



## Prevalence, Pattern and Impact of Menstrual Ailments among Princess Nourah Bint Abdulrahman University Students in Riyadh, Saudi Arabia

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### Abstract

**Background:** Menstruation is an essential change experienced by every female. The length of menstrual cycle varies from 21 to 35 days. Some females may experience problems that affect the normal cycle of menstruation referred to as menstrual ailments, which may range from heavy, painful periods to no periods at all. Among gynecological illnesses, the problems related to menstruation are the greatest common, affecting not only the female's quality of life but also their families, public and general economics. This study aims to determine the prevalence of and impact of menstrual ailments among Princess Nourah Bint Abdulrahman University students.

**Methods:** A cross-sectional study started in January 2021 to April 2021 among 518 female students. Multistage technique was used to recruit students from health and non-health colleges. Data designed to determine prevalence, pattern, and impact of menstrual ailments among Princess Nourah Bint Abdulrahman University.

**Results:** The results showed high prevalence of menstrual ailments among participant, the highest prevalence was pre-menstrual syndrome (28%) and dysmenorrhea (25%). According to the impact, 38% of participants stated that they miss home activities, and 31% stated getting a sick leave due to menstrual ailments.

**Keywords:** Menstrual Cycle; Ailments; Female Students; Pattern; Prevalence; Impact; Princess Nourah Bint Abdulrahman University

### Introduction

Every female experience natural changes in her teen years, physically and emotionally, which include the start of menstrual cycle [1]. In the years between puberty and menopause, menstruation happens. Menstruation is also referred to as "menses" or "period", which is every month blood flow from the uterus into the cervix and out through vagina. The average length of menstrual

cycle is around 28 days, (normal range between 21 days and 35 days). The normal bleeding of nearly all women is about 3 to 5 days (average 2 to 7 days) [2].

Menstrual ailments/disorders are problems that affect the woman's normal menstrual cycle and have been defined as a disruptive physical and/or emotional symptoms just before and dur-

ing menstruation, including heavy bleeding, missed periods and unmanageable mood swings [3].

There are various forms of menstrual problems, which may vary from heavy, serious, distressing menstruation cycles to no cycles at all. However, every woman should take in consideration whether her periods less than 21 days or over 3 months apart, or even if they last more than 10 days [2].

Examples of menstrual ailments or problems are menorrhagia which is the medical term for significantly heavier periods. Amenorrhea is absence of menstruation. Dysmenorrhea is severe, frequent cramping during menstruation. Oligo-menorrhea is a condition in which menstrual cycles are infrequent, occurring more than 35 days a part [4]. Premenstrual syndrome (PMS) is "a set of physical, emotional, and behavioral symptoms that occur a week before menstruation in most cycles" and usually the symptoms do not appear until around 13 days of the cycle and gone within 4 days after bleeding starts [2].

The problems related to menstruation are the greatest common gynecological illnesses. They do not affect females only but also influence their families, the public and the general economy too [5]. Menstruation can have a major impact on the quality of women's lives. Because of their menstruation, women felt that they are forced to abstain from social activities, got absent from work during the heaviest days of menstruation, have limitations in work and school and blocked from educational and academic achievements [6].

At the same time there are a lot of females that suffer from menstrual ailments/disorders that cause major problems to the female herself and her community. According to Saudi medical journal that published research studying the prevalence of menstrual problems in young female students, 91% of them were in pain from different menstrual ailments.

It is proved that their menstrual ailments did weaken their academic performance, increase their absenteeism, and absolutely cause a huge financial burden [7].

**Study Objectives:** To determine the prevalence, pattern and impact of menstrual ailments among Princess Nourah Bint Abdulrahman University students.

## Methodology

This is a descriptive cross-sectional study design. It was conducted to determine the prevalence, pattern, and impact of menstrual ailments among Princess Nourah Bint Abdulrahman University students, Riyadh, Saudi Arabia. This study was conducted on students of Princess Nourah Bint Abdulrahman University, from January to April 2021. The total number of students in Princess Nourah Bint Abdulrahman University is 38986 [8]. All of Princess Nourah Bint Abdulrahman University students are included in the study except students who either removed their uterus or had amenorrhea. Sample size was calculated using the "n<sup>4</sup> studies application" software application [9], considering that the study is a cross-sectional one, and the target population is more than ten thousand, it gives a sample size of 518 students.

## Sampling technique

colleges of Princess Nourah Bint Abdulrahman University are classified into four major fields (humanities' colleges, science colleges, community colleges, and health colleges). Each major field has different colleges, and every college has different academic programs. Multistage technique has been used to recruit the students from the colleges to represent the different major fields. First, colleges are stratified into health colleges and non-health colleges (humanities' colleges, science colleges, and community colleges). Then by simple random technique two colleges are selected: one college from the health colleges and another college from the non-health colleges. All students in the academic programs (clusters) are recruited in the study. Students was approached by online survey to distribute the study questionnaire, after making announcement on social media (using Twitter and WhatsApp applications).

The 516 sample students were divided proportionally between the two colleges according to the size of their students, as follows:  $n_h = (N_h/N) * n$  (where  $n_h$  is the sample size for stratum  $h$ ,  $N_h$  is the population size for stratum  $h$ ,  $N$  is total population size, and  $n$  is total sample size).

Population size of health colleges = 2476 students, while population size of non-health colleges = 36510 students. So, the planned sample size was 33 students recruited from health colleges, and 483 students was recruited from non-health colleges.

Data was collected using a pre-designed, self-administrated questionnaire including demographic data (3 questions), descrip-

tion of the menstrual cycle (32 questions), and the impact of menstrual ailments (8 questions).

**Menstrual problems are defined as follows [5]:**

- Secondary amenorrhoea: During the last three months there is no menstruation.
- Regular Period: The mensuration repeated once every twenty-eight to thirty-two days.
- Oligo-menorrhoea the menstruation is repeated every more than thirty-two days.
- Poly-menorrhoea: The menstruation is repeated every less than twenty-one days.
- Hypo-menorrhoea: The amount of blood loss less than 3 pads and the duration of the period equal or less than three days.
- Hyper-menorrhoea: The amount of blood loss more than five pads and the duration of the period equal or more than seven days.
- Dysmenorrhoea: Pain during period, which is characterized 3 patterns mild, moderate or severe.
- Pre-menstrual Syndrome (PMS): Is a multi-symptom that happened ten days before the starting of the menstruation, some of those symptoms such as bloating or swelling of the abdomen or painful or tender breasts, rapid mood change and, depressed mood. Having at least three of these symptoms in condition that those symptoms should vanish at the start of menstruation will consider as PMS.

The software JMP version 16 was used to analyses the collected data [10]. Data was revised, coded, and tabulated using the frequency and percentage.

**Ethical consideration**

participants were informed about the aim of the study, the voluntary participation in and withdrawal from the study, the anonymity of collected data was maintained, there is no private data was shared, and that their responses with was kept strictly confidential and used only for research purposes.

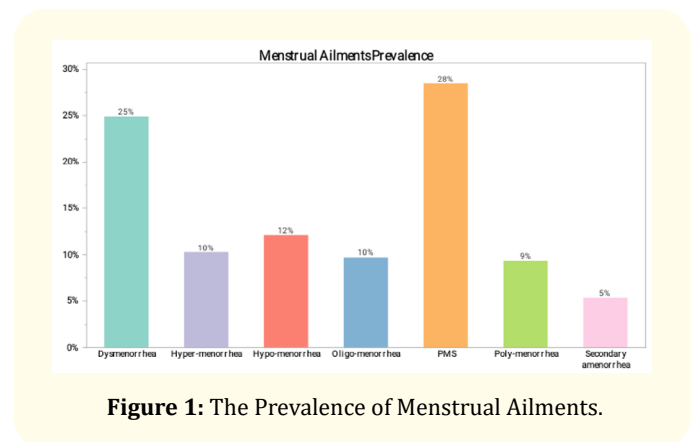
**Results**

This study was conducted on 518 students of Princess Nourah Bint Abdulrahman University. The population age ranged from 17

Variable	N	% of total
Age		
19 and less	132	25.48%
20 - 23	332	64.09%
24 and more	54	10.42%
Marital status		
Married or previously married	57	11%
Single	461	89%
Academic level		
First year	163	31.47%
Middle years	169	32.63%
Last year	132	25.48%
Internship	54	10.42%

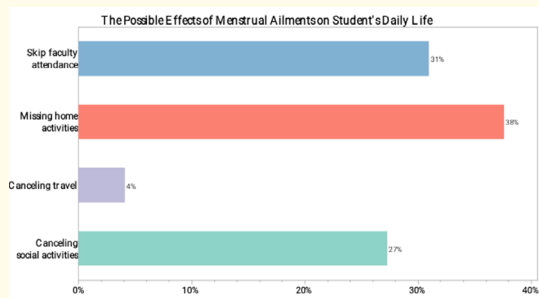
**Table 1:** Demographic Characteristic of the Study Sample (n = 518).

to 24, The study population age ranged from 17 to 24 years old. The majority of participants were between 20-23 years (332) and (461) were single while, the married were (57). According to academic level, (163) were in 1st year while, the minority of students (54) were in internship year (Table 1).



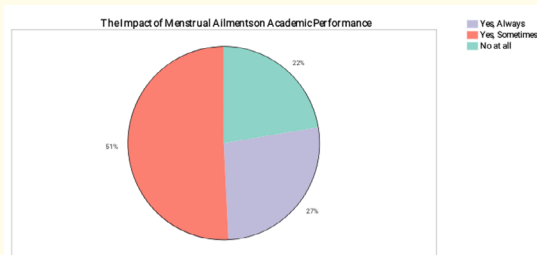
**Figure 1:** The Prevalence of Menstrual Ailments.

(Figure 1) shows the prevalence of menstrual ailments among the participants. The highest percentage of ailment among students were Pre-Menstrual Syndrome (PMS) with 28%, near to it were Dysmenorrhoea with 25%. Hyper-menorrhoea and oligo-menorrhoea were the same with 10%. Also, 12% and 9% of the participants had hypo-menorrhoea and poly-menorrhoea. While the minority had secondary amenorrhoea with 5%.



**Figure 2:** The Possible Effects of Menstrual Ailments on Student's Daily Life.

(Figure 2) illustrates the impact of menstrual ailments among study participants. Its apparent that missing home activities is the most frequent impact (38%). Coming next to that is getting a sick leave (31%). The least frequent impact among participants was canceling travel (4%).



**Figure 3:** The Impact of Menstrual Ailments on Academic Performance.

(Figure 3) demonstrates If the menstrual ailments can have an effect on the academic performance or not. Almost half of the study participants stated that menstrual ailments affect their academic performance. On the other hand, 27% stated that it does not affect them at all.

Variable	Frequency	Percent %
Age		
19 or less	97	18.73
20 - 23	239	46.13
24 or more	43	8.3
Marital status		
Married or previously married	46	8.88
Single	333	64.28

**Table 2:** Prevalence and Pattern of Dysmenorrhea among Students (n = 379).

(Table 2) shows the pattern of dysmenorrhea among the participants, the table stated that the highest percentage of dysmenorrhea among age groups was in participants aged 20-23, and in marital status 64% of the dysmenorrhea cases were in single participants while less than 10% in the married or previously married participants.

Variable	Frequency	Percent %
Age		
19 or less	101	19.49
20 - 23	284	54.83
24 or more	48	9.26
Marital status		
Married or previously married	52	10.03
Single	381	73.55

**Table 3:** Prevalence and Pattern of PMS among Students (n = 433).

(Table 3) describe the patterns of premenstrual disorder among the participants. more than half of the participants suffer from PMS aged from 20 to 23, which equals to 284 females, 101 females were 19 or less and 48 females 24 or more. 73% of the cases were in the single participants and only 10% married or previously married.

**Discussion**

Menstrual problems are the most common cause for women being referred to gynecologists, and these issues have a significant impact on women's lives and wellbeing. Menstrual issues have a certain level of privacy in some communities thus they do not find interest in the community [5].

In this study the results showed that a high percentage of student suffered from different kind of menstrual ailments; 9% of students suffered from poly-menorrhoea. In a study in Lebanon Around half of the participants (51.4%) reported polymorphous [5]. This is concerning as previous research has shown that menstrual blood loss has a negative impact on women's quality of life and that excessive bleeding may put women at risk of anemia [5]. This study shows prevalence of oligomenorrhoea with 10%. Previous study sites in five counties in rural Missouri and the city of St. Louis conducted that oligomenorrhoea is a factor that raises the risk of psychological diseases such as anxiety [11]. Similarly, other study in China demonstrates that younger women are more likely to suffer from oligomenorrhoea. Moreover, women with oligomenorrhoea had a higher prevalence of family history of oligomenorrhoea and

were exposed to stressful conditions [8]. According to other study, women with high PMS reported significantly higher stress and lower quality of life [12], this finding explains the high percentage of PMS in this study among the students with 28% which is known that students suffer from high study stress. This study showed that 12%, 10% had respectively hypomenorrhea and hypermenorrhea, this may be due to changing trends in lifestyle, dietary habit, stress, hormonal imbalance or some medical reasons which requires gynecological assessment at the earliest [5].

This study is showing how the menstrual ailments can affect the participants' daily life. A study conducted among 40,000 Dutch females 34% of the participants stated that their daily activities were interrupted by premenstrual symptoms, 22% of them had to reduce their usual work and 11% had to delegate their tasks [13]. This study mentions more details about the types of activities affected by the menstrual symptoms. The highest percentage (38%) had to Avoid their home activities which is close to the percentage in the Dutch study mentioned previously, and another third getting a sick leave from their college attendance and social engagements. The percentages may differ between this study and the Dutch study which may be due to the difference in the distribution of the ailments and the age of the participants. But it still considered a large portion of the participants had to cancel their home activities, college classes and social engagements affecting their social life and academic performance [13].

As regard to the impact menstrual ailments leave on student's life, the majority of the participants agreed that these disorders can cause a clearly seen effect on them. Participants from different academic levels were asked if menstrual ailments affect their academic performance or not, great number of females chose yes for this question. however, students in the middle years, which represent levels three, four, five and six got the highest percentages. In conformity with a study that was carried in Princess Nourah Bint Abdulrahman University in Riyadh about the impact of menstrual periods on performance of female workers, study sample was taken from different departments and represents different ages to insure variety and representativeness, although study started with a hypothesis that menstruation didn't have any impact on the work performance, the result showed the complete opposite, study sample results were divided into two sections, The greater part of the participants explained that their work was less professional

throughout the time of menstruation, while the rest of the study sample admitted that they work differently at that specific time [9]. this might be attributed to the high levels of pain and symptoms expressed by the participants during assessment.

In this study, the prevalence of dysmenorrhea was higher among students aged 20-23 with 46.13%, previous study conducted in Turkey indicated that the students' prevalence of dysmenorrhea was found to be 72.7%, a reason for the variation in these estimates may be the use of selected groups of women and the lack of a widely recognized method of identifying dysmenorrhea, which may be the one explanation for the disparity which is likely as much to blame as the data collection techniques, research meanings of dysmenorrhea and pain, and the study populations themselves [14]. Similar to this study, many studies determined that the prevalence of dysmenorrhea showed a decrease with increasing age [14]. Also, other studies indicated that there are no significant associations were detected between marital status and dysmenorrhea [15,16].

About premenstrual syndrome (PMS) and its prevalence and pattern, participants displayed high percentage of females going through PMS, it was according to two variables, age and marital status. Females with ages 20-23 took the highest percentage compared to other ages of older and younger. this might be attributed to the fact the premenstrual syndrome PMS is more frequent in females during their reproductive years, according to the National Center for Biotechnology Information that conducted a study about Epidemiology of Premenstrual Syndrome (PMS) [1], and if the female was single this increased the prevalence by 73.55% which represents almost all of the study sample. In agreement with a study conducted in India to compare and assess premenstrual symptoms between married and single females, their results revealed that unmarried women experienced more premenstrual symptoms than married women [2].

## Conclusion and Recommendation

This research has revealed that there is a high proportion of students suffering from menstrual ailments. These ailments can influence the female's quality of life and her general life satisfaction.

Initiation of campaigns, spreading brochures and including courses in the school's educational plans can help early recognition and treatment of menstrual ailments.

## Limitations

The duration of the study was relatively short, which was not helpful in all phases of the study.

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