

# Primary Dysmenorrhoea: Prevalence and Knowledge assessment in 10 – 18-year-old Syrian female teenagers: A cross-sectional study with pre-post analysis.

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## Research

**Keywords:** primary dysmenorrhea, knowledge assessment, awareness, myths, middle east region, adolescent females

**Posted Date:** April 20th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-22815/v1>

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# Abstract

**Introduction:** Gynaecological complaints and primary dysmenorrhoea among young females are usually managed using popular myths, and have a wide spectrum of consequences on everyday life.

**Methods:** A cross-sectional study to assess the prevalence of dysmenorrhea and basic knowledge, with a pre-post analysis after the intervention was applied. The study was carried in randomly selected female public schools in Damascus on a randomly selected sample of female students aging between 10 and 18 years old. We used a self-report questionnaire immediately before the awareness sessions and two weeks later. The questionnaire included multiple-choice questions on various aspects of the menstrual cycle, dysmenorrhoea and common myths in the Syrian society. The data were analyzed using SPSS ® , Microsoft Excel ® , and Microsoft Access ® software.

**Results:** A total of 579 vs. 261 female students participated. The prevalence of dysmenorrhoea was 87.2%. Only 47.3% of participants knew the correct origin of menstruation blood, and most of them did not consult a doctor regarding the pain (91.6%). The answers were weighed and compared, resulting in an insignificant p-value for the students' knowledge after the awareness campaign ( $p = 0.687$ , CI = 95%).

**Discussion and conclusion:** Dysmenorrhoea is highly prevalent among Syrian school students. The modest knowledge on this condition, the use of home remedies and the insignificant improvement after the sessions indicate the need to focus on creatively improving information delivery methods in a long sustainable timeframe.

## Background

The menstrual cycle or menarche starts between the age of 10 - 16 years with a median of about 12-13 years.(1,2) Dysmenorrhoea or painful menstruation is a condition known to commonly accompany the menstrual cycle especially in young females, characterized by painful abdominal cramps during the cycle, and may be frequently accompanied by other symptoms; sweating, headaches, nausea, vomiting, diarrhoea, tremor, weakness and fatigue, irritability and breast tenderness. (3–5)

These symptoms can occur just before and/or early during menses,(6) and they last on average for two days. (3)

Dysmenorrhoeal students have poorer sleep quality,(5) and an increased risk of depression and anxiety. (7) Dysmenorrhoea can be classified into two types, Primary and Secondary.

Primary dysmenorrhoea refers to pain without any known pathological pelvic disease, and it almost always first occurs in females 20 years old or younger after their menstrual cycles become ovulatory, while secondary dysmenorrhoea is accompanied by an underlying pelvic pathology and is often seen in women older than 20 years old. (6,8) The pain of primary dysmenorrhoea occurs just before or just after

the menstrual blood flow, secondary dysmenorrhoea, and other abdominal cramps can occur at any time even outside menses. (9)

A careful distinction should be made between primary dysmenorrhoea on one hand and secondary dysmenorrhoea and other causes of abdominal cramps on the other hand in order to seek medical advice for these cases of known etiology.

The prevalence varies throughout literature. On average 60 – 67 % of women suffer from dysmenorrhoea. Adolescent women are not spared, the reported prevalence varies greatly from as low as 16% in a Japanese study (10) to about 38% in a Lebanese study, (11) and as far as 93 % in an Australian study. (11–14)

Dysmenorrhoea poses a great burden more than any other gynaecological complaint in developing countries. (15) 41% of participants aged 26 years and less had limitations in their daily activities due to this disorder, (16) and one third to one-half of young females are estimated to miss school/work because of it. (14,17)

Many risk factors for dysmenorrhoea were identified in the literature. In general, the prevalence of dysmenorrhoea increases while its severity decreases in relation to both high chronological age (years since birth) and gynaecological age (years since menstruation began). (18–20) Some of dysmenorrhoea risk factors are long heavy and irregular menses (15,19), nulliparity,(19) family history of dysmenorrhoea, (21) smoking, (22) obesity, (3) malnutrition and low calcium and vitamin-D intake, (23,24) illiteracy and low level of education. (15) However, The use of oral contraceptives is generally reported with less severe dysmenorrhoea. (19)

Research did not present a sufficient relationship between dysmenorrhoea and height, weight and the length of the menstrual cycle. (19,21,25) Other studies, however, suggested a correlation between dysmenorrhoea and body mass index (BMI) stating an increase in severity in both underweight and obese individuals. (26,27) The relation with physical activity is controversial, two studies stated no relation, (3,19) while another one stated that it increases the severity of dysmenorrhoea. (18) This controversy is also expressed by Geneen et al. in their systematic review of the relation between physical activity and chronic pain. (28)

Research also identified additional risk factors and causes specifically for secondary dysmenorrhoea like female reproductive system pathology (e.g. Endometriosis and Fibroid tumors), infection (e.g. Pelvic inflammatory disease and Chronic salpingitis) and intrauterine devices (IUD). (9)

Less than 25 % of patients seek medical advice for their symptoms, especially those who have already experienced severe pain, while the majority practice self-management, which may possibly lead to abusing these medications (unnecessary high doses) for quick pain relief. (4,14,17,29)

Treatment presented to patients is basically Non-Steroidal Anti-Inflammatory Drugs (NSAIDs, e.g. Ibuprofen and Acetaminophen) as a first-line or hormonal treatment (oral contraceptives) as a second-

line. Further evaluation for pelvic pathology is advised in cases refractory to these treatments in order to look for causes of secondary dysmenorrhoea. (30,31)

The use of supplemental calcium, vitamin D, Fish oil, Vitamin B1 and vitamin E may decrease the severity of dysmenorrhoea. (23,24,32–34)

Patients experiencing moderate pain often use over-the-counter pain relievers (OTCs), herbal tea, massage, and heat application as self-management. (17) On the contrary to common knowledge, ginger and cinnamon are related to a dramatic decrease in menstrual blood loss and primary dysmenorrhoea pain severity. (35–37)

Bathing and drinking cold water are thought to cause dysmenorrhoea in many cultures, thus they are avoided. (38,39) However, there is no clear evidence that proves or negates this claim.

Knowledge about normal menses, dysmenorrhoea and other menstrual patterns is believed to be inadequate in low and middle-income countries. (40)

We have carried out a cross-sectional study to assess the prevalence of dysmenorrhoea and the level of knowledge throughout the population, also we did an awareness campaign about dysmenorrhoea and measured the benefit from it.

### **The objective of the study:**

- 1- To measure the prevalence of dysmenorrhoea among 10 to 18-year-old school students.
- 2- To assess their knowledge about dysmenorrhoea, its risk factors, accompanying symptoms, and their belief in certain popular assumptions in the Syrian society.
- 3- To measure the effectiveness of awareness sessions on students' knowledge via a pre-post analysis scheme.

## **Methods**

Approval and Setting: This research was done along with a health awareness campaign targeting several schools in Damascus by Red Blood Cells voluntary team (RBCs), and was accomplished with the support of UNHCR (United Nations High Commissioner for Refugees). The campaign covered many topics, one of which was (Awareness about Dysmenorrhoea). Approval was taken from the Scholastic Health Directory to start this campaign, and every school approved being a participant in our research.

Senior medical students prepared the content of the topic based on (Hacker & Moore's Essentials of Obstetrics and Gynaecology) textbook (41) and another group of senior-year medical students reviewed the content. The topic included the anatomy of the female reproductive system, dysmenorrhoea (symptoms, causes of secondary dysmenorrhoea, management, when to consult a doctor and popular myths about dysmenorrhoea) and PMS (Premenstrual Syndrome). Data collectors and presenters

underwent training by content developers on how to present the topic to students to make sure all the details were equally comprehended.

Design of the campaign: Four secondary girl-schools were approved for the campaign in Damascus governorate and we carried the research in them. We gave numbers to all the classes we could reach through the awareness campaign, then randomly from these numbers we chose the classes we included in the study. We randomly chose 33 classes from 129 classes using <https://www.randomizer.org/>.

Study design: We collected the data using a total of self-administered questionnaires in Arabic taking up to 15 minutes to complete. The questionnaire comprised 30 questions varying between close and open-ended and multiple-choice questions divided into four sections.

We chose the cross-sectional design for this study to assess the knowledge prior to the campaign. We also chose a secondary objective to measure the beneficence from the campaign by doing another knowledge assessment two weeks later based on the pre-post scheme, and we observed the resulting change. Due to the nature of the intervention, no control group was applicable.

Population involvement: 579 teenage girls from the chosen schools participated during the data collection stage. Presented topics were discussed with the scholastic health directory and the schools' administrations, who helped by giving an initial insight around which details should be focused on, and which habits to encourage or discourage.

Practical application of the research: The respondents answered the questionnaire comfortably in their classrooms. They were instructed not to write their names, and to give an assent after a verbal and written explanation about the research and its objectives.

The first section asked the students about personal details and the family's whereabouts (e.g. their age, the parents' jobs, and the number of siblings). The second section asked about menstruation details; age at menarche, whether they consulted a physician about this pain, and if so, what treatments were constructed. The pain caused by dysmenorrhoea can range between mild, moderate and severe or measured on a subjective numeric rating scale (14) therefore, we asked about the presence of pain during menstruation in this section scored on both the visual analogue scale (VAS) expressing the pain by circling a face (a corresponding smiley icon) and the numeric scale using a number (from 1 to 10) under the symbol that matches the feelings. The third section contained most of the variables of interest testing the girls' knowledge related to menstruation; the source of bleeding, the timing of pain associated with menstruation, risk factors for dysmenorrhoea, states that need a physician to consult, and PMS (premenstrual syndrome) symptoms. The fourth section was dedicated to the common myths within the Syrian female society. The questionnaire form can be seen in Arabic and English versions (Appendix 1.).

The research team and data collectors handed out forms to students in the randomly chosen classes with at least one data collector in each class to explain the questions to ensure that every question is

clear, and all forms are completely filled. After that, trained staff started awareness sessions in all school classes.

Two weeks after the awareness sessions, data collectors returned to the schools to gather post-awareness data from the same randomly chosen classes. We collected the post-awareness data from two schools only due to unsuitable weather conditions and the following exams which prevented us from performing a timely correct assessment.

We finally summed the results of students' answers and compared the pre-awareness results to the post-awareness ones.

## Results And Data Analysis

We collected 579 valid questionnaires in four schools compared to 261 post awareness questionnaires in two schools out of these four.

The data were filled into a single database using Google Forms<sup>®</sup>, then analyzed via Microsoft Excel<sup>®</sup> and SPSS<sup>®</sup>. Pre and post awareness analyses were done separately.

Below, we describe the most significant aspects of our data. A complete version of the results and the analysis of the collected data can be found in (Appendix 2.).

### Section 1: Participants' characteristics:

Age: The mean age of included students approximately was 14 ranging between (10-17) years.

School grade: most of the students were in the 9<sup>th</sup> grade (62.7 %) (363/579), the remaining students were in the 8<sup>th</sup> grade (18.8%), the 7<sup>th</sup> grade (13.6%) and the 10<sup>th</sup> grade (4.8 %).

Detailed presentation of the age of the participants and their school grades is to be viewed in (Tables 1. and 2.)

### Section 2: Menarche and menstrual cycle-related pain (MRP):

Menarche: Out of all 10 - 17-year-old girls, nearly 84% (487/579) menstruated, with a mean age of 12.65 (six entries regarding the starting age of menarche were missing).

Most participants 42.2% (203/481) started menstruating at the age of 13. The age of menarche is individually shown in (Table 3.).

Menstrual pain: We used the visual analogue scale with values ranging between 0 (no pain) and 10 (unbearable pain). Five entries were empty.

Menstrual cycle-related pain prevalence is 87.2% (421/482).

Of the 87.2 % of participants who reported menstruation-related pain, nearly 32.3% of the respondents (n=136) reported mild pain (1–3 points on scale), 44 % (n=185) reported moderate pain (4–7 points) and 23.7 % (n=100 ) reported severe pain (8–10 points). The detailed results of pain-level prevalence are demonstrated in (Table 4.).

### Section 3: Awareness measurement around MRP and normal menstrual cycle:

Only 47.3% (274/579) knew that menstruation blood originates from the uterus. This number increased to 85.7% (222/259) on the post-awareness survey. Most of the participants did not consult a doctor regarding menstrual pain 91.6% (386/421). From those who consulted a doctor regarding their painful menstruation, 42% had severe pain (n=15) and 48% had moderate pain (n=17). Results of the students' knowledge of dysmenorrhea risk factors, of which cases require visiting a physician, and of which symptoms normally accompany the menstrual cycle are summarized in (Figure 1, 2. and 3.) respectively, with detailed values available in (Appendix 2.).

### Section 4: myths around dysmenorrhoea:

Although the majority knew that moderate menstruation pain is normal, all other points in this section had a modest level of knowledge at the beginning with a significant increase in the wrong answers after the awareness. Details are available in (Appendix 2.).

### Data analysis and clinical significance:

The choices of the participants were weighed and summed for each questionnaire, with a mark of (1) for each correct answer and (0) for the incorrect / "I don't know" answers. By comparing the results pre and post awareness using Microsoft Excel<sup>®</sup>, we got a p-value of (p = 0.687) for a confidence interval (CI = 95%), which greatly exceeds the presupposed value of significance (p ≤ 0.05).

## **Discussion**

In this study, we determined the dysmenorrhoea prevalence and predictors of dysmenorrhoeal pain severity among adolescent student-females. The results showed that the dysmenorrhoea prevalence was 87.2%. These findings are similar to the published values from developing and developed countries. Studies revealed variable rates of dysmenorrhoea varying from 34% in Egypt, 80% in Australia, 85% among Hispanic adolescent females, and 94% in Oman. (42–44) Moreover, the prevalence of severe dysmenorrhoeal pain ranges from 0.9% reported in Korea to 59.8% reported in Bangladesh. (42) Furthermore, a Japanese study on high school girls mentioned that the pain was mild/no pain in 35.5% of the sample, moderate in 46.8 % and severe in 17.7 %, (18) and a similar study on university students in Turkey concluded that mild pain was present in 19.8%, moderate pain in 49.8% and severe pain in 30.4% of their sample. (17) Our results showed that the prevalence of severe dysmenorrhoeal pain was 23.7%. It is challenging to interpret the differences in dysmenorrhoea prevalence. However, the use of various

criteria to define dysmenorrhoea in different studies, culture, lifestyle, genetics, and degree of social and personal stress are all potential causes for variations in dysmenorrhoea prevalence. (45–47)

There are many studies in Arab Middle Eastern countries published on the dysmenorrhoea prevalence among female students. A cross-sectional study carried out at Dammam University (Saudi Arabia) reported that 35% of females had severe dysmenorrhoea. (48) Another study from Saudi Arabia reported that the dysmenorrhoea prevalence is 60.9% among female medical students. (49) An Egyptian study revealed a high prevalence of 94% among nursing students. (50) A study from Lebanon revealed the dysmenorrhoea prevalence is 74.3%. (51) Collectively, these studies prove the variable characteristics of the dysmenorrhoea prevalence among different female students in various Arab countries and even within the same country.

In addition to that, a study carried out in Nigeria, showed that adolescents have limited knowledge concerning menstruation and dysmenorrhoea. (52) Fifty-eight percent of their participants reported a present pain and the majority had applied inappropriate ways to control primary dysmenorrhoea. (52) A descriptive cross-sectional study conducted in Iran showed that dysmenorrhoea is associated with symptoms, such as nausea, vomiting, diarrhoea, headache, weakness, and/or fainting, and they are the most common reasons to consult a doctor. (53) Lee et al. reported that 88.9% of schoolgirls had not sought medical advice for problems relating to menstruation. (54) Of the 11.1% who consult a medical doctor, 29.4% opted for alternative or complementary medicine. (54)

Attitudes towards dysmenorrhoea are influenced by several factors, including cultural, ethnic, and religious backgrounds. Mothers, teachers, friends, relatives, television, and books are the main sources of knowledge on menstruation for adolescent girls. (54,55) Girls from rural Malaysia were more conservative compared to city girls and they usually suffered in silence. (56) Contradictory conclusions were made by Weissman et al., who noted that girls in urban areas do not only suffer more but also miss classes and are unable to work. (57) The quality of life during dysmenorrhoea is relatively lower among girls in urban areas, and affected physical motility, work, relationships, social lives, and leisure activities. (58)

In our study, only 47.3% of participants before the awareness campaign knew that menstruation blood comes from the uterus and 54.7% knew that menstrual pain occurs only hours before and during the first two days of the menstrual cycle, but that improved after the campaign with 85.7% and 69.1% respectively.

Most participants did not consult a doctor regarding menstrual pain (91.6%). They thought it is necessary to consult a medical doctor in case of heavy bleeding with clots during menstrual cycles (68.3%), dysmenorrhoea non-responsive to painkillers (67.7%), worsening pain (59%), lower abdominal pain during and even outside the times of menstruation (50%), and pain-induced nausea and vomiting (49.5%) and the percentage of correct answers after the awareness campaign increased to 74%, 71%, 68%, 69%, and 53% respectively. However, a small percentage also thought incorrectly that bearable chronic dysmenorrhoea requires medical attention (20%) and that did not improve after the campaign (23.9%) may be due to the misperception of the question.

As for the normal symptoms that would appear before menstruation, there was a general improvement in choosing the correct answer by a percentage ranging between [0.4 - 18] %. However, two points “bleeding” and “non-white vaginal discharge” had an increased choosing rate for the wrong answer by 3.5% and 3.9% respectively.

Kamonasak et al. noticed that only a small percentage was conscious that mefenamic acid and ibuprofen were useful for dysmenorrhoea, and methods used involved rest (92%), heating pads (34%), analgesics (32%), herbal medicines (12.7%), physician consultation (7.1%), exercise (6.8%), and meditation (4.5%). According to their study, “paracetamol was the drug known to 98.8% of participants with dysmenorrhoea that helped to relieve their pain” (59). In our study, only a small percentage was conscious before the awareness campaign that during menstruation it is permissible to take painkillers (28.5%), eat lemon, cinnamon or ginger (28.4%) and drink cold water (21.7%). However, more than half believed it is permissible to exercise or effort (54.8%). The percentage of correct post-awareness answers mildly increased with 30.9%, 33.6%, 27.4%, and 56.4% respectively. The improvement ranged between [2 - 6]% only. It is worth mentioning that the profit from physical activity is controversial as mentioned earlier in the background section, however, for this paper we considered it positive.

Not to forget, dysmenorrhoea is thought to be a natural characteristic of the menstrual cycle that will resolve with time or after marriage. (60) This is in line with social knowledge, where home cures are often applied for the relief of pain (60). The participants revealed that medication will make them habitual, decrease menstrual blood flow, and affect fertility. (60) Bathing, use of sanitary towels, and exercise are avoided during menstruation. (60) In our study, a high percentage was conscious before the awareness campaign that during menstruation mild pain is a normal thing (81.5%) and it is permissible to shower (67%) and pluck or cut hair (56%); nevertheless, only a small percentage was aware that mild lower abdominal pain outside the times of menstruation is abnormal (36.5%). The percentage of correct post awareness answers changed to 93.1%, 35.5%, 40.5%, and 27% respectively. These results were surprising and totally unexpected. In the fourth section, not only did the percentage of some correct answers plummet, all the questions except for one witnessed an increase in selecting the wrong answer ranging between 10% and 38% increase in the post-awareness results.

A study conducted in Egypt showed that some participants were following general methods for painful periods, like resting and taking painkillers. (61) They were using non-steroidal anti-inflammatory drugs (NSAIDs), vitamin E supplements, and oral contraceptive pills for the relief of premenstrual tension and pain. (61)

Moreover, several women do not report menstrual pain to their family physician. (59) The consequences of untreated dysmenorrhoea involve decreased attention at work and school, leading to less productivity and family and personal disruptions. (59) Similar opinions have been revealed by Banikarim et al. who showed that dysmenorrhoea influences family and social and national economies. (44) Students’ knowledge of physiological changes is poor (54). Kindi & Bulushi revealed that girls did not discuss their menstrual difficulties with their family physician, and they were self-prescribing over-the-counter drugs.

(62) It is necessary that consultation is given by family physicians and school staff and handled appropriately to avoid school absenteeism. (62) Proper knowledge about menstruation and its associated difficulties are essential for both adolescent girls and their mothers in order to prevent the delay of medical care. (63) In our study and before the awareness campaign, heavy bleeding was the most thought to be risk-factor with 46.11%, followed by a decreasing tendency by irregular cycles, early menarche, gynaecological infections, structural genitals abnormalities, prolonged periods, post-pregnancy and delivery period, lack of exercise, lack of calcium and vitamin D, presence of a family history of menstrual cycle-related pain, smoking, nulliparity, regular cycles, and obesity. However, post-pregnancy and delivery, lack of exercise and regular cycles are not risk factors. After the awareness campaign, the overall percentage of correct answers increased between [4 - 18.8] %. Unfortunately, the choosing of “lack of vitamin D and calcium” remained the same without changing, and these two points “post-pregnancy and delivery, exercise and effort” had a deterioration after the awareness and the wrong answer’s ratio increased between 5.2% and 8.3% respectively.

To summarize the results we acquired, we calculated the p-value for the answers of the students in relation to the initial assessment and the latter one. Unfortunately, we had a nonsignificant p-value ( $p = 0.687$ ). And from the already-presented results, it was clear that there was an overall improvement in the answers with some deterioration in a few questions. The general improvement was not as high as predicted. We have a few plausible explanations:

- The relayed information needed further simplification; as the awareness crew comprised medical students might have led to the use of specialized vocabulary, and maybe this kind of students-based campaigns should have had more interactive material to deliver the information properly.
- It could be that some information required the opposite to be mentioned in order to be understood.
- The lecture time was only 15 minutes for each topic, and only color-printed visual aids (slides) were used due to logistical limitations, which prevented the benefit of more useful scientifically-proven media.
- There is a key difference between the classes regarding behavior, which negatively affected the delivery of information. The limited lecture time did not allow for a rapport to be established.
- Furthermore, the students belonged to widely varied backgrounds and the schools themselves varied in means of teaching powers.
- There was also a difference between the lecturing team-members and their abilities to draw the attention of the students.
- Some questions were presented in the negative formulation (e.g. “It is not allowed to drink cold water”), which could have led to misunderstanding, which answer to choose (Yes or No)!
- A final possibility is that such information is not interesting enough for such a target group, and the shyness and preservation of these young girls to discuss such sensitive matters.

## Declarations

**Ethical approval:** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

**Informed consent:** Informed consent was obtained from all individual participants included in the study, and from the local authorities responsible for them.

**Availability of Data and Materials:**

All reported and collected data is available for review upon request by contacting the first and corresponding authors.

**Competing interest statement:**

The authors declare that they have no conflict of interest.

**Funding:** We declare that this research was completely self-funded. Support from the UNHCR was received for the awareness campaign but not for the research.

**Authors' contributions:**

AA: Planning of the article, defining the methods and objectives, data entry, data analysis, and general reviewing.

SA: Background and literature review, data entry, proofing the results and analyzed data, figures generating and general reviewing.

Jl: Statistical analysis, data entry, general reviewing.

RZ: Literature review, discussion, and general reviewing.

OA: Discussion section and general reviewing.

NA: Results section and data presentation.

Prof. MA: Mentorship and guarantor.

The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

**Acknowledgment:**

We would like to thank our colleagues: Amjad Aboukoura and Raghad Sahloul from the Faculty of Medicine - Damascus University, and Leen Alnajdi from the Faculty of Pharmacy - Damascus University

for their contribution to data entry, in addition to Huda Alkhaldi for her contribution to Excel-data organizing and management.

We would also like to thank the UNHCR for supporting the awareness campaign, and the Schools' Health Directory in Damascus and the respective schools' administrations for facilitating, supporting and consenting for the campaign and the accompanying research.

## Tables

**Table 1.**

**Table 1 – Age**

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
<b>10</b>	4	0.7	0.7	0.7
<b>11</b>	2	0.3	0.3	1.0
<b>12</b>	36	6.2	6.2	7.3
<b>13</b>	114	19.7	19.7	26.9
<b>14</b>	219	37.8	37.8	64.8
<b>15</b>	135	23.3	23.3	88.1
<b>16</b>	57	9.8	9.8	97.9
<b>17</b>	12	2.1	2.1	100.0
<b>Total</b>	579	100.0	100.0	

**Table 2.**

**Table 2 - Grade**

	<b>Frequency</b>	<b>Percent</b>	<b>Valid percent</b>	<b>Cumulative percent</b>
<b>7th</b>	79	13.6	13.6	13.6
<b>8th</b>	109	18.8	18.8	32.5
<b>9th</b>	363	62.7	62.7	95.2
<b>10th</b>	82	4.8	4.8	100.0
<b>Total</b>	579	100.0	100.0	

**Table 3.**

**Table 3 – Starting age of menarche**

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
<b>6</b>	1	0.2	0.2	0.2
<b>8</b>	1	0.2	0.2	0.4
<b>10</b>	8	1.4	1.7	2.1
<b>11</b>	40	6.9	8.3	10.4
<b>12</b>	137	23.7	28.5	38.9
<b>13</b>	203	35.1	42.2	81.1
<b>14</b>	77	13.3	16.0	97.1
<b>15</b>	14	2.4	2.9	100.0
<b>Total</b>	481	83.1	100.0	
<b>Missing</b>	6	0.01		
<b>No menstruation yet</b>	92	15.9		
<b>Total</b>	579	100.0		

**Table 4.**

Table 4 – Severity of pain

	Frequency	Percent	Valid Percent	Cumulative Percent
0	61	12.7	12.8	12.8
2	130	26.6	26.9	39.8
3	6	1.2	1.2	41.0
4	71	14.5	14.7	55.7
5	29	5.9	6.0	61.7
6	75	15.4	15.5	77.2
7	10	2.0	2.1	79.3
8	67	13.7	13.9	93.2
9	3	0.6	0.6	93.8
10	30	6.1	6.2	100.0
<b>Total</b>	482	99.0	100.0	
<b>Missing</b>	5	1.0		
<b>Total</b>	487	100.0		

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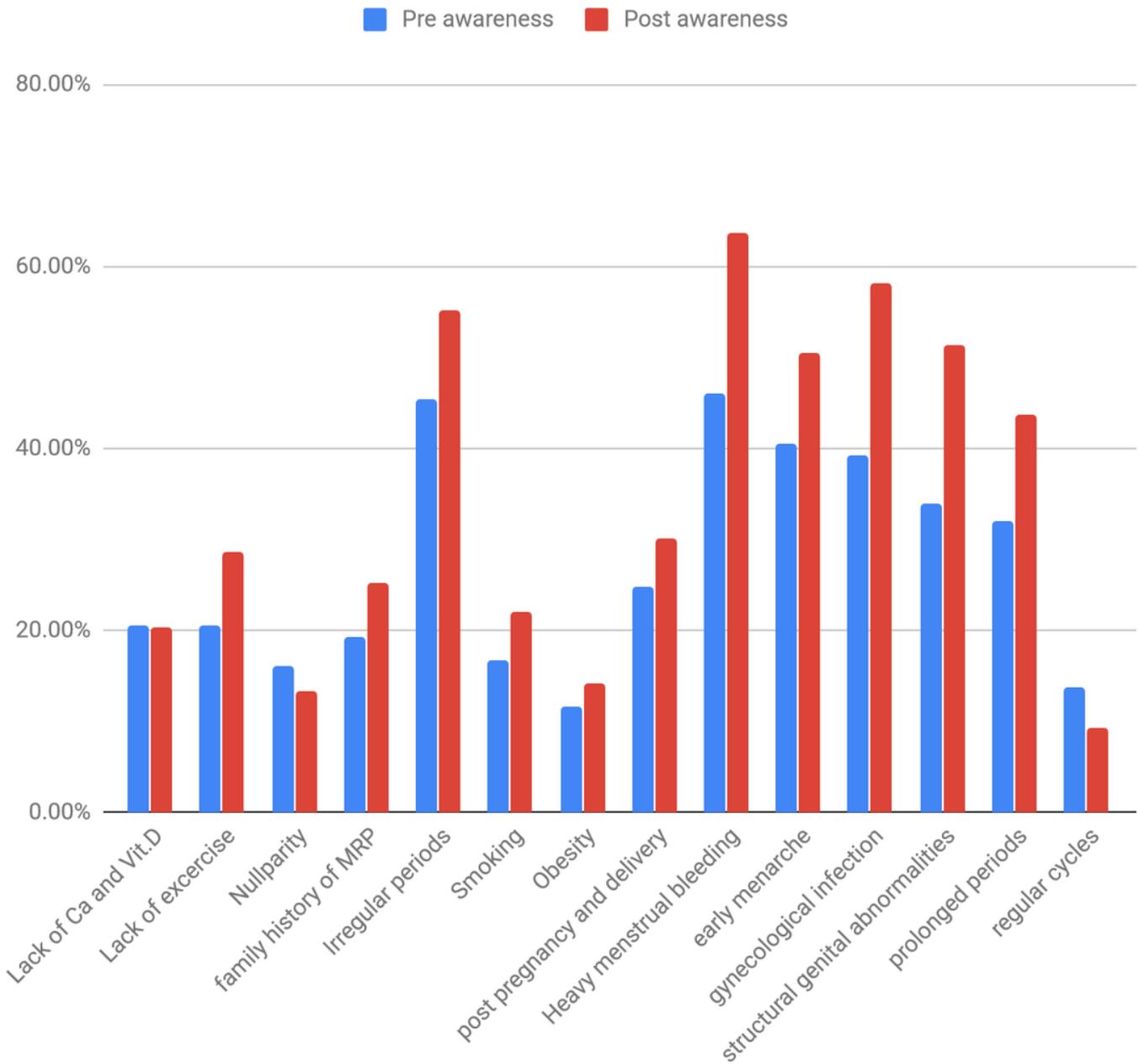
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## Figures

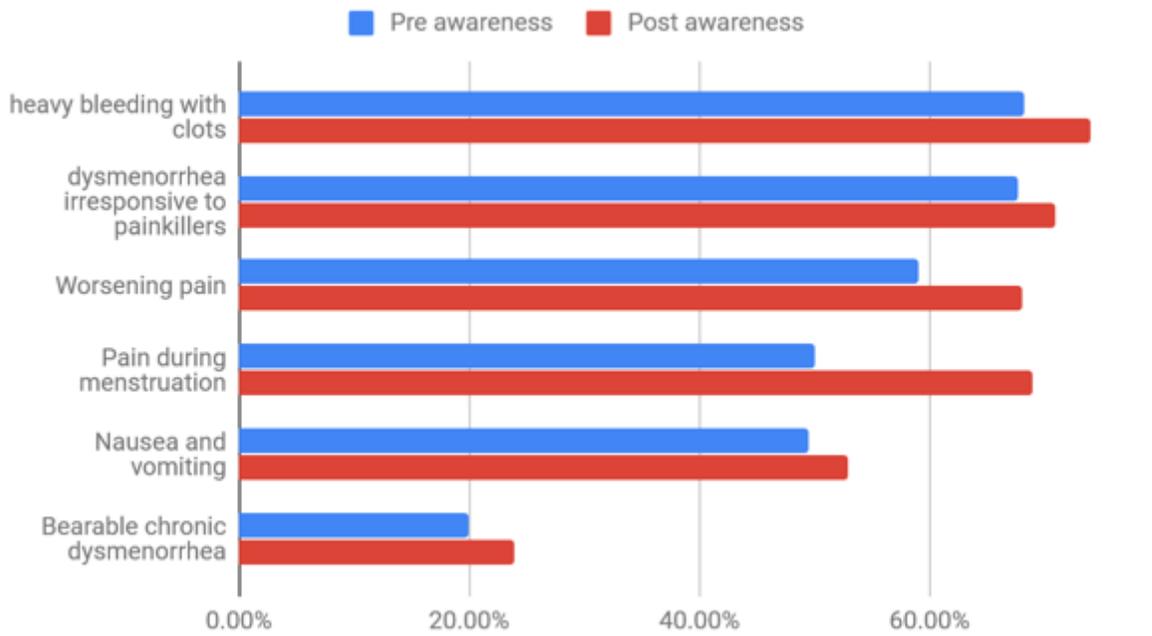
# Risk factors of Dysmenorrhea



**Figure 1**

Comparison of answers regarding the risk factors of dysmenorrea pre/post awareness.

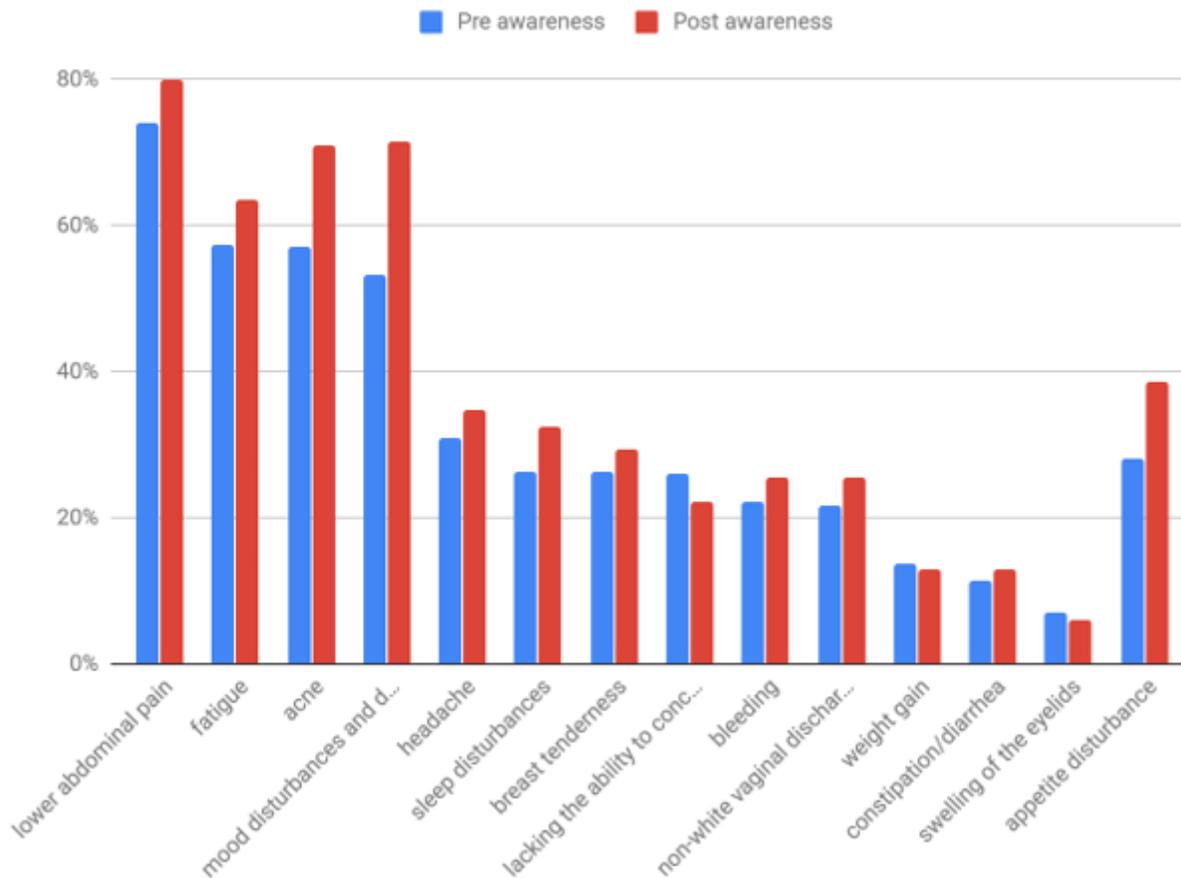
## Choice of cases that require a visit to the physician



**Figure 2**

Comparison of the answers regarding the situations requiring a visit to the physician pre/post awareness.

## PMS symptoms



**Figure 3**

Comparison of answers regarding which symptoms could occur in PMS syndrome pre/post awareness.

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Appendix2Analyseddataandresults.docx](#)
- [Appendix1.TheAnsweredQuestionnaireEnAr.pdf](#)