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Original Article

ASSESSMENT OF MENSTRUAL HEALTH AND ANALGESICS USAGE IN YOUNG AGE WOMEN

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ABSTRACT

Objective: The study focuses on assessing the incidence of menstrual irregularity among young women and the factors for a disturbance with the rationale to assess the use of analgesic drugs during Premenstrual Syndrome (PMS).

Methods: A cross-sectional study was used. A total of 2500 randomly selected young female between the age of 11 and 30 y completed the study questionnaire to assess lifestyle pattern, variations in menstrual pattern, perceived stress, and to capture information about their menstrual cycle and related problems. In addition, the questionnaire assessed the use of analgesics for PMS.

Results: 2481 participants completed the questionnaire. The mean age of participants' menarche was 12.85±1.432 y. The prevalence of menstrual irregularities was 25.0 % (n=621) and about 8.5% (n=211) of respondents had severe pain that was not relieved by the use of analgesics. On the other hand, 50.9 % (n=1262) reported severe pain that was relieved by analgesics. A total of 1279 (51.6 %) of participants in this study used Over The Counter (OTC) analgesics to relieve PMS.

Conclusion: Dysmenorrhea is the most common complaint among young females in Saudi Arabia. Low Body Mass Index (BMI), sedentary lifestyle, stress and early age of menarche are the most important factors associated with menstrual irregularities. Proper education programs and awareness among young girls about their menstrual health, and the provision of guidance in choosing effective analgesics and treatment options for dysmenorrhea are highly recommended.

Keywords: Premenstrual syndrome, Dysmenorrhea, Menstrual irregularity, Menarche, OTC analgesics, Menstrual pain

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INTRODUCTION

Adolescence is not just a transitional phase for a girl but a biological indicator of physical and spiritual development. This phase is very significant for young females due to the onset of menstruation and progression to womanhood [1]. Health care professionals play a vital role in the support and progress of women in any society. In addition, both the physiological and psychological effects determine the women's wellbeing [2]. Menstruation is a biological process characterized as a short or long, predictable event process of eliminating unused, ruminants from the lining of the uterus until pregnancy. The menstrual cycle may vary from month to month and over the years, or may remain the same. The menstrual phenomenon may be normal for one woman but may not be for another [3, 4]. A female's menarche may vary according to region or population and can even be influenced by geography, nutritional status, racial or environmental changes or individual factors [5-7]. Menses onset is on average 28±3 d in 80% of women, ranging between 18-41 d. The absence of menses could result from pregnancy, lactation and menopause. These causes should be ruled out as a cause of abnormalities [8].

In order to educate and support young girls at menarche, a policy booklet was released by UNESCO (2014) as guidance to support administrators and teachers in educational institutions [9]. To build up self-esteem and to engage young girls in discussions about menstruation, Procter and Gamble has launched communication programs across globe and even provided sanitary pads for developing countries [10]. Worldwide, many studies and research have individually reported that emotional and hormonal disturbance, stress and sedentary lifestyle serve as factors that affect a women's menstrual cycle. From the reproductive ages the most common menstrual issues are secondary amenorrhea, oligomenorrhea, dysmenorrhea and menorrhagia. Secondary amenorrhea has a prevalence of 1 to 3 % in women. The incidence can differ from 3-4% and 5 to 50 % in students and athletes, respectively [11-15]. However, the girl's knowledge about the duration and variation within menstrual days is useful for the educational process and may facilitate the recognition of any unusual changes that can help in detailed clinical evaluation [16].

In the Kingdom of Saudi Arabia there is no evidence that shows how these factors affect the menstrual cycle of young women. Also, to date there is no data supporting the rationale of using analgesics during PMS. Therefore, this study aims to determine the average menarche age and incidence of menstrual irregularities among girl and young women and to assess the factors influencing PMS and the use of analgesic drugs to counter the pain during PMS.

MATERIALS AND METHODS

Study design and setting

The study consisted of independent cross-sectional analysis conducted randomly in a different area of Jeddah city and included three intermediate schools, four secondary schools, two universities and three shopping malls.

Participants

A self-administered questionnaire was distributed randomly to reach 2500 young females between the ages of 11 to 30 y old. All participants were given the study's questionnaire which required 15±5 min to complete. The questionnaire consisted of four parts in addition to a section on demographics. The first part was to assess the lifestyle patterns of the participants.

Variables

The second part recorded variations in bleeding patterns considering the menarche age, menses duration, total days of flow cycle, and blood loss. The severity of menstruation and analgesics use during PMS was also assessed. The third section assessed individual stress status using the Global Measure of Perceived Stress [17] after translation to Arabic. The last part assessed the level of

information that the participants have about their menstrual cycle and related problems.

Validation process of the study protocol

The questionnaire was designed to be simple and easy to understand in order to extract the age of menarche, irregularities and use of anti-inflammatory drugs during PMS [18]. After the items were constructed and the four sections were completed, the questionnaire was sent to an expert panel consisting of gynecologists, clinical pharmacologists, pharmacists, medical residents and Arabic language teachers. The questionnaire and collected data were thoroughly validated [19]. The reliability of the questionnaire was pilot tested over a population size of 100 young girls from university in order to eliminate unclear or ambiguous questions [20].

Statistical analysis

All data were analyzed using SPSS PC™ software package. Descriptive statistics, T-tests, Mann-Whitney and Kruskal-Wills tests were instrumental in data analysis. Statistical significance of $P<0.05$ was employed throughout the study.

RESULTS

Participants, characteristics

A total of 2500 females were invited and participated in the study, 2481 (98.24 %) questionnaires were promptly completed and the obtained data were entered for statistical analysis. The majority up to 90.7 % (n=2251) of participants were Saudi young women. The participants' average age ranged between 11 to 30 y (19.83±3.05). Most of the participants 89.7 % (n=2226) were single and the others 81.5 % (n=2021) were living with their parents. 95.3 % (n=2364) of participants were students and worked for more than 6 h 65.0 % (n=1613). Only 3.1 % (n=76) of participants had a confirmed chronic disease (table 1). Body mass index (BMI) showed that the majority about 71.6 % (n=1777) of participants had normal weight. Statistical analysis revealed that those with lower BMI had more menstrual irregularities than others ($P \leq 0.001$) (fig. 1).

Table 1: Demographic characteristic of participants in the survey

Variable	Number of participants	Percentage (%)
Marital status		
Single	2226	89.7
Married	248	10.0
Divorced	7	0.2
Living With		
Both parents	2021	81.5
One of the parents	187	7.5
Relatives	18	0.7
Own Place	255	10.3
Occupation		
Student	2364	95.3
Other	116	4.7
Working Hours		
Less than 6 h	118	4.8
6 h	747	30.1
More than 6 h	1616	65.1
Chronic Disease		
Yes	76	3.1
No	2405	96.9

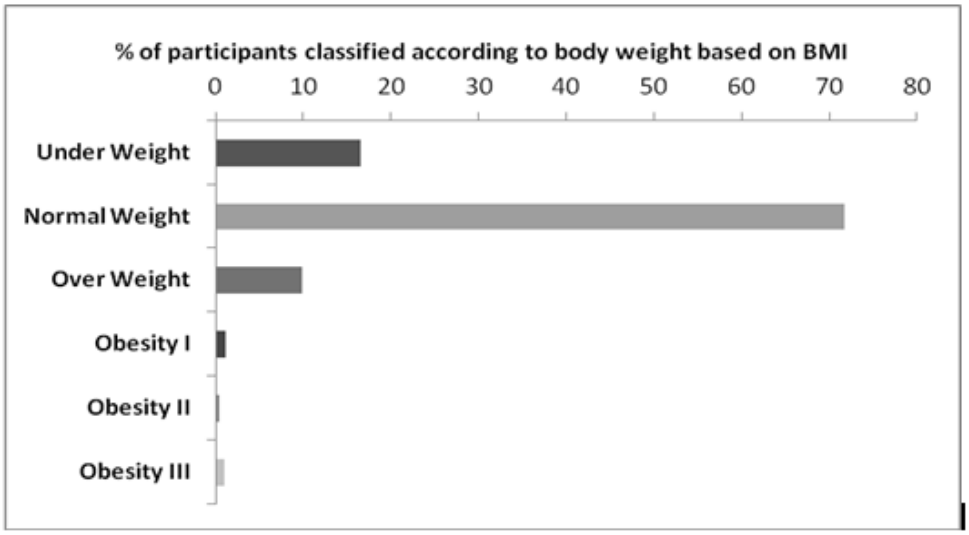

Fig. 1: BMI of participants involved in the study according to body weight

Life style

With regards to eating habits, the results showed that half of the respondents 50.7 % (n=1259) consumed 3 meals per day. Participants who reported consuming chicken in the majority of meals, about 16.7 % (n=414), showed higher menstrual irregularity ($P \leq 0.001$) than those 33.3 % who did not (n=827) (fig. 2).

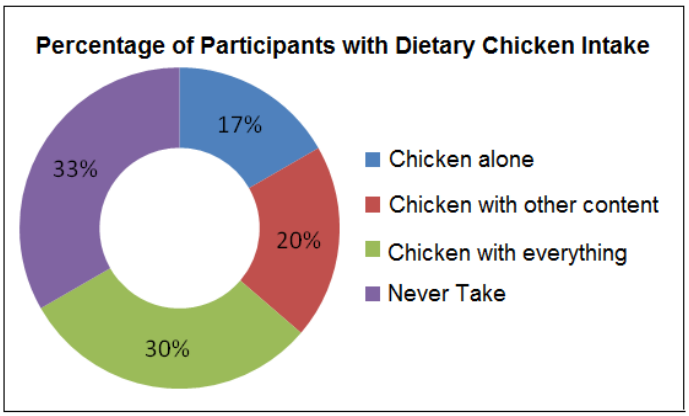

Fig. 2: **The distribution of participant involved in the study according to dietary intake**

Regarding sleeping hours, among 40 % (n=991) of participants who reported less than 6 h of sleep, showed higher stress ($P \leq 0.001$), suffered more bleeding irregularity ($P \leq 0.001$) than those with 6 h or more of sleep. In response to lifestyle pattern questions, the majority of participants 75 % (n=1862) revealed that they consumed fast food and similar results 72.8 % (n=1806) were obtained from the women whom included fruit and vegetables in their diet. Other lifestyle patterns are included in the table below (table 2).

Table 2: Life style pattern among participants

Parameter	Number of participants	Percent
Fast food Intake		
No	619	25
Yes	1862	75
Fruits and vegetables Intake		
No	675	27.2
Yes	1806	72.8
Tea and coffee Intake		
No	906	36.6
Yes	1575	63.5
Energy drinks Intake		
No	2141	86.3
Yes	340	13.7
Smoking		
No	2177	87.7
Yes	304	12.3
Sports		
No	1197	48.2
Yes	1283	51.7
Heavy sports		
No	2425	97.7
Yes	55	4.9
Use of herbal remedies during PMS		
No	950	38.3
Yes	1531	61.7

Table 3: Level of stress among young females

Stress level	Number of participants	Percentage (%)
Mild	504	20.3
moderate	1818	73.3
severe	159	6.4

Stress

The reported perceived stress showed that, the majority of participants 73.3 % (n=1818) expressed moderate stress (table 3). Females who expressed higher stress had sleeping hours less than 6 h ($P \leq 0.001$) and even suffered more with menstrual irregularity ($P \leq 0.001$).

Knowledge

The total survey revealed that 81.9 % (n=2032) of participants had good knowledge about their menstrual health, while 18.09 % (n=449) reported to have less knowledge. The participants over 18 y's old age showed greater knowledge than those of younger age. The participants who indicated good knowledge about their menstrual pathology and menstrual hygiene expressed less stress levels ($P \leq 0.001$) than those with nil or lower knowledge. The data analyzed indicated key responses. The average menarche age was observed as 12.58±1.432 (11.148–14.012) years; about 32.1 % (n=796) of participants had their menses at the age of 13. In addition, 5.2 % (n=130) of the surveyed girls had early menarche (≤ 11.148 y) which showed a significant irregularity ($P \leq 0.001$). 2.8 % (n=69) of participants from the total study size, had a menses

period<21 d, 16.3 % (n=406) of them had menses>35 d and 80.9 % (n=2006) between 21 to 35 d (table 4). 25 % (n=621) of the surveyed young females were having irregular menstrual cycles and the other 75 % (n=1860) were having regular menses.

Pain and analgesic use

About half of the population 50.9 % (n= 1262) of the surveyed participants reported severe pain that was managed by using analgesics. The majority of respondents, 61.7 % (n= 1531) preferred herbal remedies than analgesic drugs during their PMS. 51.3 % (n=1273) of participants reported the usage of analgesics during their PMS, and 48.7 % (n=1208) did not use any drugs to counter the pain. About analgesic used, only 8.1% (n=201) analgesic drugs were taken according to medical advice. Replies of participants who used the analgesic drugs showed that 3.8% (n=49) of them were using analgesics appropriately (before the expected day of the monthly period) while 96.2% of them (n=1224) were using analgesic inappropriately.

Table 4: Menstrual patterns of among the participants

Variable	Number of participants	%
Duration of the menstrual cycle		
Shorter than 21 d	69	2.8
21-35 d	2006	80.9
Longer than 35 d	406	16.3
Pain		
Severe, Can't be handled even with analgesic	211	8.5
Normal	847	34.1
Severe Can be handled with analgesic	1262	50.9
No pain	161	6.5

DISCUSSION

Most of the invited participants, about 98.24 %, took part in this survey and showed a favorable response. The positive response may be due to interest in and importance of the study and by the simplicity of the survey's questionnaire [20, 21]. About 90.7% of the respondents were Saudi young female; while 9.3% were non-Saudi which resemble the exact percentage of non-Saudi students in the Saudi schools. In this study, the participants' average age was 19.83±3.053 y. 71.6 % of them had normal weight and only 9.7 % and 2.2 % were overweight and obese, respectively. In contrast, findings from a recent Saudi study showed that 3.2 % of the Saudi females were obese and 31.8 % were overweight. This difference may be due to this study sample being younger and more concerned about their weight and shape [22]. The survey results revealed that there is a close association between low BMI and menstrual irregularity which was the same as result found in Spanish study that indicated females who are trying to reduce the bodyweight have shown a higher incidence of menses pain and irregularity [23]. On the other hand, a study conducted among Taiwanese college nursing students proved that women with obesity exhibited both higher risk long menses along with irregularity as well [24]. Therefore, correlating both weight and BMI may become a topic in investigating menstrual irregularity.

The study provided a deeper understanding of the effect of chicken intake on the menstrual irregularities. The survey indicated that women whom had higher consumption of chicken exhibited more menstrual irregularities than others [25]. This may be due to the fact that chicken contains high amount of estrogen hormones [26]. An individual's health is determined on the type of lifestyle adapted. Sedentary lifestyles always impact on menstrual irregularities. A healthy lifestyle with both physiological and psychological wellbeing can avoid stress and irregular menses. The study revealed a statistical significance that stress affects menstrual health; it was obvious that good modification of lifestyle pattern is important [27, 28]. As Thomas F *et al.* showed, "Menarche age varies globally and is likely to be affected in developing countries like Haiti, where the average menarche is at 15.3 y [29]. Studies even reported that menarche age varies with civilization, for example, Ethiopian females; from urban areas have a higher incidence of menstrual problems in comparison to rural areas [30]. Both of the reports were in agreement with similar findings in Nigeria and Morocco [31, 32]. The results of our study indicated that females in Saudi Arabia exhibited a mean menarche age of 12.85±1.432 which is in agreement with previous findings of menses being influenced by socioeconomic and nutritional conditions [33].

From the total study population, about 25 % participants exhibited irregular duration of menses (>35 d) which usually might be due to ovulation or tumors or stress or smoking or alcohol consumption. The influence of these factors over the menses needs to be explored and is important for further research [34]. Also, our survey outcomes showed that early menarche is associated with menstrual irregularity [35]. The effect and prevalence of dysmenorrhea (pain during menstruation) was even reported as 59.4 % (n=1473) of the participants in our study. A similar result (67.7 %) was found among Malaysian school girls [36]. The result of this study showed only 23.3 % of participants younger than 18 y knew about their menstrual health from sources other than health care professionals and in another study, only 2 % of its study respondents were able to provide or share menses information from doctors [37]. Since knowledge about menstruation from qualified sources (health care professionals) is an important factor for solving arising issues in younger females, improvements in health care guidance in regard to menstrual disorders should be made.

This study showed that analgesics were used inappropriately among 96.2 %, participants, on the other hand only 2 % of them were advised by physicians or pharmacists to take analgesics appropriately (before expected day of monthly period). These obtained results were different in comparison to other studies that 85 % took analgesics to counter pain during PMS [38]. These findings indicate that health care professionals such as doctors, pharmacists and nurses should give more information in regard patient's education about the use of OTC analgesics and this may prompt the identification and diagnosis of disorders relating to menses thereby reducing the misusage of drugs. Menstrual irregularities among young women differ from one society to another due to their socioeconomic status and other characteristic problems associated with individual societies [39]. Overall, the survey indicated that the actual causes for menstrual irregularities among Saudi females appear to be influenced by stress and sedentary lifestyle.

CONCLUSION

Dysmenorrhea is a common health issue for young females. Low BMI, sedentary lifestyle pattern, stress and early age of menarche are the most important factors associated with menstrual irregularities. Lack of counselling and improper awareness about menstrual health can become a major issue at a young age, this issue can be resolved by good initiatives such as proper education about menstrual health and to mitigate cost effective diagnosis for patients with dysmenorrhea. On the other hand there is a need for health care professionals such as doctors or pharmacists to communicate the benefits of analgesics prescribing during PMS.

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AUTHORS CONTRIBUTIONS

All authors have contributed to the questioner design, data collection and analysis and to the writing of the manuscript.

CONFLICT OF INTERESTS

The author declares no conflict of interest.

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