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Non-pharmacological methods to relieve Dysmenorrhea among Students of health colleges in Saudi Arabia

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Abstract: **Dysmenorrhea is the most common gynecological problem that affects females, defined as painful menstruation. Effects of dysmenorrhea on female behaviors, attitude and daily life are highly reported, therefore a pharmacological and non-pharmacological treatment in managing dysmenorrhea has been reported. There is insufficient information about the use of non-pharmacological methods among students of health colleges in Saudi Arabia. The purpose of this study was to investigate the use of non-pharmacological methods to relieve dysmenorrhea among students of health colleges at King Abdul-Aziz University.**

Method: A quantitative descriptive cross-sectional was conducted among 215 female students from health colleges, the study questionnaires were self-administered developed by researchers from the literature used to obtain relevant data, data analyzed by SPPS version 16.

Results: The mean age of the student was 21, 38.6% had menarche between 12-14 years, 77.7% had experience intermittent pain and 47.9% suprapubic pain, also 63.3% had moderate pain, the most common symptoms were fatigue 31.16%. In managing dysmenorrhea there were 46.5% used pharmacological drugs, 53% used herbal remedies, 52.6% always take rest, 42.8% used hot compresses, a significant association between absenteeism and severity of pain p=0.01, bad dietary habits and severity p= 0.05, use of herbal remedies and severity p=0.05.

Conclusion: The students were used a non-pharmacological method to relieve dysmenorrhea, but still there are some methods were not applicable, therefore more information is needed regarding these methods.

Recommendation: Promotion of woman health and raising the awareness of healthy lifestyle and bad dietary is recommended.

Keywords: **non-pharmacological treatment, dysmenorrhea, health colleges, students.**

1. INTRODUCTION

Dysmenorrhea refers to painful menstruation (Proctor & Farquhar, 2006). It is a common gynecological problem during the reproductive age. Some girls, prior or during menstruation suffer from painful cramping sensation in the lower abdomen and sometimes accompanied by headache, dizziness, diarrhea, bloated feeling, backache and leg pains (Ameade, Amalba, & Mohammed, 2018). Dysmenorrhea was found to have a significant effect on quality of life, leading to sickness absenteeism from classes, loss of concentration, emotional disturbances and increased rates of withdrawing from social activities (Joshi, Kural, Agrawal, Noor, & Patil, 2015). There was a study conducted among medical students at king Abdul-Aziz University, found that the prevalence of dysmenorrhea was (60.9%). The study reported related factors associated with dysmenorrhea such as students who had stress, students have a family history of dysmenorrhea, Smokers

and those who did not practice physical activity had higher prevalence of dysmenorrhea compared to others. In addition, the study findings showed only (3.2%) of students seek medical advice for dysmenorrhea (Ibrahim, et al., 2015) .

There was another study represented the reason for not seeking medical care. As it is a part of women's experience, but not take in consideration that the menstrual pain can be managed and relieved (Wong & Khoo, 2010) . In addition, another study was conducted with Female college students at King Faisal University, the study was to determine the influence of exams stresses on menstrual dysfunctions, the study reported a significant association between academic stress and menstrual dysfunctions, showed that dysmenorrhea the most common menstrual problem among students (AlJadidi, et al., 2016) .

There are pharmacological and non-pharmacological treatment in managing of dysmenorrhea. The most common of pharmacological treatment are Non-Steroidal Anti-Inflammatory drugs like Diclofenac, Ibuprofen, Naproxen and Mefenamic Acid. There was study found Non-Steroidal Anti-Inflammatory Drugs are the first choice and most effective to relieve dysmenorrhea. However, it has a lot of side effects like a headache, indigestion, and drowsiness (Carey, Till, & As-Sanie, 2017). In addition to pharmacological treatment, the common non-pharmacological reported in the literature. Hot compress (Jeung-Im, 2013), exercise (Kanwal, Masood, Awan, Baig, & Babur, 2017), yoga (Tripathi, Kumari, & Ganpat, 2018) (Rakhshaee, 2011) mentioned types of home remedies, cinnamon. (Jaafarpour, Hatefi, Najafi, Khajavikhan, & Khani, 2015), healthy diet (Bavil, Dolatian, Mahmoodi, & Baghban, 2018), aromatherapy abdominal massage (Rizk, 2013), acupuncture (Cho & Hwang, 2010).

Dysmenorrhea can also be managed effectively by non-pharmacological methods without resorting to medicines, for example, aromatherapy massage, exercise, yoga, hot compression, home remedies, acupuncture and healthy diet. It will effectively reduce the severity of menstruation pain.

Research findings showed that heat therapy applied to the abdomen using heated red bean pillows was effective in helping the recipients carry out daily activities and in diminishing their pain. (Jeung-Im, 2013) Also, the use of Complementary Alternative Medicines (CAM) in managing dysmenorrhea was high (Khademian, 2016) .

There are many types of home remedies, such as cinnamon and ginger. The previous Study was conducted found that cinnamon significantly reduced menstrual pain (Jaafarpour, Hatefi, Najafi, Khajavikhan, & Khani, 2015) .The analgesic action of ginger approved in many studies, there were significantly improve in dysmenorrhea for a female who use ginger as alternative medicines (Awed, El-saidy, & Amro, 2013).

Furthermore, the easiest effective of dysmenorrhea is exercise and yoga. It can get relaxation and comfortable feel without leaving home. One of the benefits of exercise can do eliminate needing drugs for managing the abdominal cramps. Yoga helps to decrease emotional stress, anxiety, worry, depression and negative emotion that resulting from the pain during menstruation. Additionally, it can affect well sleeping. Yoga is very important to improve performance and emotional sensitivity (Tripathi, Kumari, & Ganpat, 2018) (Rakhshaee, 2011).

In addition, diet can play a role in managing dysmenorrhea, it can help to prevent menstrual cramps. As known the Prostaglandins is responsible for uterine contraction and that lead to increasing the severity of pain. Food that increases the prostaglandin should be avoided, although food that reduces the prostaglandin should be taken, also bad diet habits can significantly increase dysmenorrhea (Bavil, Dolatian, Mahmoodi, & Baghban, 2018). Moreover, in recent years, zinc supplements have improved dysmenorrhea, menstrual bleeding and premenstrual symptoms for a woman with low zinc level (Sangestani, Khatiban, Marci, & Piva, 2015). There was a study conducted among adolescent girls in Faculty of Nursing in Egypt to determine the effect of aromatherapy massage by using peppermint and ginger oils on primary dysmenorrhea. The findings showed reduction on severity of dysmenorrhea on the students who received aromatherapy massage with peppermint or ginger oils, so the peppermint and ginger are effective in relieving and improving pain and symptoms of dysmenorrhea (Rizk, 2013) .

There was another non-pharmacological method whereas Acupuncture Therapy. It is one of the main forms of treatment in traditional Chinese medicine. "It is a peripheral nerve stimulation technique uses fine disposable steel needles inserted into the skin selected points to relieve a wide variety of pains of any origin" (Griensven, Strong, & Unruh, 2014) . It has no side effects and is commonly used in pelvic pain. There are a lot of studies has been done to assess the effectiveness of acupuncture in reliving the dysmenorrhea. (Cho & Hwang, 2010) .

Thus, from the previous studies, we found that the dysmenorrhea has a very high prevalence in medical student and its affect on social activity and the percentage of absenteeism. This student's problem it can be managed effectively by non-pharmacological methods.

However, from previous studies on dysmenorrhea, it is emphasized mainly on the prevalence, related factor, and pharmacological treatment. **Research Problem.** Insufficient evidence exists about the use non-pharmacological methods among students of health colleges in Saudi Arabia. **Research purpose.** The purpose of the study is to investigate the use of non-pharmacological methods to relieve dysmenorrhea among students of health colleges at King Abdul-Aziz University, Jeddah, Saudi Arabia. **Research Question.** It is what are non-pharmacological methods use to relieve dysmenorrhea among students of health colleges in Saudi Arabia?

2. METHODOLOGY

Design. Quantitative descriptive cross-sectional research design was used to describe study variables. Advantage: result in rich data that is collected in large amounts, surveys of a target audience can be used to study beliefs and behaviors and can gathering in-depth information from data collection. Disadvantage: cannot be used for variable correlation or determine cause and effect, no repeatable results and allow for findings to be open to interpretation. (Creswell, 2013)

Setting. The study was carried out at King Abdul-Aziz University Health Colleges.

Sampling. Female students from health colleges including medical, pharmacy, dentistry, nursing and applied medical sciences. Inclusion: female students from 2nd year to 4th year. Exclusion: students from clinical years. Sample size: target population are female students and accessible population are 2nd, 3rd and 4th year. Sampling: nonprobability, convenience. "Convenience sampling entails selecting the most conveniently available people as participants". (Denise, 2018) We use it because they are available students and its convenes for the place and the short time, our population is 2072 and our **sample size** was 215.

Data Collection Tools. The self-administered questionnaire developed by researchers from literature. It consists of 2 parts. Part 1 it covers socio-demographic characteristics including age, college and educational level and medical condition (4 items). Part 2 it covers characteristics of menstrual including menarche, duration of menses, (types, sites, and severity) of pain and the symptoms associated with pain (6 items). The affect of pain including the quality of life, the relationship between (long working hours, smoking, absenteeism, sleep, daily activity, social activity and bad dietary habits) and dysmenorrhea (8 items). The questionnaire is 4 points rating scale, ranging from strongly agree=4 to strongly disagree=0. Methods of managing dysmenorrhea including: Clinical hospital, sources of information, pharmacological drugs and which type of drugs, rest, massage with aromatherapy, herbal/traditional remedies e.g. (cinnamon, ginger, lemon and mint) and which type, diet and vitamins, hot compresses, acupuncture and exercise and types of it. (13 items). It measures frequency always=3, sometimes=2, never=1.

Ethical Approval**.** The study was approved by the Faculty of nursing in King Abdul-Aziz University ethical committee.

Validity**.** The content validity of the questionnaire has been met by panel review.

Reliability**.** Reliability of the data collection tool was calculated by the correlation coefficient.

Piloting**.** It was distributed among 5 students for understanding, practical, determining, clarity of the questionnaire and for the length and simplicity.

The Procedure of Data Collection. It administered online within 2 weeks through student network and the response was submitted back.

3. DATA ANALYSIS

Statistical Test Used. Using SPSS to calculate two variables. **Study Variables**. Dysmenorrhea and the non-pharmacological methods to relieve dysmenorrhea. **Describing Variable**. Dysmenorrhea was measured by 16 questions and non-pharmacological methods to relieve dysmenorrhea was measured by 11 questions. Also, to calculate descriptive statistics mean, standard deviation and frequencies with the percentage.

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4. RESULT

The sample of the present study was 215, response rate is 66.4%. As shown in table 1 demographic distribution of the students, regarding age the result show that mean age was 21 and standard deviation of 1.15. Among health colleges, more than one-third 38.1% were from nursing faculty. More than half of the students 61.4% were in their fourth year. Almost half 46.5% of the student's sources of information were from family and friends. Table2 display the characteristic of menstruation, regarding menarche the student's responses show almost same percentages for different answers, more than one-third 38.60% of the students had menarche at 12-14 years and more than one-third 35.81% had menarche at 11-12 years. More than half 67.9% of the students their duration of menses is from 6-8 days. In table3 the distribution of the student's response about the characteristic of pain, regarding the type of pain more than three fourth 77.7% have an intermittent pain. More than one-third 47.9% of the students experience suprapubic pain. More than half of the students 63.3% have moderate pain. About symptoms associated with pain more than on fourth 31.16% of the students experience fatigue while, 26.05% have nausea. Table4 display the distribution and percentage of the student's agreement about the factors that affect dysmenorrhea, regarding the affect of dysmenorrhea on the quality of life the majority of the students 89.9% strongly agree and agree that dysmenorrhea affect quality of life. More than half of the students 59.1% agree that there is a relationship between long working hours and dysmenorrhea. About the relationship between smoking and dysmenorrhea the student's responses mixed between agree and disagree with almost same percentages, more than one-third 43.7% disagree that there is a relationship between them and more than one-third 42.8% agree. Regarding the relationship between absenteeism and dysmenorrhea more than one third 43.7% of the student's responses agree absenteeism linked to dysmenorrhea. The majority of the student's 91.2% strongly agree and agree that the dysmenorrhea affect the sleep pattern. In combination, more than three fourth 86.5% agree that dysmenorrhea affect your social activity with people. More than half 48.3% of the students agree that bad diet affect dysmenorrhea. About the affect of menstruation on the daily activity more than three fourth 86% of the student's responses agree. Table5 shows the student's responses about the method they use to relieve dysmenorrhea, the majority of the students 82.8% do not go to the clinic for dysmenorrhea. Regarding the use of drugs more than one third 46.5% sometimes use pharmacological method to relieve dysmenorrhea. More than half 52.6% of the students always take rest to relive dysmenorrhea. More than half 64.2% of the students never use massage with aromatherapy to relieve pain. Regarding the use of herbal remedies more than half 53% of the students sometimes use traditional way to manage dysmenorrhea. More than half 53% of the students sometimes do exercise to relieve pain. The majority of the students 96.7% never used acupuncture to relive pain. More than one-third 42.8% of the students uses hot compresses to manage dysmenorrhea. Table 6 display the distribution regarding types of exercise, the result shows that almost three fourth 73.49% do not do exercise to relieve pain while, more than one fourth 26.51% use exercise such as walking 9.3% and yoga 8.8%. Table 7 shows the distribution regarding types of drugs used to relieve dysmenorrhea, more than one-third 44.65% of the students use Non-Steroidal Anti-Inflammatory Drugs to relive dysmenorrhea and almost one-fourth 21.40% of the students use other type of drugs such as Paracetamol 9.4% and Adol 1.4%. Table 8 shows the distribution regarding the types of herb remedies used to treat dysmenorrhea, the result of the student's responses shows almost same percentage between ginger 26.5% and cinnamon 26.05%.

Table 1: Demographic characteristic	Study sample =215	
	Frequency	Percent %
Age:		
19-20	45	20.9%
21-22	148	68.8%
23-24	19	8.8%
25-26	1	0.47%
Mean 21.3	0	0
Standard deviation 1.15	1	
Health colleges:		
Nursing	82	38.1
Medicine	14	6.5
Pharmacy	52	24.2
Dentistry	35	16.3
Medical applied science	32	14.9

Educational level:		
Second year	23	10.7
Third year	60	27.9
Fourth year	132	61.4
Do you have any history of medical condition:		
Yes	157	73
No	58	27
What are the sources of information about dysmenorrhea:		
Family and friends	100	46.5
Books	33	15.3
Doctors	41	19.1
Nurses	9	4.2
TV	2	0.9
Magazines	1	0.5
Others	29	13.5

Table 2: Mensuration Characteristics	N	%
Menarche		
≤ 10 years	35	16.3
11-12 years	76	35.3
12-14 years	83	38.60
≥ 15 years	21	9.8
Duration of menses		
≤ 3 days	3	1.4
3-5 days	62	28.8
6-8 days	146	67.9
≥ 9 days	4	1.9
Table 3: Pain Characteristics	N	%
1-Type of pain		
○ Continuous pain	48	22.3
○ Intermittent pain	167	77.7
2-Site of pain		
○ Suprapubic pain	103	47.9
○ Pain or cramps in the lower back	63	29.3
○ Pain or cramps in the leg or upper thigh	17	7.9
○ Pain or cramps in the abdomen region	32	14.9
3-Severity of pain		
○ Mild	33	15.3
○ Moderate	136	63.3
○ Severe	46	21.4
4- symptoms associated with pain		
○ Headache	42	19.53
○ Nausea	56	26.05
○ Dizziness	14	6.51
○ Fatigue	67	31.16
○ Breast tenderness	17	7.91
○ Mood change	15	6.98
○ Other	4	1.86

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Table 4: Factors that affect dysmenorrhea	Agreement							
	Strongly agree		Agree		Disagree		Strongly disagree	
	N	%	N	%	N	%	N	%
Dysmenorrhea affect quality of life	71	33.1	122	56.7	19	8.8	3	1.4
There is a relationship between long working hours and dysmenorrhea	40	18.6	127	59.1	45	20.9	3	1.4
There is a relationship between smoking and dysmenorrhea	25	11.6	92	42.8	94	43.7	4	1.9
There is a relationship between absenteeism and dysmenorrhea	65	30.2	94	43.7	41	19.1	15	7.0
Dysmenorrhea affect your sleep pattern	107	49.8	89	41.4	19	8.8	0	0
Dysmenorrhea affect your social activity with people	86	40.0	100	46.5	24	11.2	5	2.3
Bad dietary habits affect dysmenorrhea	81	37.7	104	48.3	30	14	0	0
Menstruation affect your daily activity	69	32	116	54	30	14	0	0

Table 5: Management method of dysmenorrhea	The students responses					
	Always		Sometimes		Never	
	N	%	N	%	N	%
Do you go to the clinic for dysmenorrhea	1	0.5	36	16.7	178	82.8
Do you use pharmacological drugs to relieve pain	55	25.6	100	46.5	60	27.9
Do you take rest for dysmenorrhea to relieve pain	113	52.6	90	41.8	12	5.6
Do you use massage with aromatherapy to relieve pain	17	7.9	60	27.9	138	64.2
Do you use herbal remedies to relieve pain	49	22.8	114	53	52	24.2
Do you do exercise to relieve pain	49	22.8	114	53	52	24.2
Do use acupuncture therapy to relieve pain	1	0.7	6	2.6	208	96.7
Do you use hot compresses to relieve pain	83	38.6	92	42.8	40	18.6

Table 6: What type of exercise do you do to relive pain	N	%
Not applicable	158	73.49
Other	57	26.51

Table 7: What type of drugs do you use to relieve pain	N	%
NSAIDs(ex: diclofenac, ibuprofen, Aproxen, etc)	96	44.65
Hyoscine(buscpan)	18	8.37
Not applicable	55	25.58
Other	46	21.40

Table 8: What are the traditional herbal used to relieve pain	N	%
Ginger	57	26.5
Cinnamon	56	26.05
Mint	48	22.33
Lemon	5	2.33
Honey	4	1.86
Not applicable	39	18.14
Other	5	2.79

Comparison between severity of pain and absenteeism.

Table 9: Correlations

		Severity of pain	Absenteeism
Severity of pain	Pearson Correlation	1	-.258**
	Sig. (2-tailed)		.000
	N	215	215
Absenteeism	Pearson Correlation	-.258**	1
	Sig. (2-tailed)	.000	
	N	215	215
Note **. Correlation between absenteeism and severity of pain is significant at the 0.01 level (2-tailed).			

Comparison between severity of pain and bad dietary habits.

Table 10: Correlations

		Severity of pain	Bad dietary habits
Severity	Pearson Correlation	1	-.170*
	Sig. (2-tailed)		.013
	N	215	215
Bad dietary habits	Pearson Correlation	-.170*	1
	Sig. (2-tailed)	.013	
	N	215	215
Note *. Correlation between severity of pain and bad dietary habits is significant at the 0.05 level (2-tailed).			

Comparison between severity of pain and the use of herbal remedy.

Table 11: Correlations

		Severity of pain	The use of herbal remedy to relive pain
Severity of pain	Pearson Correlation	1	-.160*
	Sig. (2-tailed)		.019
	N	215	215
The use of herbal remedy to relive pain	Pearson Correlation	-.160*	1
	Sig. (2-tailed)	.019	
	N	215	215
Note *. Correlation between the use of herbal remedy to relive pain and severity of pain is significant at the 0.05 level (2-tailed).			

5. DISCUSSION

Dysmenorrhea is the most prevalence gynecological problems that affect females in reproductive age. The aim of this study was to investigate the use of non-pharmacological methods to relieve dysmenorrhea among students of health colleges at King Abdul-Aziz University. The demographic data of this study showed that the students were mostly between 21 to 22 years old, and the highest response rate was from the fourth-year students, and the majority of the students were from nursing college. In this study, almost half of the students reported that their main source of information about dysmenorrhea were from their families and friends.

In similarity to a study conducted by (Parisius, Schröer, Berger, Hermann, & Joos, 2014) study who reported that that the majority of the participants were primarily get their information from their families. In comparison to another study of (Al-Jefout, et al., 2015) who reported that a 70% of the students were informed by their mothers about the menstruation pain.

According to this study, the average age of menarche was between 12and 14 years old. This result is in agreement with other studies that revealed the age of menarche was approximately 13 and 14 years old (Al-Jefout, et al., 2015) (Karout, Hawai, & Altuwaijri, 2012).

The present study showed that more than half of the students described the level of pain as moderate, less than one-third of them describe it as sever. A previous Study mentioned that a 20.2% of the students reported dysmenorrhea as moderate, more than half of them described it as severed (Karout, Hawai, & Altuwaijri, 2012).

Another study was done in India reported that almost half of their students determined the intensity of the pain as moderate, and less than one fourth as severe (Omidvar, Bakouei, Amiri, & Begum, 2015). This variation could be due to several factors, like the differences in tolerance of pain, the pain scale assessment, lifestyle, physical and psychological stress, and associated medical condition.

The most frequently associated symptoms with dysmenorrhea in this study were fatigue, nausea, and headache, moreover, almost half of the students suffered from suprapubic pain. This is in similar to another study which concluded that their common associated symptoms were fatigue with a suprapubic pain (Helwa, Mitaeb, Al-Hamshri, & Sweileh, 2018). Also tiredness was the frequent symptoms in (Omidvar, Bakouei, Amiri, & Begum, 2015) study. Moreover, other studies showed that the majority of the students had experience back pain or abdominal pain and irritation this were the major symptoms with dysmenorrhea (Hailemeskel, Demissie, & Assefa, 2016) (Anapur & Kollur, 2015). This difference in finding could be attributed to the physical activity, lack of rest and individual diversity.

Regarding the effects of dysmenorrhea, this study found that more than three fourth of the students agreed about the bad effects of dysmenorrhea in their quality of life, this result coincides with (Joshi, Kural, Agrawal, Noor, & Patil, 2015) study, which showed that there were more than half of the girls had poor quality of life because of dysmenorrhea and that leads to loss of their concentration and decrease in social relationship.

In addition, more than half of the students in this study agreed about the relationship of dysmenorrhea, and absenteeism in agreement with (Joshi, Kural, Agrawal, Noor, & Patil, 2015) who reported that girls suffered from dysmenorrhea are more likely to be absent from college, and 28,3% of the students remain absent from their class (Ibrahim, et al.2015). Moreover, this study showed that there was a statistically significant relation between the severity of pain and absenteeism ($p=0.01$). Also showed more than one-third of the students disagreed in relationship of smoking and dysmenorrhea. This is in contrast with (Wong & Khoo, 2010) who reported that the prevalence of dysmenorrhea was 91.3% among female smokers, and the prevalence of dysmenorrhea was higher among smokers compared to non-smokers in (Ibrahim, et al., 2015) This finding could be explained by lack of knowledge, traditions, insufficient information about the side effects of smoking.

More than half of the students in this study agreed about the association between the bad dietary habits and dysmenorrhea, almost one-third of them were strongly agreed. This is confirmed with another study showed that dysmenorrhea was higher among students who had a higher intake of tea and Coca-Cola or Pepsi (Hailemeskel, Demissie, & Assefa, 2016). Other researchers reported that skipping food and dieting to lose weight have a positive association with increase dysmenorrhea (Helwa, Mitaeb, Al-Hamshri, & Sweileh, 2018) (Rupa, Veena, Subitha, Hemanth, & Bupathy, 2013). The results showed a statistically significant with positive relationship between the effects of bad dietary habits and severity of

pain (p= 0.05). The finding reflects Agreements of bad dietary habits probably due to insufficient intake of vitamins and minerals, unhealthy lifestyle, inadequate meals, and snacks.

The affect of dysmenorrhea on daily activity were reported by more than three- fourth of the students, and the majority of the students agreed in the affect of dysmenorrhea on sleep pattern. In comparison with a study in nursing students presented that a 74.3% of them were affected in their daily activity, and almost half of them experience sleep distributes, which is in agreement with our results (Seven, Güvenç, Akyüz, & Eski, 2014). It was also noted from this study a rarely students reported that they always going to the hospital when they having dysmenorrhea, although the majority of the participants they had never went to the clinic. As reported in (Omidvar, Bakouei, Amiri, & Begum, 2015) that only 14.2% had to seek medical advises, also in (Seven, Güvenç, Akyüz, & Eski, 2014) 24.1% were had a physician consultation and 75.9% they do not. The reasons of not seeking medical help could be due to embarrassment and shame, culture barriers, the socioeconomic status, also maybe they managed their pain with non-pharmacological methods.

As reported in the data set, that less than half of the students sometimes used pharmacological drugs to manage their pain, and less than one-third of the students they had never use it. Regarding the types of the drugs that used by the students in this study, it appeared that almost less than half of the students using Non-Steroidal Anti-Inflammatory Drugs to relieve dysmenorrhea. Less percentage 29.3% was reported in using Non-Steroidal Anti-Inflammatory drugs by (Feng & Wang, 2018) study. It could be due to the difference in tolerating the pain, drugs had a faster action more than the other methods, drugs are easily to access.

Massage with aromatherapy is one of the non-pharmacological methods in relieving dysmenorrhea, as this study showed that almost two third of the students they had never used massage with aromatherapy to relieve their pain. Which is in disagreement with (Marzouk, El-Nemer, & Baraka, 2013) study who revealed the effectiveness of aromatherapy massage on a group of nursing students who were suffering from dysmenorrhea. Also in disagreement with another study of (Bakhtshirin, Abedi, YusefiZoj, & Razmjooee, 2015) who demonstrated that lavender oil massage decreases dysmenorrhea. Although (Rizk, 2013) reported that aromatherapy massage with peppermint or ginger oils reduced the severity of dysmenorrhea which in dissimilarly with our study. There is no statistically significant difference regarding the relationship between the site of pain and the use of aromatherapy massage (P=0.951). That is may be because of lack of knowledge about aromatherapy massage and its benefits, unfamiliar in Saudi traditions, touch therapy is not always appropriate in our culture.

The present study showed that hot compresses used by more than one-third of the students to managed dysmenorrhea, in agreement with (Hoseini, Gharahtapeh, & Jahazi, 2015) who reported that vibration-heat relieved the pain from 65% of their participants. Also, in similar to another study showed that use of heated red bean pillows on the abdomen is effective in assisting the activity of daily living and diminishing pain severity (Jeung-Im, 2013). There is no statistically significant difference regarding the relationship between the site of pain and the use of hot compresses (P=0.105).

In addition, either exercise is one of the methods to relieve dysmenorrhea, this study showed that more than half of the students they had never exercised to relieve dysmenorrhea, which is in disagreement with (Dehnavi, Jafarnejad, & Kamali, 2018) mentioned that 75% of the participants have performed an exercise to managed dysmenorrhea. This variation could be due to the high percentage of the associated symptoms of dysmenorrhea fatigue and nausea and headaches, also may be due to the limited movement and uncomfortable feel of pain.

As present in the results, the acupuncture was a rarely used by the students. However, almost all of the students they never had been used this method to relieve their pain. This is in contrast with (Cho & Hwang, 2010) which demonstrate the effects of acupuncture in reduction and improvement dysmenorrhea pain. This variation may be due to the huge difference of the cultures and the insufficient knowledge about the benefit of acupuncture.

Home remedies is another method to managed dysmenorrhea, more than half of the students in this study reported that they sometimes used it, this result is supported by (Parisius, Schröer, Berger, Hermann, & Joos, 2014) who reported that more than one-third 42% of the participants use home remedies. Also (Jaafarpour, Hatefi, Najafi, Khajavikhan, & Khani, 2015) reported that cinnamon was effective in reducing dysmenorrhea, moreover (Awed, El-saidy, & Amro, 2013) showed that ginger was effective in reducing menstrual pain, this is confirmed with the findings of this study because the ginger and cinnamon were the most common types of home remedies. There was a statistically significant relationship in this study between the use of herbal remedies and severity of pain (p= 0.05). That is may be because its benefits are well

known in Saudi culture, herbal have fewer sides effects. To summarize the important results in the study, we found that there was a statistically significant association between the affect of dysmenorrhea on absenteeism and the severity of pain (p=0.01), affect of bad dietary habits and increase the severity of pain (p=0.05), and one of the non-pharmacological method which is the herbal remedies and the severity of pain (p=0.05). From the finding of this study, it is recommended that to increase women's health awareness about seeking medical consultation continuously when it is necessary. Raising the awareness about their bad dietary habits. In addition, female students are encouraged to practice a good lifestyle such as practice of exercise, and rest. Teach the students about different measures of coping to pain. Furthermore, new knowledge and updated information about the non-pharmacological methods to relieve dysmenorrhea should be added to the nursing education curriculum because when nurses and nursing students treat their own pain that will affect in treating the patient's pain. In the area of research, it is recommended to study the effectiveness of non-pharmacological methods, or the mechanism of selected intervention. Also, the study can be conducted with students from non-health colleges, and secondary schools.

LIMITATION

The study limitations were the using of online survey which might affect reaching the right population, however,the data collectors ensure that the survey link distributed on the health college students at KAU students , the short time of the survey availability to respond the online survey which may affect on the respond rate (66%).

6. CONCLUSION

Dysmenorrhea refers to severe pain during menstruation. The aim of this study was to investigate the use of non-pharmacological methods to relieve dysmenorrhea among students. In this study, it revealed that students have been used several non-pharmacological methods to provide comfort and control pain of dysmenorrhea such as hot compresses because of their ability to impact on pain.

IMPLICATION

The implication for the future research, increase awareness about taking traditional herbal to relieve the dysmenorrhea. In addition, about how to be sure if the herbal traditional is an appropriate for use or it is unusable. Increase awareness of different life style (exercise, good habits, aromatherapy massage and taking traditional herbal). Besides, positive health practice like to avoid smoking and bad dietary habits. Teach the staff about health education and other coping mechanism for the students or non-health students to relieve dysmenorrhea. In addition, more study needed in the future research about acupuncture and its benefits to managing dysmenorrhea.

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