The Impact of Primary Dysmenorrhea on the Level of Physical Activity among College age Students

Ayat M. Omar Masoud[1], Heba A. Bahey El-Deen[2], Samya M. Hegazy[3a&b]

[1]Assistant Professor, Department of Nursing, College of Applied Medical Sciences, Jouf University, Kingdom of Saudi Arabia, [2]Associate Professor, Department of Physical Therapy and Health Rehabilitation, College of Applied Medical Sciences, Jouf University, Kingdom of Saudi Arabia, [3a1]Assistant Professor, Department of Nursing, College of Applied Medical Sciences, Jouf University, Kingdom of Saudi Arabia, [3b]Lecturer, Department of Pediatric Nursing. Faculty of Nursing, Tanta University, Egypt.

Abstract

Background: Dysmenorrhea is one of the most prevalent adolescent health problems. Aim . This study aimed to evaluate the impact of primary dysmenorrhea on the level of physical activity among female students at the College of Applied Medical Sciences, Jouf University.

Method: A cross-sectional study was conducted in this study. Purposive sampling technique was used to enroll seventy-nine female students who reported moderate to severe pain and recruited from Physiotherapy and Health Rehabilitation Department from the middle of April to the end of August. A self-administered questionnaire, was designed to collect required data in this research.

Results: from the present study showed that there was a significant impact of pain on the absenteeism, low concentration, poor academic performance, and reduced physical activity**.** All those effects were accompanied by higher pain rating scale (*p*-value 0.0001, 0, 0001, 0.011and 0.023 respectively).

Conclusion: Most of the female students had experienced a variety of dysmenorrhea degrees that may have an adverse effect on the number of physical activity limitations and other variables such as absenteeism, low concentration, and poor academic performance**.**

Keywords: *dysmenorrhea, physical exercise, young adult .*

Introduction

Primary dysmenorrhea (PD) is defined as the menstrual cycle's painful discomfort.It is very common among adolescent females. It is usually accompanied by abdominal and pelvic pain, nausea, diarrhea, vomiting, headaches, dizziness, lower limb, and lower back pain [1]. Dysmenorrhea is classified into two discrete types. The primary type is the menstrual pain with the absence of any underlying pathological cause. While the secondary one is usually associated with a well-defined pelvic disease [2].The predominance of PD was measured in many countries of the world and was confirmed that it differs from one place to another according to the geographical location. Predominance of PD in Arab countries such as Iraq, Lebanon, Egypt and Saudi Arabia, the was 89.4%,74.3%, 84.01%, and 60.9%, respectively[3-5].

In a study conducted by Ismaile, 2016 [6] concluded that the rate of dysmenorrhea prevalence was ranging from 50% to 90% in adult girls. Persistent PD pain has a direct impact on the everyday activities and performance of adult females. For instance, previous study by Abu Helwa., 2018 [7] stated that menstrual pain is the major

Corresponding Author:
Dr. Ayat Masoud Omar Masoud
Assistant Professor, Department of Nursing, College of Applied Medical Sciences, Jouf University, KSA
Mob No: +966560278929.
e-mail: amo00@fayoum.edu.eg

leading factor forcing female students out of school and college for the short-term, which negatively affects their academic activities. The academic performance of females who experienced dysmenorrhea varies during their menstrual cycle. [8].Therefore this research was aimed to evaluate the impact of dysmenorrhea on the physical activity and academic performance of female students.

Subject and Method:

Study Design: This study was a descriptive, cross-sectional study using.

Setting: This study conducted in the faculty of Applied Medical Sciences, Jouf University. From the middle of April to the end of August 2018.

Sample: A purposive sample of seventy-nine female students from all academic years who reported moderate to severe pain, All students were recruited according to the following criteria:

Inclusion Criteria: Female students ages ranged between 18-22 years, All participants were single and belonged to the same homogeneous group.

Exclusion Criteria: Female students with diagnosed secondary dysmenorrhea, any other systemic diseases or endocrinal disorders or who undergo major abdominal surgery. Furthermore, students with pre-existing gynecological conditions, students who were taken oral pills for contraception due to any hormonal problem or other reasons.

Tool of the Study: A structured self-administrative questionnaire prepared based on prior researches in the literature, it was composed of three distinct parts. Part one explored the demographic data related to the personal characteristics of the study participants Moreover, part two asked about the effects and symptoms related to dysmenorrhea such as measuring pain intensity through a numerical rating pain scale starting from 0 to 10 (No pain to worst pain), McCaffery M., and Beeb A., (1999) [9] and supported by a smiley face illustration. In this part, premenstrual symptoms such as abdominal pain, leg cramps, nausea and vomiting, were also included in addition to absenteeism, low concentration, poor academic performance, and reduced physical activity included.

Part three was derived from the international physical activity questionnaire (IPAQ) (Craig et al., 2003) [10] that was designed to investigate both type and level of physical activities practiced daily.

Data Collection and Procedure:

- Once the questionnaire was distributed to college students, they were told as, to how and when (during menstruation) the questionnaires to be filled. All questionnaire items were explained to each participant. The questionnaire was allowed to be taken at home to be accomplished and returned on the next day then they were handed the questionnaire to be filled which most probably after the first day of their menses by one week.
- All participants received consent form and information sheet before filling thequestionnaire, also allowed to withdraw freely. Hence, no cases have been reported.

Data Analysis: For descriptive statistics, for qualitative variables, quantitative variables For analytical statistics, t-test, Pearson correlation and ANOVA test was used to study the relation between levels of pain rating scale and duration of physical activities.

Results

Table 1: the mean age 22.4 (1.1) years old while their menarche age was 12.2 (1.8) years old and they had normal BMI 23.4 (5.5) Kg/m2. Fifty-two (65.8%) subjects had regular menstruation with a mean duration of menstruation 5.7 (1.2) days.

Table 1: Characteristics of The Study Sample (n=79)

Variable		M ± SD
Age(years)		22.40 ± 1.14
Weight(kg)		60.51 ± 12.00
Height(cm.)		158.21 ± 4.71
BMI		23.48 ± 5.57
Age at menarche(years)		12.22 ± 1.87
Duration of menstruation(days)		5.74 ± 1.25
Variable	**Values**	**n. (%)**
Regularity	Yes	52 (65.8)
	No	27 (34.2)
Family history	Yes	63 (79.7)
	No	16 (19.3)
Marital status	Married	20 (25.3)
	Single	59 (74.7)

Table 2: demonstrated that 41.8% of the students complained from moderate pain and 49.4% complained from severe pain according to pain rating scale (4-6 & 7-10) during menstruation respectively while only 8.9% reported a mild level of pain (0-3) with mean value 6.3 ±2.2.

Table 2: Pain Rating Scale of The Sample (n=79)

Variable	Values	n (%)
Pain scale	0-3	7 (8.9)
	4-6	33 (41.8)
	7-10	39 (49.4)
	Mean ± SD 6.37 ± 2.21	

Note. n = number; % = percent; SD = Standard deviation.

According to the impact of dysmenorrhea on participated students, the most common types of associated symptoms were abdominal pain followed by fatigue and leg cramps representing (91.1%, 72.2% and40. 5%) respectively. Additionally, the academic performance was affected by menstruation in different ways, nearly half of students reported a high percentage of absenteeism 46.8% during menstruation and the majority of them complained from low concentration78.5% and poor academic performance 77.2% while 87.3% demonstrated reduced in their physical activity. Furthermore, the results showed a significant impact of pain intensity on absenteeism, low concentration, poor academic performance, and reduced physical activity in which all accompanied by higher pain rating scale as (p-value 0.0001, 0. 0001, 0.011and 0.023 respectively). Moreover regarding to physical activities that done by students during menstruation, present study showed that the mean value of duration of vigorous activities was 1.2+2.1 days and 25.2+5.9 minutes (mins), while for moderate activities was 3.2+2 days and 116.9+106.6 mins meanwhile the mean value of duration of mild activities in the form of walking was 3.9+1.8 hours, 78.8+58 mins, while for sitting were 6.1+3mins.

As regards to the relation between levels of pain rating scale and duration of physical activities study revealed that there was a significant relation between levels of the pain rating scale and days of mild activities in form of a walk. The days mean number for pain scale 0-3 was 1.9 days while the mean number of days for pain scale 4-6 was 4.3 days and for pain scale 7-10 was 4 days which means that a higher pain scale was associated with longer days of mild activities in the form of walking. Moreover, reported that there was a positive direct relation between duration of menstruation and time of walk.(p-value 0.01). Also, there is a positive direct relation between a number of symptoms and days and time of vigorous activities only (0.42 & 0.37 respectively).

Table 3. Showed a significant direct impact of duration of menstruation on time of walking. Duration of menstruation was a significant predictor of walking duration.

Table 3: Regression Analysis For Impact Of Duration Of Menstruation On Duration Of Physical Activities

Variable	Duration of menstruation			
	β	SE	t-value	p-value
Days of vigorous activities	.02	.19	.01	.991
Time of vigorous activities(min.)	2.34	5.01	.46	.640
Days of moderate activities	.11	.18	.54	.583
Time of moderate activities(min.)	16.40	9.40	1.73	.080
Days of mild activities in form of walk	.18	.17	1.05	.290
Time of mild activities in the form of walking (min.)	12.34	5.08	2.42	.010*
Time of sitting(hours)	0.03	0.27	0.01	0.991

*p< .001 Note.SE= standard error; min= minutes.

Discussion

A high prevalence of the PD (91.2%) among college-aged females in the North Province of KSA was reported in the results of the current study. Other studies reported different PD prevalence in different regions of KSA such as 60.9% in Jeddah, 56% in Eastern Province, 61.7% in Hail, and 77.0% in Taif [1- 4].

Moreover, a study by Alaettin et al. [11] stated in their study that 72.7% of dysmenorrhea reported among female students; this estimate is congruent with the percentages observed in the prior study between 28% and 89.5%Unsal et al [12] and Wong [13].

From our opinion explanation for this variance in these figures can be due to the use of selected groups of women and the lack of a universally accepted criterion for identifying dysmenorrhea, which was likely as highly responsible for the difference as data collection method, the research meanings of dysmenorrhea and pain, and the sample populations themselves.

The current study demonstrated that academic performance was affected by menstruation in different ways, nearly half of students reported a high percentage of absenteeism 46.8% during menstruation and the majority of them complained from low concentration78.5% and poor of academic performance 77.2% also 87.3% demonstrated reduced in their physical activity. This comes in agreement with study done by Dalia et al. [4] who stated that the intensity of the pain experienced by students coincided to their lack of concentration and recent also to their class.

Recently Orhan et al [14] concluded that the results of the present study present that primary dysmenorrhea affects adversely on academic performance and sharing in sports and social activities. In addition, we found that dysmenorrhea participants are 3.2 times more likely to lose concentration in the workplace compared to girls who never experiencedloss of concentration in their menstrual cycle. Dysmenorrhea has been shown to have a noticeable effect on daily activities, thus affects on QoL, contributing to absenteeism, diminished physical activity, concentration, and social relations as stated by Joshi et al. [15]while he studied the Primary dysmenorrhea and its effect on quality of life in young girls

Also our study results demonstrated that nearly more than one third of studied students (41.8% & 49.4%) reported that they complained from moderate to severe pain according to pain rating scale (4-6 & 7-10) during menstruation as well as the study by Esimai.[14] reported that the levels of menstrual pain are classified as 3-4 as mild 5-6 and 7-10 as severe. In this report, the highest score between nursing students had menstrual pain listed from 5 to 6 as a score of menstrual pain with an average of 27%.These variations in pain intensity may be related to cultural differences in pain perception and pain tolerance variability.

Our study showed that a higher pain scale was associated with longer days of mild activities in the form of walking. This may be attributed to the sedation effect of activities like walking that forming an alternative movement of lower limbs in reducing pain-related dysmenorrhea.

In the line with this findings study by Joshi et al.[15] documented that dysmenorrhea was significantly affect on day-to-day activities, as decreased physical activity, loss of concentration and poor social relationships. Various studies also have been shown that the more physically active female students are shown to have less signs of dysmenorrhea relative to their sedentary peers. Physical activity plays a crucial role in the homeostasis of the body, including hormonal regulation and menstrual cycle control [16].

In a study performed by Joshi [15] revealed that there was no clear correlation between physical activity and dysmenorrhea and the most common type of activities was walking in (76.1%) of the participated females. Another study also revealed the same results. Nonetheless, some epidemiological studies have identified a decrease in the prevalence of dysmenorrhea [17].

Current data indicate that most exercise treatments have fewer side effects and were favored for pain reduction over pharmacological or herbal therapies [18].

Lastly, concerning the physical activity, our study revealed that medical students who represented our study sample and have primary dysmenorrhea are commonly affected by adverse effects of dysmenorrhea due to their prolonged duration of practical requirements during their attending a variety of their studies inside their college.

Conclusion

The findings of this study concluded that most of the female students have experienced dysmenorrhea that may be having number of physical activity limitations. So that further studies will be needed in multicenter and specialties with a larger and more varied sample population. Moreover, collaborative efforts may be needed from health care providers.

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