Prevalence of School Absenteeism due to Menstrual Bleeding and Associated Disorders among Secondary School Students in a Semi-Urban Area of Southwest Nigeria

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Abstract

Background: School absenteeism is known to be a serious public health concern in view of its significant effects on the family, society and economy of the nation. It is intricately associated with several social and medical conditions in which menstrual patterns and their disorders are included, particularly in adolescent girls. There is not enough evidence on the effects of menstrual disorders on school attendance in Nigeria. This study was conducted to determine the prevalence of school absenteeism due to menstrual patterns and its associated disorders among secondary school girls in a semi-urban area of Ondo state, Southwest Nigeria.

Methods: A descriptive cross-sectional study was employed in eight secondary schools using a multi-stage cluster sampling technique. A self-administered questionnaire was utilized to obtain information on menstrual patterns and its associated disorders, school absenteeism and strategies for managing menstrual pain. The data obtained were analysed using descriptive statistics and the association between variables explored with Chi-square test at p<0.05.

Results: The mean age of respondents was 15.6±1.6 years and the mean age at menarche was 13.2±1.3 years. School absenteeism was reported among 53.6% of the respondents and 24.7% reported absence from school due to dysmenorrhoea. The reported school absenteeism was attributed to severe menstrual pain (P=0.001), premenstrual syndrome (P=0.035) and reduced concentration in class (P=0.005). Other factors included homework performance (P=0.001) and the number of daily changes of menstrual materials (P=0.046).

Conclusion: Menstrual disorders were shown to negatively affect school attendance and homework performance of female students. School based reproductive health education should give further attention to menstrual hygiene management.

Keywords: Schools, Absenteeism, Menstrual hemorrhage, Menstrual disorders, Premenstrual syndrome

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1. Introduction

The onset of menstruation represents an important landmark in the pubertal stage of an adolescent girl due to its uniqueness in the transition from girlhood to womanhood. Menstrual disorders are some of the various health challenges faced by women. The disorders related to menstruation are common gynaecological illnesses that could result in adverse health outcomes if they are not managed early (1). Menstrual disorders include menstrual bleeding irregularities, duration, frequencies, volume and premenstrual syndrome (2). Dysmenorrhea, known as menstrual pain, is one of the menstrual disorders which could be severe enough to incapacitate an adolescent girl from attending school or performing her normal daily routine. Not only do menstrual disorders affect women, but they also significantly affect the families, the community and the economy of the nation (3). The identification of abnormal menstrual patterns in adolescent girls might result in early diagnosis of potential health concerns in adulthood (1, 4).

Several misconceptions have been associated with menstruation and are seen as a taboo and as such they should not be discussed publicly (5). Moreover, most adolescent girls feel ashamed during menstrual cycle, which is due to lack of prior information about menstruation (6, 7). The public considers menstrual pain (dysmenorrhea) as a normal part of menstruation. Hence, we could observe lack of medical consultation for appropriate medications.

Menstrual disorders with inadequate school sanitation facilities usually have an adverse effect on adolescent girls' academic performance and school attendance, particularly in the rural setting (8-10). School absenteeism is believed to be a serious public health issue which has been intricately linked to several social and medical conditions, including menstrual bleeding and its disorders (11). Absenteeism is defined by Webster's dictionary as the practice or habitual staying away from school. Absenteeism could either be authorised or unauthorised, or caused by circumstances beyond control (12). According to United Nations Children's Fund (UNICEF), about one out of ten school-aged African girls did not attend school during menstruation or dropped out of school at puberty due to menstrual disorders, lack of cleanliness and separate toilet facilities for female students at schools (13).

School absenteeism results in students' unawareness of certain crucial instructions which cannot be repeated (14). It could also decrease academic performance, sports participation, and socialisation with peers; this former effect is significantly associated with dysmenorrhea in school girls (13). This may undermine students' gains regarding education as education is known to be a very strong pillar in our society and it is crucial for the advancement of a country and the world generally. In addition, education plays a pivotal role in the growth of mankind in the world as regards social, political, cultural, religious and economic development (14).

Poor hygiene during menstrual flow has been associated with serious health issues, such as urinary tract infection and reproductive tract infections (15, 16). Menstrual disorders have been reported to have negative effects on school attendance, as could be seen in certain journal articles (9, 10, 14) which is known to eventually affect school performance of the students. However, there is paucity of studies on the prevalence of school absenteeism due to menstrual bleeding and its associated disorders in Nigeria. The present study was conducted to determine the prevalence of school absenteeism among adolescent school girls caused by menstrual bleeding and its associated disorders among secondary school students in a semi-urban area of Ondo state, Nigeria. In addition, the study assessed the association between menstrual bleeding disorders and school absenteeism.

2. Methods

A descriptive cross-sectional study was employed in eight out of the seventeen public secondary schools in Owo Local Government Area (LGA) of Ondo State, Southwest Nigeria. The study population comprised of female students aged 12–19 years in Junior Secondary School (JSS) 3, Senior Secondary School (SSS) 1, SSS 2 and SSS 3. JSS 1 and JSS 2 were excluded since the students in these classes were in their early teen and might not have commenced menstruation.

The minimum sample size (n) of 396 was calculated using descriptive sample size formula for single proportion (17). A 2-stage cluster sampling technique was employed. **Stage 1:** Eight out of 17 secondary schools were selected using simple random sampling by balloting. **Stage 2:** Four classes were selected from each secondary school (JSS 3, SSS 1, SSS 2, and SSS 3) utilizing a simple random sampling by balloting. **Stage 3:** Among the selected classes, all consented girls were recruited.

The data were collected using semi-structured interviewer-administered questionnaire. Information was obtained on menstrual patterns and associated disorders, school absenteeism and strategies for managing menstrual pain. The class concentration and academic performance were assessed by asking questions demanding a "Yes" or "No" response on class concentration and homework performance. The contents of the questionnaire were reviewed by a reproductive health expert prior to pre-test, which was conducted among the secondary school girls in another school not selected for the study. The report of the pre-test was utilized to amend the questionnaire prior to field data collection. The filled questionnaires were manually checked on a daily basis for omissions and errors after collection. Data were entered, cleaned and analysed with SPSS version 20.0. The descriptive results were presented using frequency tables and a chart. Socioeconomic class was calculated employing Oyedeji's classification of social class (18). Chi-square test was used to determine the association between categorical variables at 5% level of significance. Ethical clearance for the study was obtained from the research and ethics committee of the Federal Medical Centre, Owo with ethical approval number FMC/OW/380/VOL.LIV/35. Permission to conduct the study was taken from the school principals of the selected schools. Assent was obtained from students below the age of 18 years, and consent from parents whose children were below 18 years and student who were 18 years and above. The students were assured of confidentiality.

3. Results

A total of 445 female students were given the questionnaires, out of whom 44 were excluded because

of incomplete data giving a response rate of 90.1%. The mean age of respondents was 15.6±1.6 years while the average age at menarche was 13.2±1.3 years. Two hundred and sixty-nine respondents (67.1%) were in middle adolescence, 96 (23.9%) were in early adolescence and 36 (9.0%) were in late adolescence. The majority (96.0%) of the respondents had attained menarche. The average duration of menstruation was 4.19±1.0 days among the respondents who had attained menarche. The mean body mass index of the respondents was 19.1±2.6 kg/m^2 with 218 (54.4%) of them having normal body mass index, 175 (43.6%) under-weight, and only eight (2.0%) of them were over-weight. About half 195 (48.6%) of the participants belonged to the middle socioeconomic class, 43 (10.7%) were in the low socioeconomic class and 163 (40.6%) belonged to the high socioeconomic class. The respondents who lived with both parents were 282 (70.3%) and only 13 (3.2%) among them lived with their relatives. About three-quarter (301) (75.1%) of the students were from a monogamous family. About three-quarter of the respondents' source of information on menstruation was their parents (Figure 1).

Over half (53.6%) of the respondents were absent from school and 125 (31.2%) were absent in the last completed term. Seven-four percent of the respondents reported availability of first aid box as the only form of healthcare facility in their schools while 5.2% reported no form of healthcare facility (Table 1).

Three hundred and sixty-three (94.3%) students had a normal frequency of menstrual bleeding. Out of 290 respondents (73.5%) who experience dysmenorrhoea, 72 (24.8%) were ever absent from school as a result of dysmenorrhoea whereas 51 (17.6%) were absent in the last completed term because of dysmenorrhoea. Above half, 165 (56.9%) of the respondents who had dysmenorrhoea observed the pain during menstruation. Among all the respondents with dysmenorrhea, 204 (70.3%) students were treated with anagelsics while 48 (16.6%) were treated with herbal concoction. Frequent menstrual bleeding and shortened duration of menstrual bleeding were reported by 21 (5.5%) and 127 (33.0%) girls, respectively. Irregular menstrual bleeding was seen in 61 (15.8%) students while 96 (24.9%) had premenstrual syndrome. One hundred and eighty-one (47.0%) respondents used sanitary pads during menstruation whereas tissue paper was used by 16 (4.2%) students, as depicted in Table 2.

School absenteeism was significantly associated with the presence of dysmenorrhoea. The highest proportion of school absenteeism 26 (76.5%) belonged to the participants with severe dysmennorrhea compared to those with no menstrual pain 37 (38.9%) (P=0.001). The respondents with premenstrual syndrome had more absent sessions in school (61.5%) than the students with no premenstrual syndrome (50.2%) (P=0.05). School absenteeism was shown to be significantly higher in students without irregular menstruation 180 (55.6%) than those with irregular menstruation 24 (39.3%) (P=0.02). Dysmenorrhoea negatively affected the school performance of (74.5%) of those who were absent from
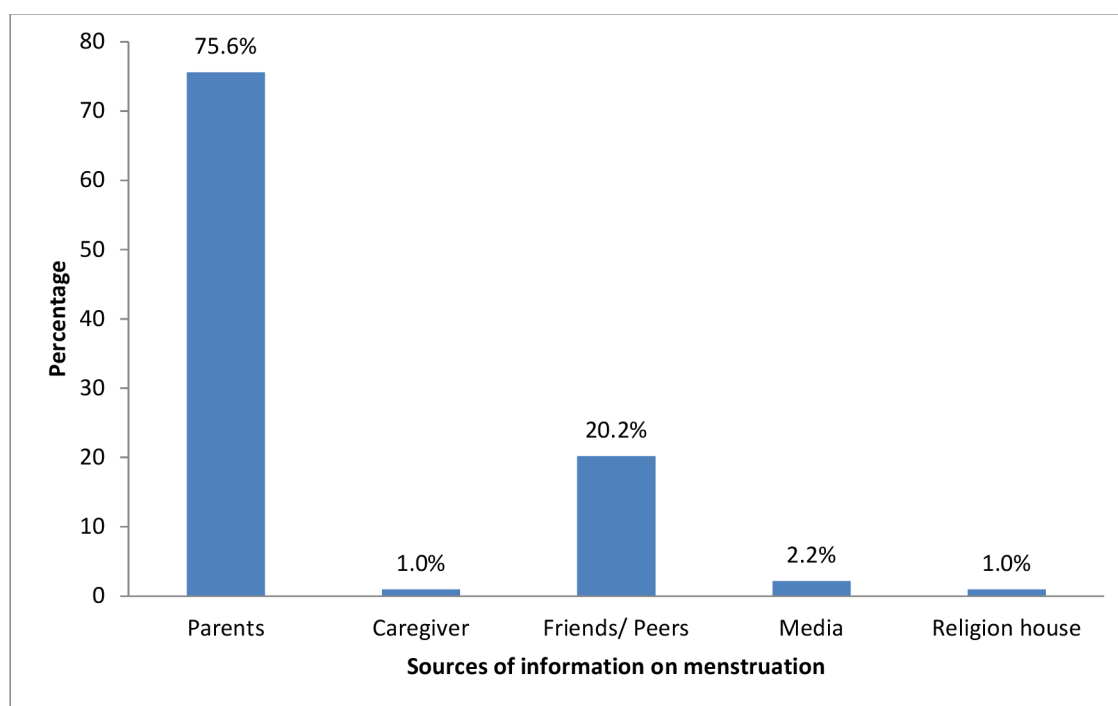

Figure 1: Respondents' distribution by the main sources of information on menstruation

Table 1: Distribution of school absenteeism and menstruation status

Variables (N=401)	Frequency	Percentage
Ever absent from school		
Yes	215	53.60
No	186	46.40
School absenteeism in the last completed term		
Yes	125	31.20
No	276	68.80
Ever started menstruating		
Yes	385	96.00
No	16	4.00
Healthcare facility in school		
Clinic	50	12.50
Sick bay	35	8.70
First aid box	295	73.60
None	21	5.20
Availability of toilet facility in school		
Yes	289	72.10
No	112	27.90

Table 2: Menstrual patterns, menstrual disorders and other related factors of respondents

Variables	Frequency (n)	Percentage (%)
Frequency of menstrual bleeding (days)*(N=385)		
<24 (frequent)	21	5.45
24-38 (normal)	363	94.29
>38 (infrequent)	1	0.26
Duration of menstrual bleeding (days)*(N=385)		
<3 (shortened)	127	33.00
3-8 (normal)	249	64.70
>8 (prolonged)	9	2.30
Irregular menstrual bleeding *(N=385)		
Yes	61	15.80
No	324	84.20
Experience dysmenorrhoea*(N=385)		
Yes	290	75.30
No	95	24.70
Dysmenorrhoea*(N=385)		
Grade 0 (Absent)	95	24.70
Grade 1 (Mild)	48	12.50
Grade 2 (Moderate)	208	54.00
Grade 3 (Severe)	34	8.80
When do you observe the menstrual pain**(N=290)		
Before menstruation	125	43.10
During menstruation	165	56.90
Pre-menstrual syndrome (PMS)*(N=385)		
Present	96	24.90
Absent	289	75.10
Volume of menstrual bleed*(N=385)		
Light	27	7.00
Normal	309	80.30
Heavy	49	12.70
Ever absent from school as a result of menstrual pain**(N=290)		
Yes	72	24.80
No	218	75.20

Absent from school in the last completed current term as a result of menstrual pain** (N=290)		
Yes	51	17.60
No	239	82.40
Number of absorbent pads used during menstruation per day*(N=385)		
<1	73	19.00
2-4	262	68.00
≥5	50	13.00
Types of absorbent pad used during menstruation *(N=385)		
Sanitary pad	181	47.00
Clothe	27	7.00
Tissue paper	16	4.20
Sanitary pad and clothe	86	22.30
Sanitary pad and tissue paper	75	19.50
Pain relieved with analgesics **(N=290)		
Yes	204	70.30
No	86	29.70
Pain relieved with herbal concoction **(N=290)		
Yes	48	16.60
No	242	83.40
Pain relieved with hot pads **(N=290)		
Yes	60	20.70
No	230	79.30
Pain relieved when you lie down **(N=290)		
Yes	229	79.00
No	61	21.00
Painful micturition after menstruation *(N=385)		
Yes	88	22.90
No	297	77.10

*N excludes respondents who had never menstruated; **N excludes respondents who had never experienced dysmenorrhoea

school (P=0.001). The respondents who had daily absorbent pad changes of 2-4 times had the highest rate of school absenteeism (57.3%) (P=0.046). However, this study found no significant association between school absenteeism and the type of absorbent pad used for menstruation (P=0.550), meanwhile absenteeism was higher among those who used sanitary pads. Menstrual cycle (P=0.410) and menstrual flow (P=0.880) were not significantly associated with school absenteeism as shown in Table 3.

The students whose menstrual pain reduced their concentration in class were frequently absent (66.9%) (P=0.007). Likewise, students whose menstrual pain affected their school performance were frequently absent (P=0.001). The respondents whose homework performance were negatively affected by menstrual pain had a higher rate of school absenteeism (P=0.001). The management strategies employed for the menstrual pain were significantly associated with school absenteeism. The respondents whose menstrual pain was relieved using analgesics were absent more frequently compared to those who did not use analgesic (P=0.001). The respondents who used herbal concoction

for menstrual pain revealed a higher rate of school absenteeism (70.8%) (P=0.038).

4. Discussion

The mean age of the respondents was 15.6±1.6 years and majority (67.1%) were aged between 15-17 years old. The majority of the respondents within the age range of 15-17 years were in the senior secondary school and had attained menarche, which is in line with the findings in South-Eastern and Northern Nigeria, where the majority of the study population (75.6%) were aged 15-17 years old (19, 20). The onset of menarche varies from individual to individual and also from population to population, though it falls within a normal broad range (21). In this paper, the average age at menarche was 13.19±1.3 years. In America, the mean age at menarche ranges from 12.1 to 12.9 years and 90% of the adolescent girls have attained menarche by the age of 13.75 years (22). A study reported a delayed age at menarche in Northeast Ethiopia at the age of 14.8 years (using probit analysis) and 15.8 years (using recall method) (10). The mean age at menarche in Mozambique was 13.9±1.3 years, as mentioned in a study (23).

Table 3: Relationship between menstrual irregularities and school absenteeism

Variables	School Absenteeism		Chi-square	P value
	Yes n (%)	No n (%)		
Degree of menstrual pain (N=385)				
Absent	37 (38.90)	58 (61.10)	15.57	0.001
Mild	28 (58.30)	20 (41.70)		
Moderate	113 (54.30)	95 (45.70)		
Severe	26 (76.50)	8 (23.50)		
Premenstrual syndrome (N=385)				
Present	59 (61.50)	37 (38.50)	3.68	0.05
Absent	145 (50.20)	144 (49.80)		
Irregular menstrual bleeding (N=385)				
Yes	24 (39.30)	37 (60.70)	5.42	0.02
No	180 (55.60)	144 (44.40)		
Does menstrual pain negatively affect your school performance (N=385)				
Yes	38 (74.50)	13 (25.50)	10.93	0.001
No	166 (49.70)	168 (50.30)		
Is the pain severe enough to be absent from school*(N=289)				
Yes	72 (81.80)	16 (18.20)	25.39	<0.001
No	101 (50.20)	100 (49.80)		
Does the menstrual pain reduce your concentration in class *(N=290)				
Yes	79 (66.90)	39 (33.10)	7.14	0.007
No	88 (51.20)	84 (48.80)		
Does menstrual pain negatively affect homework performance (N=289)				
Yes	80 (69.00)	36 (31.00)	10.53	0.001
No	86 (49.70)	87 (50.30)		
Is pain relieved with anagelsics (N=290)				
Yes	130 (63.70)	74 (36.30)	10.62	0.001
No	37 (43.00)	49 (57.00)		
Is the pain relieved with herbal concoction *(N=288)				
Yes	34 (70.80)	14 (29.20)	4.32	0.038
No	131 (54.60)	109 (45.40)		
Number of absorbent pad change per day (N=385)				
<1 time	31 (42.50)	42 (57.50)	6.10	0.046
2-4 times	150 (57.30)	112 (42.70)		
>5 times	23 (46.00)	27 (54.00)		
Types of absorbent pad used for menstruation (N=385)				
Sanitary pad	94 (51.90)	87 (48.10)	3.05	0.550
Clothe	14 (51.90)	13 (48.10)		
Tissue paper	7 (43.80)	9 (56.20)		
Sanitary pad and clothe	43 (50.00)	43 (50.00)		
Sanitary pad and tissue paper	46 (61.30)	29 (38.70)		
Frequency of menstrual bleeding in days (N=385)				
<24	9 (42.90)	12 (57.10)	1.78	0.410
24-38	194 (53.40)	169 (46.60)		
>38	1 (100.00)	0 (0.00)		
Duration of menstrual bleeding in days (N=385)				
<3	65 (51.20)	62 (48.80)	0.26	0.880
3-8	134 (53.80)	115 (46.20)		
>8	5 (55.60)	4 (44.40)		

*N varies due to non-response to some questions

It is a common occurrence in adolescent period to have irregular bleeding cycles during the beginning of menstruation, which could be on account of non-ovulatory cycle (24). In our research, 15.8% of the participants had irregular menstrual bleeding, which was less than what was reported in Ethiopian (46.2%) (4) Saudi Arabian (41.5%) (25) and Jordanian girls (34.6%) (26). The majority of our respondents (94.3%) had regular menstrual cycle. This is higher than the findings of a study in Ibadan where 63.3% experienced normal bleeding duration (27).

The prevalence of dysmenorrhoea in this study was estimated at 75.3% which is slightly lower than the reported prevalence of dysmenorrhea among Hispanic American (85%) (28) Switzerland (86.6%) (29), Thailand (84.9%) female adolescents (30), However, it is comparable to the reported prevalence in Ghana (74.4%) (31), Iran (71.2%) (32), Ethiopia (72%) (10), and Malaysia (74.5%) (33), Studies have shown that the variation in the prevalence could be due to methods of collecting data as a result of absence of a universally acceptable means of defining dysmenorrhea as a result of associated symptoms and individual pain threshold (28, 30, 34).

Herein, more than half (53.6%) of the respondents were ever absent from school. The school absenteeism rate in this study was higher than the previously reported rate in a study carried out among adolescent students in Assiut city, Egypt (38%) (13). The variation in school absenteeism rates might be related to the existence of different cultural perceptions and responses to various gradients of pain (35, 36). In the present work, there was a significant association observed between school absenteeism and dysmenorrhoea with higher prevalence of school absenteeism seen in the students with severe dysmenorrhoea. Studies have demonstrated a significant association between school absenteeism and menstrual disorders one of which is dysmenorrhoea (37). A study carried out among adolescent girls in Pune showed the prevalence of 43.2% of school absenteeism among students who had attained menarche and were suffering from menstrual disorders (37). This is very similar to the findings of a study carried out in West Bengal among 190 adolescent girls in a rural secondary school in which 39.0% girls reported to have school absenteeism due to menstrual bleeding and menstrual disorders (38). In a study carried out among Australian teenagers, an association was found between increasing severity of menstrual pain, number of menstrual-related symptoms and school absenteeism (39, 40).

Dysmenorrhoea extensively affected the school performance of the students with school absenteeism in this study, which is in accordance with the findings from other studies carried out in Ethiopia, Egypt, and Turkey (4, 13, 41). Dysmenorrhoea was significantly associated with school absenteeism and decreased academic performance as shown in a study carried out among Hispanic females (28).

Furthermore, the use of medication was significantly associated with school absenteeism in this study, which is similar to findings in a study conducted among adolescent girls in Brazil (42). Respondents with dysmenorrhoea are more likely to use over the counter analgesics and this was shown to be statistically significant in a study carried out in the Northern Nigeria (19). The use of analgesics is not peculiar to dysmenorrhoea alone, but it is a common occurrence in the developing world where there are no stringent laws prohibiting such practices (19). However, in this study 16.6% of the respondents suffering from dysmenorrhoea were treated using herbal concoction. The use of herbal concoction for management of any illness is a practice that is discouraged by health practitioners because of their negative health implications. These negative health implications and their adverse effects could possibly result from poor control of dosage and quality, poor understanding of the mechanism of action of the herbs and drug interaction (43, 44). However, further studies are required to find the mechanism of action and merits of herbs.

One of the disorders significantly associated with school absenteeism was observed to be premenstrual syndrome. This was derived from questions ranging from breast tenderness, bloating, mood change and changes in eating habits 10 days ahead of menstruation. The students with at least three of the symptoms were classified as having premenstrual syndrome. However, a study carried out in Northern Nigeria found no significant association between school absenteeism and premenstrual symptoms (45). A study carried out among females in Bhavnagar, Gujarat and two other studies indicated a statistical significance between school absenteeism, performance and premenstrual syndrome (46-48).

Different absorbent pads were used for menstruation by students as seen in this study ranging from sanitary pads (47.0%), clothe (7.0%), and tissue paper (4.2%), and the combination of sanitary pads with either tissue paper (19.5%) or clothe (22.3%). This finding is different from that reported in a study carried out in Bhavnagar

where the majority of the girls (87.3%) used clothe during menstruation and only 10.6 % used commercially available sanitary pads (46). Non-sanitary pads are not recommended for menstruation as this may increase the exposure to reproductive tract infections, urinary tract infection and other complications (37). However in the present study, there was no significant association between the school absenteeism and type of the absorbent used.

Most of the respondents had not been taught how to calculate their menstrual cycle at the time the questionnaires were distributed. Some of the students tried to protect the image of their schools, especially the private schools, therefore, certain questions in terms of toilet facility and healthcare facility in their schools were not properly answered.

Recommendations

There is a need to improve information assessment by female students on how to better manage menstrual disorder.

Consistent school health education by health educators and teachers will help school girls to open up and seek counsel on issues bordering on the appropriate use of absorbent pads, menstrual bleeding and its disorders.

Provision of a standard sick bay in every secondary school will help to manage dysmenorrhea and other menstrual disorders better, thereby reducing the prevalence of school absenteeism.

Further studies are required on the effects of the menstrual bleeding and its disorders on the school girls' self-esteem.

5. Conclusion

In conclusion, menstrual disorders were observed to be highly prevalent among secondary school girls and had negative effects on school attendance and their academic performance. Experience of dysmenorrhoea, premenstrual syndrome and other menstrual bleeding disorders were found to be associated with school absenteeism.

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