Original Article

Prevalence of Dysmenorrhea and Its Impact on Daily Activities among Women in Babylon City

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Abstract

Background: Dysmenorrhea is an essentially menstruation-connected problem among menstruating women worldwide and it negatively affects the quality of life. It evaluates by means of prevalence determination. These factors are not scientifically evaluated yet. Statistical studies about prevalence of dysmenorrhea, symptoms, and relieving treatments are too scant in Iraq. **Objectives:** The main objective of this study was to identify the prevalence of dysmenorrhea among menstruating women in Babylon city, Iraq, to estimate the impact of dysmenorrhea on women's lifestyle, and to examine the coping mechanisms based on the women's experience to reduce dysmenorrhea's density. **Materials and Methods:** A cross-sectional study was carried out to select a random sample of 270 women in Babylon city. The mean age of the participants was 30.02 ± 8.29 years. Several questionnaires were designed to collect the data including sociodemographic characteristics, menstrual characteristics, habits and emotional factors, and relieving factors. Data were analyzed byusing the Statistical Package for the Social Sciences (SPSS) software program, version 26.0 with $P < 0.05$ being considered statistically significant. All ethical procedures were taken into account. **Results:** The prevalence of dysmenorrhea was 85.9% ($n = 232$) after considering that it defines as abdominal pain. The finding shows that dysmenorrhea was significantly associated with duration of menstruation ($P = 0.05$), dizziness ($P = 0.046$), nausea and vomiting ($P = 0.015$), and fatigue ($P = 0.008$), skipping breakfast (0.012), and mood change (0.006). Regarding the relieving factors, the significance was reported with mostly ignoring the pain (0.001), practicing self-medication (0.022), and using home remedies to reduce the pain (0.001). However, the association with effects on daily life ($P = 0.150$) was reported to be insignificant. **Conclusions:** The proportion of dysmenorrhea among Babylonian women is very high and attracts attention. Skipping breakfast, ignoring the pain, never caring for a medical consult, and lacking of regular physical exercise were specified as the most active predictors of dysmenorrhea. Increasing awareness among women regarding dysmenorrhea, associated symptoms, risk factors, and relieving mechanisms were highly recommended.

Keywords: Babylonian woman, dysmenorrhea, Iraq, menstrual pain, prevalence, reliving factors, treatment

Introduction

Dysmenorrhea, a menstrual disorder, is a common gynecological problem that can directly affect the quality of life (QoL) of a high percentage of women in the world.[1,2] Dysmenorrhea has massive definitions depending on the associating symptoms and how it is interpreted by the researchers. In general, the lower abdominal pain or pelvic pain of wide severity is the closest description of dysmenorrhea.[3,4] Normally, it starts quickly before or at the outset of menses and lasts 1–3 days.[5]

There are two types of dysmenorrhea: primary and secondary. The primary dysmenorrhea (PD) is defined as excruciating menstruation in women with normal pelvic anatomy, resulting in an increase or imbalance secretion of prostaglandin from the endometrium through the menstruation cycle (MC). PD is very popular in younger women after the starting of their ovulatory cycles, which begins within the first 6 months after MC.[6] On the contrary, secondary dysmenorrhea (SD) can be defined as the menstrual pain related to an underlying pelvic pathology such as endometriosis, ovarian cysts, congenital

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Müllerian anomalies, and pelvic inflammatory disease. It is perhaps outset several years after the MC.[6]

Although the PD is not a life-threatening case, it can pose a fundamental burden on the QoL of women or female adolescents. In fact, the previous related works concluded that dysmenorrhea has negatively impacted the life of affected women. It makes them to suffer a lot during school or work, family relationships, connecting with friends, and recreational activities.[7] Furthermore, based on the finding of the previous study,[7] the women suffering from dysmenorrhea become highly sensitive to pain, in general, even at the time when they have no menstrual pain. Another negative effect of dysmenorrhea can result in significant economic consequences.[8] For instance, 600 million work hours or 2 billion dollars are estimated as the total amount of loss due to dysmenorrhea in the United States, which is a summation of the healthcare cost and the losing working hours for women with PD.[9] However in Japan, the healthcare cost of the women without PD is 45.5% less than their peers with PD, assuming that they have the same baseline characteristics.[10]

Focusing on the PD, which is known as lower abdominal pain, is usually went along with several famous symptoms such as dizziness, diarrhea, nausea, leg pain, headache, vomiting, backache, loss of appetite, in addition to irritability cycle, tiredness, and mood change[11,12] [Figure 1]. However, menarche at an early age, a family history of dysmenorrhea, long menstrual cycles, cigarette smoking, consumption of alcohol and caffeine, poor sleep hygiene, certain dietary habits, lack of exercise, obesity, and having a stressful lifestyle are defined as the risk factors that are mostly related to the episodes of PD.[12-14]

The major problem encountered by the researchers is how to determine the prevalence of dysmenorrhea. Considerably, it varies according to change of the study location and environment, but in general it ranges between 50% and 90%.[1,15,16] The main reason for this variation is related to the definition of dysmenorrhea itself and/or the technique used to measure and determine dysmenorrhea.[6,17] Lets take an example to verify the above idea; there are four previous studies that have been performed among the students at a university in Turkey.[18-21] Notably, the prevalence of dysmenorrhea in the entire study is 55.5%, 85.7%, 79.7%, and 89.5%; thus, it is varying in a similar sample in the same country. However near Turkey, the prevalence was recorded to be approximately 89.2% among university students in Greece.[22]

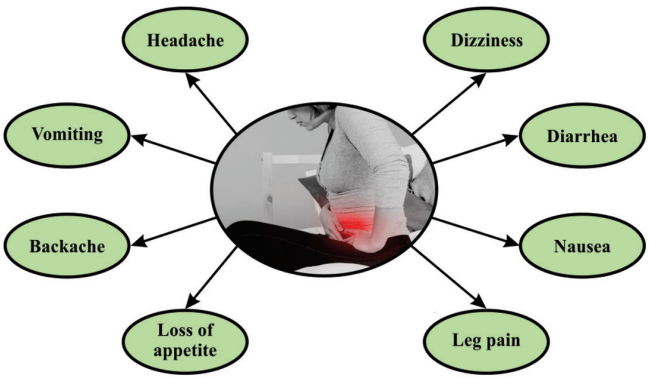

Figure 1: Symptoms related to the primary dysmenorrhea

Closely in Arabic countries, the prevalence was 58.1% in Morocco,[5] 74.4% in Saudi Arabia,[23] 85.1% in Palestine, 85.6% in Kuwait,[24] 87.2% in Syria,[25] and 51.6% among displaced Syrians in Lebanon.[26] Unfortunately, there are only two previous works regarding investigating the prevalence of dysmenorrhea among the women in Iraq. The first study focused on the adolescent students in Erbil city, Iraq,[27] without figuring out the final value of prevalence in this city. However, the second study targeted the secondary-school students in Basra, Iraq,[28] which concluded that the percentage of prevalence was 89.4%.

To the best of our knowledge, no previous studies investigated the prevalence of dysmenorrhea in the middle of Iraq, in specific, in Babylon city. Consequently, the overall aim of this study was to estimate the prevalence of dysmenorrhea among the women of Babylon city, Iraq and to identify the risk factors associated with dysmenorrhea.

In a specific manner, the main research objectives of this study were (i) to study the prevalence of dysmenorrhea among menstruating women in Babylon city, Iraq, (ii) to estimate the impact of dysmenorrhea and the associated symptoms on QoL among, and (iii) to examine the relieving factors and coping mechanisms based on the respondents' experience for reducing dysmenorrhea density.

Materials and Methods

Study design, setting, and time

This was a cross-sectional study conducted in Babylon Maternity and Pediatrics Teaching Hospital, Al Asatitha, and Hay-AL Emam primary healthcare centers in Babylon Governorate. Data for this study were collected during 3 months starting from the first of May until the end of July 2021.

Study population

Accordingly, the study sample consisted of 270 participants of age ranging from 13 to 55 years, who visited the hospital and primary health care centers listed in section "Study design, setting, and time." The data were collected from the sample's women who agreed to participate in this study.

Inclusion criteria

The inclusion criteria of the study included menstruating women of Babylon Governorate.

Exclusion criteria

The exclusion criteria of the study included women who refused to involve as participate and women of premenstrual and post-menopausal age.

Sample size determination

The minimum sample size required for this study is determined as follows:

$$n = \frac{z^2 p(1-P)}{D^2} \cong 150$$

where n is the sample size, z is constant (=1.96), p is prevalence (=89 %),[28] and D is constant (=0.05).

On the basis of the above findings, the research team decided to expand the sample size to 270.

Sampling technique

The sampling technique was taking any women at time of menses with signs of dysmenorrhea how seeking for medical advice. Approximately, the age of the involved woman ranged between 12 and 55 years or above. Indeed, the participants were asked to give their verbal consent about their private information before starting the interview. Each woman was interviewed for 10 min.

Data collection tools

The questionnaires were classified into four main categories, namely sociodemographic characteristics, menstrual characteristics, habits and emotional factors, and relieving factors. However, several questionnaires related to dysmenorrhea were listed under each category, as shown in Figure 2. The questioners' form was prepared in two languages (English and Arabic) to be available for any educational level.

Statistical analysis

Data were analyzed by using the Statistical Package for the Social Sciences (SPSS) software program, version 26.0. The frequencies and percentages of mean variables were determined in order to get a comprehensive indication about the responses of the participants. The age, which is the only continuous variable in this study, was presented as mean ± standard deviation (SD). Accordingly, the Pearson's chi-square and Fisher exact test were used to explore the association between the dysmenorrhea and the rest of variables. A value of $P \leq 0.05$ was considered statisctically significant.

Ethical aspects

The essential ethical aspects considered before starting the study are given as follows:

The study protocol was reviewed and granted permission by the Ethical Committee of Babylon University, College of Medicine according to the document number 122 in 21/01/2021 to get this approval.

The main objective of the study was briefly clarified to participants' women before starting the interview. Then, the entire involved women were requested to give their verbal consent about their private information for ethical purposes.

Personal information, such as names of participants, was replaced with identification codes to keep the data confidential.

The official agreement was obtained from Babylon Health Directorate in order to carry out the study.

Results

Sample description

Several menstruating women from Babylon city were asked to involve in this work as participants. Indeed, 270 of them were accepted to fill the questionnaires form. The mean age of the participants was 30.02 ± 8.29 years, where the maximum age was 55 years and minimum age was 13 years. Moreover, the mean age at menarche was 13.18 ± 1.53 years, where the maximum age at menarche was 16 years and minimum age was 11 years. A total of 270 Babylonian women participated in this work; of these, 232 women were reported to have experienced PD. Unfortunately, there are no volunteers among the entire sample who were diagnosed with SD.

Dysmenorrhea associated with variables, risk factors, and symptoms

The association between dysmenorrhea and sociodemographic characteristics of 270 respondents is described in Table 1. The results in the table show the comparison of variables' responses between the responses of 232 (85.9%) women with dysmenorrhea and 38 (14.1%) those without dysmenorrhea. Depending on the study analysis for the presence or absence of dysmenorrhea, the output results regarding sociodemographic characteristics showed no significant difference between Babylonian women with dysmenorrhea and those without dysmenorrhea, except for the critical significance association between dysmenorrhea and duration of menstruation ($P = 0.05$). In addition, it is clear to note that the generality the women, who suffered dysmenorrhea, has a regular cycle (199 or 85.8%), length of cycle ≥21 days (183 or 78.9%), duration of menstruation equal or more than 3 days (225 or 97%), married (153 or 65.9%), and one to two number of pregnancies (109 or 47%). Unexpectedly, most women who experience dysmenorrhea have no first-degree relative history of dysmenorrhea, which is presented in 151 (65.1%) of the entire responses.

The second association was performed between dysmenorrhea and menstrual characteristics among Babylonian women, as detailed in Table 2. The results showed a positive correlation between the strength of dysmenorrhea and the intensity of fatigue symptoms

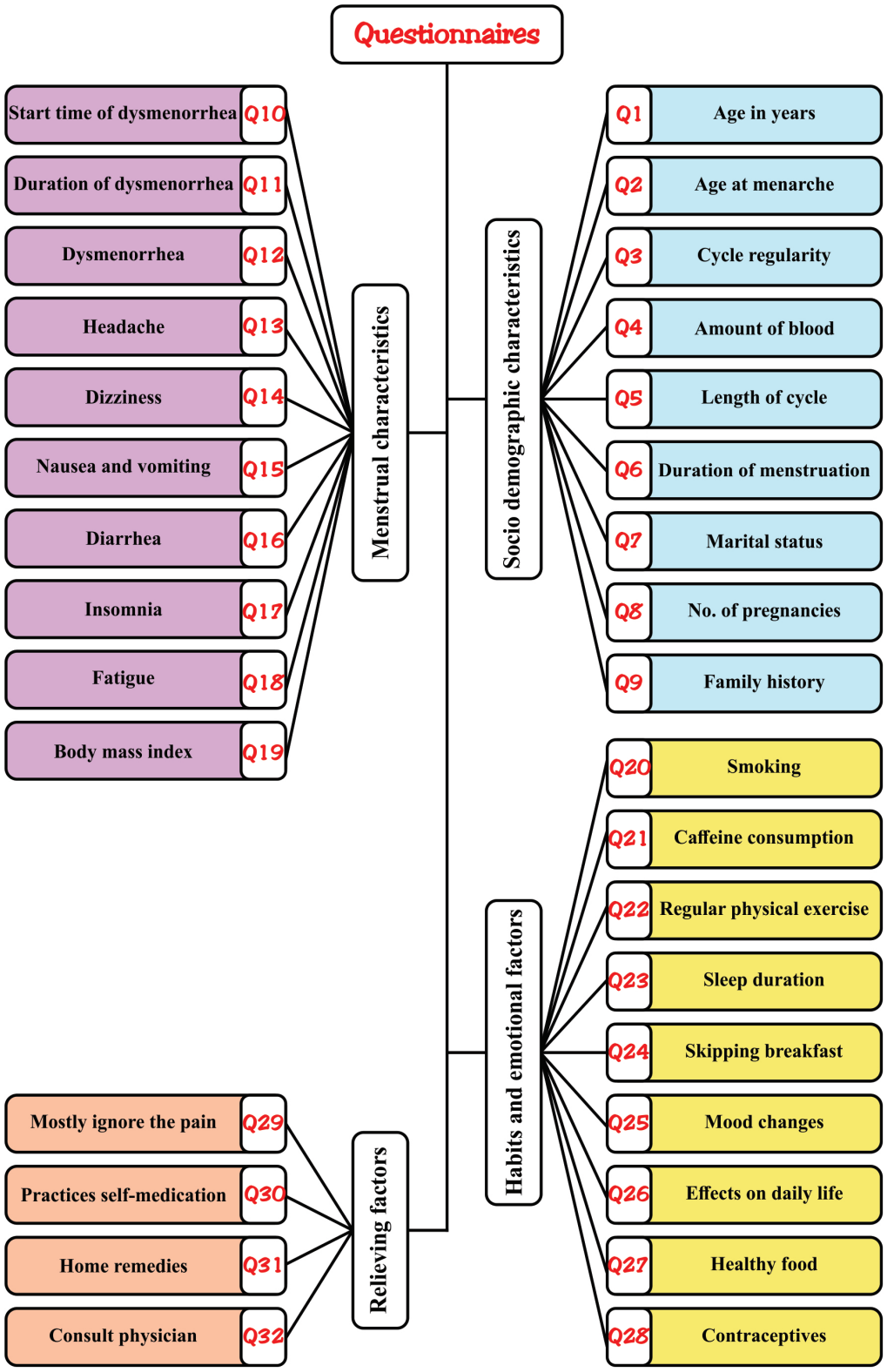

Figure 2: Questioners' taxonomy

with $P = 0.008$. There is no significant correlation between dysmenorrhea and other factors such as time of menarche, duration of dysmenorrhea, regularity of the cycle and body mass index. For instance, among 232 involved women suffering from dysmenorrhea, the statistics showed that 130 (56%) volunteers started with dysmenorrhea on the first day of menstruation, 210 (90.5%) of them had 3 days or fewer duration of dysmenorrhea, and 135 (58.2%) had normal body mass index (BMI) (18.5–24.9 kg/m^2).

Table 1: Association between dysmenorrhea and sociodemographic characteristics in a sample of Babylonian women, Iraq 2021 (n = 270)

Study variables	Dysmenorrhea			
	Yes 232(85.9%)	No 38(14.1%)	Total 270(100%)	*P* Value
Age in years				
10–20	13(5.6%)	2(5.3%)	15(5.6%)	0.156
20–30	121(52.2%)	13(34.2%)	134(49.6%)	
30–40	80(34.5%)	18(47.4%)	98(36.3%)	
40–50 or more	18(7.8%)	5(13.2%)	23(8.5%)	
Age at menarche				
<13 years	87(37.5%)	16(42.1%)	103(38.1%)	0.328
13–15 years	137(59.1%)	19(50%)	156(57.8%)	
>15 years	8(3.4%)	3(7.9%)	11(4.1%)	
Cycle regularity				
Regular	199(85.8%)	31(81.6%)	230(85.2%)	0.500
Irregular	33(14.2%)	7(18.4%)	40(14.8%)	
Amount of blood				
Light flow (<4 pads)	90(38.8%)	18(47.4%)	108(40%)	0.596
Moderate flow (5–10 pads)	123(53 %)	17(44.7%)	140(51.9%)	
Heavy flow (2 pads at a time)	19(8.2%)	3(7.9%)	22(8.1%)	
Length of cycle				
<21 days	49(21.1%)	11(28.9%)	60(22.2%)	0.282
≥21 days	183(78.9%)	27(71 %)	210(77. 8%)	
Duration of menstruation				
<3 days	7(3%)	4(10.5%)	11(4.1%)	
≥3 days	225(97%)	34(89.5%)	259(95.9%)	0.05*
Marital status				
Single	75(32.3%)	12(31.6%)	87(32.2%)	0.329
Married	153(65.9%)	24(63.2%)	177(65.6%)	
Other	4(1.7%)	2(5.3%)	6(2.2%)	
No. of pregnancies				
0	87(37.5%)	12(31.6%)	99(36.7%)	0.834
1–2	109(47%)	21(55.3%)	130(48.1%)	
3–4	32(13.8%)	5(13.2%)	37(13.7%)	
5–6	4(1.7%)	0(0%)	4(1.5%)	
First-degree relative history of dysmenorrhea				
Yes	81(34.9%)	9(23.7%)	90(33.3%)	0.173
No	151(65.1%)	29(76.3%)	180(66.7%)	

*$P < 0.05$

The entire 232 volunteered menstruating women with dysmenorrhea reported some physical symptoms, as shown in Figure 3. The generality frequently somatic symptoms were fatigue (69.4%), backache (45.3%), dizziness (43.5%), insomnia (31.9%), diarrhea (25.9%), diarrhea (25.9%), and nausea and vomiting (25.9%).

Table 3 shows the association between dysmenorrhea and habits and emotional factors among the menstruating women of Babylon, Iraq. The statistical analysis confirmed that skipping breakfast and mood change were significantly affected the women with sharp dysmenorrhea with P = 0.012 and 0.006, respectively. Although dysmenorrhea has a massive effect on the QoL, this study reported no significant effect between the two variables (P = 0.150). Nevertheless, an acceptable percentage (67.2%) of women with dysmenorrhea showed that dysmenorrhea has an extreme impact on their daily life. Furthermore, the output results showed a hardly association between dysmenorrhea and smoking (1.7%), frequent caffeine consumption (40.9%), regular physical exercise (11.2%), and using contraceptives (10.3%).

Relieving factors

For the purpose of benefiting from the experiences of women regarding reducing the density of dysmenorrhea, the coping mechanisms and experience of dysmenorrhea were carefully investigated. Thus, the volunteered women were asked about coping methods they adopted. Table 4 shows the association between dysmenorrhea and relieving factors among Babylonian women.

Table 2: Association between dysmenorrhea and menstrual characteristics in a sample of Babylonian women, Iraq 2021 (n = 270)

Study variables	Dysmenorrhea			
	Yes 232(85.9%)	No 38(14.1%)	Total 270(100%)	*P* Value
Start time of dysmenorrhea				
1–3 days before menstruation	79(34.1%)	11(28.9%)	90(33.3%)	0.738
First day of menstruation	130(56%)	22(57.9%)	152(56.3%)	
Second or third day	23(9.9%)	5(13.2%)	28(10.4%)	
Duration of dysmenorrhea				
3 days or fewer	210(90.5%)	34(89.5%)	244(90.4%)	0.771
More than 3 days	22(9.5%)	4(10.5%)	26(9.6%)	
Headache				
Yes	105(45.3%)	12(31.6%)	117(43.3%)	0.115
No	127(54.7%)	26(68.4%)	153(56.7%)	
Dizziness				
Yes	101(43.5%)	10(26.3%)	111(41.1%)	0.046*
No	131(56.5%)	28(73.7%)	159(58.9%)	
Nausea and vomiting				
Yes	60(25.9%)	3(7.9%)	63(23.3%)	0.015*
No	172(74.1%)	35(92.1%)	207(76.7%)	
Diarrhea				
Yes	60(25.9%)	7(18.4%)	67(24.8%)	0.325
No	172(74.1%)	31(81.6%)	203(75.2%)	
Insomnia				
Yes	74(31.9%)	8(21.1%)	82(30.4%)	0.178
No	158(68.1%)	30(78.9%)	188(69.6%)	
Fatigue				
Yes	161(69.4%)	18(47.4%)	179(66.3%)	0.008*
No	71(30.6%)	20(52.6%)	91(33.7%)	
Body mass index				
Normal (18.5–24.9 kg/m^2)	135(58.2%)	23(60.5%)	158(58.5%)	0.545
Underweight (<18.5 kg/m^2)	6(2.6%)	0(0%)	6(2.2%)	
Overweight (25-29.9 kg/m^2)	78(33.6%)	11(28.9%)	89(33%)	
Obese (≥30 kg/m^2)	13(5.6%)	4(10.5%)	17(6.3%)	

*P < 0.05

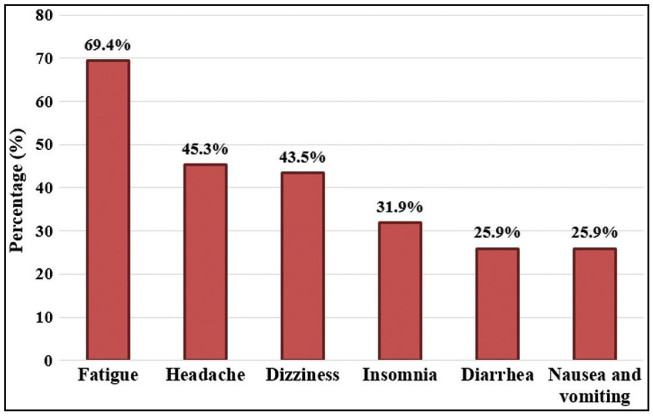

Figure 3: Symptoms associated with dysmenorrhea (n = 232)

However, when they took relieving action, they almost entirely depended on practicing self-medication (69%), getting rest as a home remedy (57.3%), and using a hot application (17.7%) for eliminating their menstrual pain to enhance their life during menstruating, as clarified in Figures 4 and 5. Moreover, few (10.3%) of participants with dysmenorrhea involved in this work consulted a physician.

Indeed, a significant association between dysmenorrhea and the coping mechanisms was found, showing the functionality of these relieving activities with P = 0.001 for mostly ignoring the pain, P = 0.022 for practicing self-medication, and P = 0.001 for using home remedies to reduce the pain.

Discussion

Discussion of the prevalence of dysmenorrhea

Dysmenorrhea is a major and public health problem among women of reproductive age that harms QoL. Regarding this study, dysmenorrhea was defined as an abdominal pain that occurs during menstruation time. Then, the prevalence of dysmenorrhea was determined

Table 3: Association between dysmenorrhea and habits and emotional factors in a sample of Babylonian women, Iraq 2021 (n = 270)

Study variables	Dysmenorrhea			
	Yes 232(85.9%)	No 38(14.1%)	Total 270(100%)	*P* Value
Smoking				
Yes	4(1.7%)	0(0%)	4(1.5%)	1.000
No	228(98.3%)	38(100%)	266(98.5%)	
Caffeine consumption				
Frequently	95(40.9%)	17(44.7%)	112(41.5%)	0.660
Infrequently	137(59.1%)	21(55.3%)	158(58.5%)	
Regular physical exercise				
Yes	26(11.2%)	3(7.9%)	29(10.7%)	0.778
No	206(88.8%)	35(92.1%)	241(89.3%)	
Sleep duration				
Less than 7 h	93(40.1%)	10(26.3%)	103(38.1%)	0.269
7–9 h	129(55.6%)	26(68.4%)	155(57.4%)	
9 h or more	10(4.3%)	2(5.3%)	12(4.4%)	
Skipping breakfast				
Yes	99(42.7%)	8(21.1%)	107(39.6%)	0.012*
No	133(57.3%)	30(78.9%)	163(60.4%)	
Mood changes				
Yes	214(92.2%)	29(76.3%)	243(90%)	0.006*
No	18(7.8%)	9(23.7%)	27(10%)	
Effects on daily life				
Yes	156(67.2%)	21(55.3%)	177(65.6%)	0.150
No	76(32.8%)	17(44.7%)	93(34.4%)	
Healthy food				
Yes	109(47%)	20(52.6%)	129(47.8%)	0.518
No	123(53 %)	18(47.4%)	141(52.2%)	
Contraceptives (oral or loop)				
Yes	24(10.3%)	5(13.2%)	29(10.7%)	0.576
No	208(89.7%)	33(86.8%)	241(89.3%)	

*$P < 0.05$

Table 4: Association between dysmenorrhea and relieving factors in a sample of Babylonian women, Iraq 2021 (n = 270)

Study variables	Dysmenorrhea			
	Yes 232(85.9%)	No 38(14.1%)	Total 270(100%)	*P* Value
Mostly ignore the pain				
Yes	146(62.9%)	34(89.5%)	180(66.7%)	0.001*
No	86(37.1%)	4(10.5%)	90(33.3%)	
Practices self-medication				
Yes	160(69%)	19(50%)	179(66.3%)	0.022*
No	72(3%)	19(50%)	91(33.7%)	
Home remedies used to reduce the pain				
None	58(25%)	21(55.3%)	79(29.3%)	0.001*
Rest	133(57.3%)	14(36.8%)	147(54.4%)	
Hot application	41(17.7%)	3(7.9%)	44(16.3%)	
Consult physician				
Yes	24(10.3%)	2(5.3%)	26(9.6%)	0.551*
No	208(89.7%)	36(94.7%)	244(90.4%)	

*$P < 0.05$

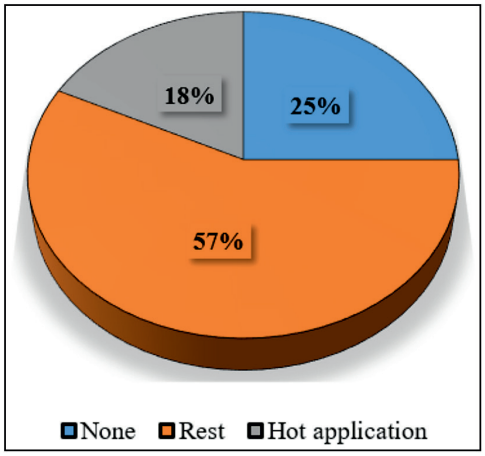

Figure 4: Relieving factors according to the responses of Babylonian women (n = 232)

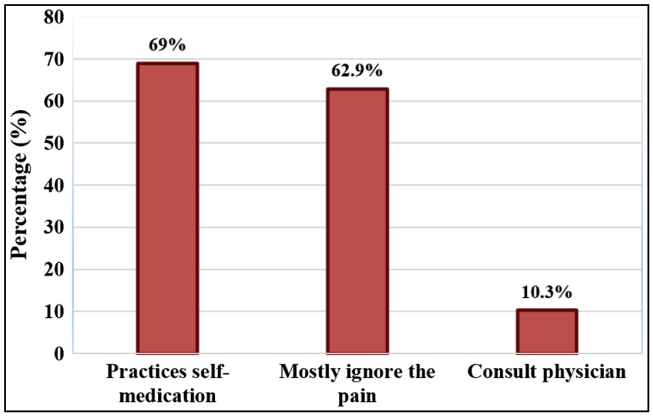

Figure 5: Home remedies used to reduce the pain according to the responses of Babylonian women (n = 232)

as 85.9% of the 270 responses of the participants that engaged in this work. This prevalence is in line with the acceptable range recorded in the early studies in which the prevalence of dysmenorrhea varied from 50% to 90%.[1, 15, 16] The essential cause for this variatoin is due to the definition of dysmenorrhea itself and/or the used technique that follows to determine the prevalence.[6,17] Furthermore, the different selected samples also affect the final value of the prevalence of dysmenorrhea.[29]

Similar calculated prevalence had been reported in some Arabic countries, such as 74.4% in Saudi Arabia,[23] 85.1% in Palestine 85.6% in Kuwait,[24] and 87.2% in Syria.[25]

Even though, there are two previous studies investigated the prevalence of dysmenorrhea among the woman in Iraq country. The first study was achieved in the north of Iraq, exactly in Erbil city,[27] whereas the second was accomplished in the deep south, approximately in Basra city.[28] To the best of our knowledge, this is the first attempt to determine the prevalence of dysmenorrhea in the middle of Iraq, in specific, in Babylon city.

Discussion of dysmenorrhea associated with variables, risk factors, and symptoms

The association between dysmenorrhea and the main popular factors and symptoms was studied to identify the significant relationship between them. The statistical analysis showed that there is a significant association between dysmenorrhea among Babylonian women and duration of menstruation (P = 0.05), where 225 (97%) of the entire 232 participants with dysmenorrhea have a duration of menstruation equal to or more than 3 days at each cycle time. This result is line with that obtained by the previous study conducted in Morocco in 2020.[5] Throughout this study, the association between dysmenorrhea and the duration of menstruation was found to be significant as well.

This study showed that skipping breakfast and mood change are considered to be siginificant factorsof dysmenorrhea, with P = 0.012 considered for skipping breakfast and P = 0.006 considered for the mood change. Concerning skipping breakfast, the finding is comparable with a Chinese previous study.[30] Simultaneously, it is unparalleled with a Palestinian early research. The negative impact of dysmenorrhea on mood change or depression condition of menstruating women was acceptably verified by previous literatures that studied dysmenorrhea and its effect on the women's lifestyle.[11,30]

The relation between dysmenorrhea and other factors have similarity with the finding of others published articles. Our study showed an insignificant relation between the intensity of dysmenorrhea and first-degree relative family history (P = 0.173). However, early studies conformed that the family history has an increased risk of dysmenorrhea.[11,30,31] Similarly, our analysis did not figure out any significance between dysmenorrhea and effects on daily life (P = 0.150). On the contrary, Al-Jefout *et al.*[32] and Özder and Salduz[21] showed in their study that dysmenorrhea has a negative effect on the quality of women's life. Honestly, these previous studies did not ask the volunteered women directly about the effect of dysmenorrhea on their daily lifestyle. Instead, they concluded the negative relation through analyzing other factors.

This study showed a significant relationship between the intensity of the dysmenorrhea and dizziness (P = 0.046), nausea and vomiting (P = 0.015), and the intensity of fatigue (P = 0.008), as suggested by the study of Fernández-Martínez *et al.*[11] in Spain among 258 young women.

Even supposing that fatigue is the mass common of menstruation-associated symptoms, several Babylonian women suffer from additional symptoms associated with dysmenorrhea, which was reported as 69.4% of dysmenorrheic participants. The farthest familiar associated symptoms were headache (45.3%), dizziness

(43.5%), insomnia (31.9%), diarrhea (25.9%), and nausea and vomiting (25.9%). These symptoms were also studied by other researchers,[11,23,33] and get output similar result to the current finding. For evaluation purpose, the early study, which was performed in China among female university students,[30] summarized the percentages of symptoms as follows: fatigue (60.9%), headache (23.3%), dizziness (31.7%), insomnia (24.3%), diarrhea (31.7%), and nausea and vomiting (12.3%).

The effectiveness of smoking on dysmenorrhea was investigated as well. Accordingly, only four of 232 Babylonian women with dysmenorrhea confirmed the effect of this factor on the pain intensity. However, the rest of the participants (98.5%) did not examine smoking. Hence, they were not qualified for this question. This finding was longitudinal with early works,[11] which also did not detect any significant association. However, the finding crosses with the study of Ibrahim *et al*.[34] because his study listed smoking as a predisposing factor that has a direct effect on dysmenorrhea.

Discussion of relieving factors

Definitely, dysmenorrhea and its symptoms have a negative impact on the life activities of menstruating women. Thus, several physical and medical methods are expected to perform by the women to reduce the pain. However, a high percentage (62.9%) of the women with dysmenorrhea who were involved in this study reported that they did no action and mostly ignore the pain. This finding agrees with the output of the previous study that investigated the coping mechanisms among adolescents in Ghana.[35] A high percentage (69%) of the participants with dysmenorrhea try to perform some practices of self-medication to reduce the pain. This finding is strongly supported by the previous study,[35] which reported that the generality of women goes to ignore their pain.

Several previous studies concluded that most women suffering from dysmenorrhea never care to get a doctor's consultation.[33,36] The current finding was not different, which showed that only 10.3% of participants with dysmenorrhea seek a physician consultation about menstrual pain. Accordingly, this finding should be highlighted and listed under the public health issues. For that reason, the greatest number of Babylonian women decided to exercise home remedies or nonpharmacological remedies to eliminate the pain, such as getting rest (57.3%) or hot application (17.7%) and these findings have been clarified in other studies.[35,37]

Lastly, the previous work concluded that the heating pad can be classified as an important factor for reducing the pain as a dysmenorrhea treatment.[35] This fact supports the current finding where 17.7% of Babylonian women with dysmenorrhea use a hot application. Based on the above findings, health education concerning nonpharmacological pain relief mechanisms for dysmenorrhea's treatment is highly warranted.

Conclusion

The main conclusion figured out from this study is that dysmenorrhea is an essential menstruation-connected problem among the menstruating women of Babylon city, Iraq. The dysmenorrhea was evaluated by means of prevalence determination after considering that dysmenorrhea defines as abdominal pain. Indeed, the exact definition of dysmenorrhea has not been specified yet. Hence, a massive packing is highly required to agree with healthcare providers. Based on the responses of the 270 Babylonian women who agreed to engage in this study, the prevalence of dysmenorrhea among the women of this city was calculated as 85.9% of the entire participants.

The association between dysmenorrhea and the main popular factors and symptoms was studied to identify the significant relationship between them. The common factors were divided into four groups to simplify the analysis. The four groups of variables are sociodemographic characteristics, menstrual characteristics, habits and emotional factors, and relieving factors. Consequently, the statistical analysis proved there is a significant association between dysmenorrhea among Babylonian women and duration of menstruation ($P = 0.05$), dizziness ($P = 0.046$), nausea and vomiting ($P = 0.015$), and the intensity of fatigue ($P = 0.008$). However, skipping breakfast and mood change presented a significant consortium with dysmenorrhea at $P = 0.012$ and $P = 0.006$, respectively. Regarding the relieving factors and the coping mechanisms, the significance was reported at $P = 0.001$ for mostly ignoring the pain, at $P = 0.022$ for practicing self-medication, and at $P = 0.001$ for using home remedies to reduce the pain.

Far from what the researchers expected, the data analysis did not conform any significance between the dysmenorrhea and first-degree relative family history ($P = 0.173$) and effects on daily life ($P = 0.150$). The main reasons for the low percentage of effects on daily life are the difficulty of living in Iraq, the lack of services, and the unstable economic situation that pushes them to fight against abnormal conditions and ignore themselves. These reasons also answer why they almost tend to ignore the pain during dysmenorrhea.

The results highlighted unacceptable behaviors that the Babylonian women used to carry out. For example, they mostly disregard regular physical exercise (88.8%), tend toward unhealthy food (53%), and refused the medical consultation (89.7%). Moreover, the study showed that 62.9% of women with dysmenorrhea generally ignore the pain, even if 85.9% of the entire participants confirmed

the pain with dysmenorrhea and 67.2% of women with dysmenorrhea reported that the pain has negative effects on their daily life. To compensate for the above missing factors, the dysmenorrheic Babylonian women are going toward self-medication (69%), rest (57.3%), and hot application (17.7%).

Dysmenorrhea and its associated symptoms should be recommended as a public health issue, especially for girls who have entered the age of menarche. Therefore, several management enhancements must follow for bending this issue. For instance, incorporating women with dysmenorrhea in widely educational programs to increase their recognition for this issue. Mothers must learning their daughters who suffer from this problem how to deal with pain and give them information about measure to relief this pain. Increasing awareness can be carried out through TV, media, and the primary health care center.

Thus, the authors highly recommend moving forward with this subject in the hope of finding substantive solutions to the entire issue of dysmenorrhea.

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Conflicts of interest
There are no conflicts of interest.

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