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Exploring school girls' menstruation characteristics and impacts on their academic performance

Ibtesam Nomani, MBBS, FCPS, MRCOG

Assistant Professor, Faculty of Nursing, Umm Al-Qura University, Makkah
Corresponding author email: ibtesamnomani@gmail.com

Abstract---Background/Objective: Menstrual issues are the most prevalent gynecological issue, especially among high school girls. Menstruation significantly impacts students' academic performance and is one of the leading causes of their short-term absences from school. This project is intended to investigate the effect of menstruation on academic achievement among rural girls in a developing nation. Subjects and Methods: This study utilized a mixed methodology consisting of a descriptive cross-sectional study and a qualitative design. The study was done on 225 girls during their four menstrual cycles between February and April 2022. For data collection, a three-sectioned, pre-validated questionnaire was used, which was divided into three portions. Section A was an interview evaluation sheet used to collect socio-demographic information. Section B addressed the menstrual cycle and menstrual pain. Included questions on the impact of the menstrual period on academic performance and students' anxiety surrounding each menstrual period. This study revealed a significant association between dysmenorrhea and anxiety. Results: Seventy-five percent of girls in the rural community expressed concern about their menstrual cycles. Data were collected by diary records and focus group interviews. Dysmenorrhea severity was classified as mild, moderate, and severe. The acquired data were examined using descriptive statistics, and Chi-square tests were conducted to find associations with statistical significance. Additionally, premenstrual and menstrual pain was substantially related to school absence. Conclusion: Since mothers are the primary source of information, they should be encouraged to abandon their taboos around menstruation-related topics. They should be instructed on the negative implications of adhering to menstrual taboos. Menstruation should be covered in greater depth in general biology courses.

Keywords---menstrual pain, menstrual hygiene, dysmenorrhea, anxiety.

Introduction

Physical and mental health are equally intertwined, and poor health in either of these two domains has a considerable impact on risk factor generation [1]. The reproductive cycle is a fundamental characteristic of every girl, and the duration of each woman's menstrual cycle varies. The menstrual cycle, which occurs every 28 days on average, ranges from four to ten days, with an average of six days [2]. Menstrual abnormalities are particularly prevalent among students. Following menarche, the menstrual cycle may be characterized by copious bleeding, discomfort, and irregularity, especially in adolescents. [3]. Disruptions in the normal process have numerous adverse effects on daily activities [4]. With age, however, anomalies become normal and improve. Simple drugs manage changes in the physical, psychological, and hormonal states. In contrast, general health habits and medication measures are occasionally effective [5].

Few studies have examined the impact of worry and fear over menstrual cycles on a woman's everyday routine. Numerous quantitative research examined the effects of monthly irregularities on school exam performance, menstrual patterns, and school attendance. In an Islamic country, 38% of school-aged females experienced menstruation pain, and 8% missed at least one day of class per cycle. Heavy menstrual flow accompanied by pain might harm academic performance. They negatively impact the grades on formative and summative examinations. Additionally, studies indicated that women with greater levels of education are less likely to be negatively affected .A recent systematic review in a developing nation comprised of seventy-six research with six thousand participants from thirty-five countries revealed that societal stigma around menstruation and gender are norms that significantly influence their experiences [6].

A recent systematic review in a developing nation comprised of seventy-six research with six thousand participants from thirty-five countries revealed that societal stigma around menstruation and gender are norms that significantly influence their experiences. Few research has examined the impact of worry and fears over the menstrual cycle on a woman's everyday routine [7,8,9]. Numerous quantitative analyses examined the effects of monthly irregularities on school exam performance, [10 11,12] menstrual patterns, and school attendance [13]. In an Islamic country, 38% of school-aged females experienced menstruation pain, and 8% missed at least one day of class per cycle [14]. Heavy menstrual flow accompanied by pain might harm academic performance. They negatively impact the grades on formative and summative examinations. Additionally, studies indicated that women with greater levels of education are less likely to be negatively affected [15, 16]. Girls must have a deeper grasp of menstrual characteristics, and treatments must be tailored to improve academic achievement and overall health. The study investigated the menstrual factors and the association between anxiety and school attendance among rural Tamil Nadu girls.

The objectives were

1. to explore the participants' menstrual attributes, the nature of the menstrual cycle, and how they differ from other girls.
2. Find the association between the menstrual period and school attendance.
3. to associate their menstrual cycle with the nature of pain.

Methods

This project is intended to investigate the impact of menstruation on academic achievement among rural girls in a developing nation. This pilot research aims to conduct an intervention study in the future. This initiative investigates the school performance, degree of information about menstruation, and self-confidence of rural Indian girls. The goal was to collect an average of 675 menstruation records from girls who reached menarche in less than a year and volunteers over four to five months. Their parents' permission was given in writing. Girls whose menstrual cycles were aberrant were excluded from the study.

Tools of Data collection

A prospective longitudinal design for a one-year pre-post randomized trial research has been developed. This intervention is designed to provide puberty education with the assistance of school instructors, psychosocial drama to explain mental health elements, menstrual kit training, medication guidance, and improvement of the school's restroom facilities. This current research is a mixed-method approach, included are 225 schoolgirls who volunteered from a designated community's student population. For data collection, a pre-validated Structured questionnaire was utilized. Participants' socio-demographics, level of knowledge (0-9 score) on puberty, menstrual cycle (0-3 score), and methods of pain management (0/1 approach; 2/3 method, 4+ methods), menstrual misconception, participant's perceptions of the menstrual cycle, including anxiety, previous management of menstrual period, and their experiences of pain at LMP, as well as behavioral and conduct issues (25-item strength and difficulty questionnaire) were collected. Each girl has been provided with a data sheet detailing the information intended to be collected from the participants.

Analysis

Data was collected, coded, tabulated, and analyzed to explore the significant relationship between anxiety and the menstrual period and the relevant factors associated with the menstrual cycle using logistic regression analysis. The amount of anxiety was rated on a five-point Likert scale ranged strongly agree to disagree. The experiences of girls apprehensive about their menstrual period have been viewed as the predictor of their self-confidence [6]. The amount of anxiety was rated on a five-point Likert scale ranging from strongly agree to disagree. After assessing the association between anxiety and each variable, the associated determining factors, such as socioeconomic status and retained factors, were investigated ($p < 0.01$). Similarly, walking, dancing, and cycling expectations are related to anxiety.

On the diary-like datasheet for each girl are initial descriptions of the menstrual cycle patterns (mean duration, number of days cycle, mean menstrual flow, perceived flow, and discomfort). Regression analysis was used to compare the course of a woman's menstrual cycle over four months based on her age. The connection between menstrual flow pain and participant demographics was assessed at 95% confidence intervals.

Results

Two hundred twenty-five girls agreed to participate in the study to learn more about the nature of their menstruation. The following are the responses on the datasheet:

Table 1: Age at Menarche

Years	Frequency	Percentage
Younger than 10	38	16.88
10-12	67	29.77
13-15	80	35.55
16 or older	40	17.77
Total	225	100

Table 2: Distribution of Items Concerning Menstrual Characteristics N=225

Knowledge Items	(True) N (%)	(False) N (%)
Do you know the meaning of puberty and menstruation?	90(40)	135(60)
Hormones are responsible for making changes in the body and mind during puberty.	94 (41.78)	131(58.22)
When do the Physical changes related to puberty usually start? (10 and 14 years of age).	90 (40)	135 (60)
When does a woman's menstruation stop?	32(14.22)	193 (85.78)
How a woman gets pregnant?	27 (12)	198 (88)
When is a woman's body ready for pregnancy?	27 (12)	198 (88)
Does a pregnant woman menstruate?	31 (13.78)	194 (86.22)
How frequently does a woman experience menstruation?	100 (44.44%)	125(55.56%)
Is it common for a woman to experience menstrual pain?	40(17.78%)	185(82.22%)
Mean	26.22	73.78

Figure 1: Activities affected during the Menstrual Cycle

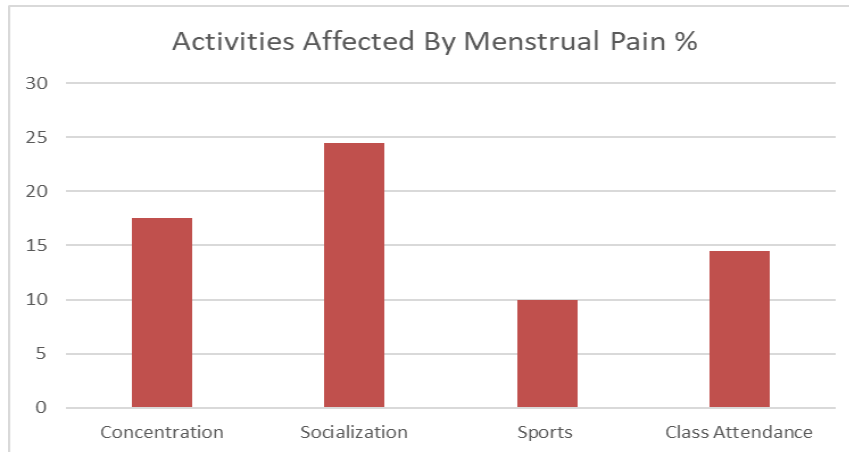


Table 3: Menstrual Characteristics and anxiety

Variables	Total Nos	Anxious: menstrual period (n)	%	95% CI
Parents Economy				
Low	155	86	55.26	P<.005
High	70	49	70.59	
Family Structure				
Nuclear	74	33	44.44%	P<.05
Joint	151	192	67.58%	
Exercise Knowledge				
Agree	90	37	40.91%	P<.05
Disagree	135	188	72.73%	
Menstrual Knowledge Questions				
≤ 6/9	164	91	40%	P<.005
7/9	61	134	60%	

Table 4: Distribution of variables of Dysmenorrhoea n=220

Items of Variables	With Dysmenorrhoea	Without Dysmenorrhoea	Chi-square	P Value
13 and below				
13	15(6.67)	9(4)		
14 years	22(9.78)	3(1.33)		
15 years			9.378697	0.025
	54(24)	23(10.22)		P<0.05
16 years	45(20)	8(3.56)		
>17 years	38(16.88)	8(3.56)		
Menstrual Flow	44(19.56)	23(10.22)		0.0002

Three Days			13.16529425	P<0.0005
Above Three Days	120(53.33)	38(16.89)		

Legend: P<0.05 Significant, P<0.0005 Highly Significant

The Chi-square test demonstrated that age and duration of menstruation were statistically significant in the study group's experience with dysmenorrhea.

Items of Variables	Absence from School No	Absence from School No	Chi-square	P Value
13 and below				
13	10	3		
14 years	45	6		
15 years	66	5	10.278	0.035 *
16 years	49	3		
>17 years	29	9		
Mild				
Moderate	77	5		
Severe	88	11	17.14886	0.000
	30	14		P<.000 **

Legend: P<0.05 Significant, P<0.0005 Highly Significant

In addition to pain intensity and respondent age, pain severity was also substantially linked with school absences.

Menstrual Characteristics

In 2022, 225 volunteer females from a rural community (total menstrual period: 675) provided verbal reports for four months. Two hundred twenty-five girls have logged a total of 675 menstrual cycles on their datasheet. The median length of the participant's menstrual cycle was 29 days.

Menstrual flow and Menstrual pain

67 (29.78%) participants reported an average of three days of regular flow. 70% of 620 cycles reported experiencing more than three days of heavy flow. Girls stated that fifty percent of their first-day flow was light, followed by a substantial flow on subsequent days. 120 (53.33%) of the females reported excessive flow with menstrual pain on their one-fourth period days.

Discussion

Menstruation remains stigmatized for many girls and women of all ages, particularly in low-income populations [17]. The available study sheds light on menstruation experiences among Indian schoolchildren, not withstanding its

limitations. Even though mothers continue to be the most sought-after source of sexual health knowledge across a wide range of populations worldwide, this is no longer the case. In addition, many families do not report having menstruation-related conversations at home [18]. Low socioeconomic groups experience worrisome sensations and are routinely absent from school, as supported by our research.

Given the possibility of gender dysphoria during adolescence and the dread of menstrual leaks being observed by others, trans and non-binary people who menstruate may be especially susceptible to stigma [19]. Although many adolescents in wealthy nations have limited knowledge of menstruation and are unprepared for menarche, adolescents in low-income groups have even less information and are even less prepared [20].

Numerous schools serving poor socioeconomic backgrounds community girls in developing nations may face structural barriers relating to period management, including inadequate restroom facilities (e.g., insufficient privacy and decommissioning options), challenges having access to menstrual products when the cost is an issue, and inadequate menarche education [21]. According to the facts presented, it is assumed that many parents expect schools to offer education on maturity and menstruation. Therefore, parents may consider, or be justified in believing, that they do not need to discuss these topics with their children. In India, most girls felt that the knowledge they got in school was insufficient, as school-based courses usually stressed the biological aspects of puberty and menstruation rather than providing practical guidance. The problematic nature of coping with menstrual cramps, particularly in schools, prompted many adolescent girls to retreat socially and sometimes physically from school activities. A recent global meta-analysis of evidence suggests that menstrual pain associated with dysmenorrhea is highly prevalent, affecting about 75% of young women under 25. [22].

Limitation

Girls who participated in the study and received guidance on managing menstrual pain may have altered their diaries. During our research, we just asked about period pain in general and did not query the precise source of the discomfort. A previous study has determined, for instance, that headaches are an essential premenstrual symptom. Girls in our study may or may not have reported headaches as period discomfort. Due to the lack of complete menstrual data (e.g., percentage of menstrual days with pain or percentage of menstrual days with the heavy flow), we could not determine the relationship between these variables and women's anxiety during their period. Therefore, we utilized the previous menstrual cycle as an inadequate alternative. We could not evaluate correlations between structural variables such as school-based wash facilities, which would have strengthened the external validity of our findings because we only recruited from one rural location.

Conclusion

According to our research conducted in a developing nation, menstrual anxiety and pain substantially impact a girl's capacity to complete her education. Given the correlation between monthly pain and absences, school-based therapies for menstrual health should include pain management. In addition to physical and biological elements, such as providing basic knowledge about periods and access to menstrual hygiene products, it is essential to address the psychological components of menstruation.

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