21 days. Godbole, *et al.*, 2013 [8] also reported length of the menstrual as 21-35 days in about 86% of the students, while it was more than 35 days in 11% of the population and 3% had polymenorrhoea i.e. menstruation intervals of less than 21 days. One study conducted by Dambhare *et al.*, 2012 also reported inter-menstrual interval between 21-35 days in 69.52% girls while 8.38% adolescents had polymenorrhoea and 22.1% had oligomenorrhoea. If there is occasional irregularity in menstrual cycle it may be due to an immature hypothalamo-pituitary- ovarian axis or it may be due to changing trends of lifestyle, changing dietary habits and tough competition which is responsible for psychological stress among adolescents.

More than half of the adolescent girls (57.00%) had 4-6 days of menstrual bleeding whereas it was less than 4 days in 30.00% adolescents. Longer bleeding periods (more than 6 days) were observed in 19.00% of the adolescent. In the present study 23.00 percent adolescents have menorrhagia (heavy menstrual bleeding). Out of this, 44.00% had 3-4 days heavy bleeding. 47.00% had 2 or less than 2 days of heavy bleeding whereas 9.00% had 5 or more than 5 days of heavy bleeding. Yadav *et al.*, 2018 [26] in their study also found that 25% adolescents had heavy menstrual bleeding. Similar study conducted by Bandkhadke *et al.* 2015 [2], showed that 30.8% of adolescents had menorrhagia. Prolonged bleeding or heavy bleeding could be a reason of anemia in adolescents so this condition needs to be taken care with proper treatment and iron supplements. Study further reports that 19.00% adolescent girls had irregular periods and 32.00% had amenorrhea (missed periods). Study conducted by Wasnik *et al.*, 2015 [25] also reports that 22% adolescent girls had irregular periods. In the present study majority (75.00%) of the adolescents had dysmenorrhea. Similar finding were reported by Sharma, 2008 [22], Sharma, 2003 [23], Sharma *et al.*, 2008 [22]. Comparatively lower prevalence had been reported by Sharma *et al.*, 2008 [22], (33%), Yadav *et al.*, 2018 [26] (41.66%) and Agarwal *et al.*, 2010 [1] (37.96%).

Majority of the adolescents in present study experienced dysmenorrhea during menstruation and about 25.00% of them complained of severe pain. Omidvar *et al.*, 2018 [14] also reported that dysmenorrhea (painful periods) is the most common problem of adolescents with 30.00% having severe pain. Esen *et al.*, 2016 [7] also reported that approximately one-third of the adolescents in their study reported severe pain during their menstrual cycle.

Findings showed that almost all the respondents had one or more pre-menstrual symptoms. Buddha bunyakan *et al.*, 2017 [3] in their study also reported that almost 85.8 percent adolescents had at least one pre-menstrual symptoms. A study conducted by Rupavani, *et al.*, 2017 [19] among school going girls in Pondicherry reported 76.5% of girls reported one or more problems while it was 71.3% in adolescent girls in Aligarh as reported by Kulshrestha, *et al.*, 2019 [10] A study conducted by Priya *et al.* reported 62.2% premenstrual symptoms in their study.

Stress, has consistently been associated with variation in the length and duration of the menstrual cycle, anovulation and amount of menstrual bleeding. Present study also demonstrated increase in intensity of flow and pain in 45-47% adolescents. Yamamoto *et al.* 2009 [27], have shown that psychosocial stress is strongly associated with women's menstrual function and may be a factor responsible for the derangements of menstrual cycles, thereby predisposing

women under psychosocial stress to long-term disease risks. Nepomnaschy *et al.*, 2007^[13] have suggested that stress causes activation of the hypothalamic-pituitary-adrenal (HPA) axis which inhibits hypothalamic-pituitary-gonadal (HPG) axis. In addition, over secretion of corticotropin-releasing hormone (CRH), vasopressin, and endogenous opioid peptides further complicates the derangements. Chrousos G.P *et al.*, 1998^[5] have shown that psychological stress produces physiologic responses, such as activation of the CRH which are likely to affect menstrual function, apart from other ill effects.

6. Conclusion

Study reveals that dysmenorrhea was most common problem (75.00%) among adolescent girls. Almost one third adolescent girls (32.00%) missed their period, 23.00% had irregular menstruation, 19.00% had prolonged bleeding, 17.00% had heavy menstrual flow and 89.00% had two or more premenstrual syndrome. Various other studies also shows that occurrence of dysmenorrhea is increasing in the population and affecting the social life and productivity of females. Therefore, it is suggested that comprehensive health education program on menstrual problems, yoga and meditation should be organized on regular basis to help girls to cope with it in a better way.

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