

T.R.N.C



**NEAR EAST UNIVERSITY POST GRADUATE EDUCATION  
INSTITUTE**

**DYSMENORRHEA AND RELATED PROBLEMS AMONG  
AFRICAN FEMALE STUDENTS IN NEAR EAST UNIVERSITY**

MUINAT ABOSEDE TAIWO

MASTER'S THESIS

NICOSIA

2021

ii

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**NEAR EAST UNIVERSITY POST GRADUATE EDUCATION INSTITUTE  
DEPARTMENT OF BIRTH AND GYNECOLOGY NURSING**

MASTER'S DEGREE

SUPERVISOR

PROF. DR. GULSEN VURAL

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## THESIS APPROVAL CERTIFICATE

The thesis study of Nursing Department graduate student Muinat Abosedo Taiwo with student number 20183291 titled **DYSMENORRHEA AND RELATED PROBLEMS AMONG AFRICAN FEMALE STUDENTS IN NEAR UNIVERSITY** has been approved with unanimity / majority of votes by the jury and has been accepted as a Master of Nursing Thesis.

**Thesis Defense Date:16/06/2021**

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**Supervisor:** Assist. Prof. Dr. Gulsen Vural

**Year:** 2021

Thereby declare that this thesis study is my own study, I had no unethical behavior in all stages from planning of the thesis until writing thereof. I obtained all the information of this thesis in academic and ethical rules, I provided reference to all of the information and comments which could not be obtained by this thesis study and took these references into the reference list and had no behavior of breaching patent rights and copyright infringement during the study and writing of this thesis

Date: 16/06/2021

Sign:



## **ACKNOWLEDGMENT**

First and foremost, my praises go to Almighty GOD for giving me the strength, good health, peace of mind throughout my research work to complete the research successfully. I would like to express my deepest appreciation towards my Spiritual Father the person of Prophet Dr. KEHINDE SOMOYE and his family for his spiritual support, prayers and love throughout the completion of the thesis. A special thanks my Parents Engr. and Mrs TAIWO ODUGUWA for their prayers and financial support, and for releasing me to study Abroad. A big thanks to my beloved and supportive friend, teacher and mentor, Prof. BABATOPE OGUNJESA who is always by my side both emotionally and spiritually, he had truly helped me a lot in making this study successful and to my only Sister BINTA ADENUGA, thank you for providing me with unfailing support and continuous encouragement throughout my master's program and throughout the process of writing my thesis.

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## **DEDICATION**

I dedicate my research work to GOD THE FATHER, GOD THE SON and GOD THE HOLY SPIRIT.

## ABSTRACT

**Objective:** The aim of this study is to assess prevalence, related problems and coping ways of students with dysmenorrhea among African female students in Tourism and Hotel management faculty and faculty of Economics and administrative sciences, in department of Tourism and international Relation department.

**Methods:** A cross-sectional survey methodology was adopted by developing an online questionnaire targeted at female African students in the Near East University. A total of 310 respondents took part in the study with a dysmenorrhea prevalence of 96.5%. The sample size (298) was determined using Slovin's formula.

**Results:** The prevalence of dysmenorrhea is very high among female students and their mean menarche age is approximately 13 years. There is still considerable number of students who prefers to keep mute on sharing dysmenorrhea concerns with others attributing it to be a normal phenomenon for female while others refuse to talk about it due to shame and stigmatization. Dysmenorrhea effects students school attendance, sleep, learning new things and social life( $p < 0.05$ ).

**Conclusion:** The study found that sleep, academic performance, social life, school attendance among other variables are negatively impacted by severe dysmenorrhea. Thus, it was recommended that health sensitizations, campaigns and counseling services should be made available to cater for female students in the school especially on sexual health issues.

**Keywords:** Dysmenorrhea, Female students, academic performance, school attendance.

## ÖZ

**Amaç:** Bu çalışmanın amacı, Turizm ve Otel İşletmeciliği Fakültesi ile İktisadi ve İdari Bilimler Fakültesi Turizm ve Uluslararası İlişkiler Anabilim Dalı'ndaki Afrikalı kız öğrenciler arasında dismenoreli öğrencilerin yaygınlığını, buna bağlı sorunları ve başa çıkma yollarını değerlendirmektir.

**Yöntemler:** Yakın Doğu Üniversitesi'ndeki Afrikalı kız öğrencilere yönelik çevrimiçi bir anket geliştirilerek, kesitsel bir anket metodolojisi benimsenmiştir. Dismenore prevalansı %96.5 olan toplam 310 katılımcı çalışmaya katıldı. Örnek büyüklüğü (298), Slovin formülü kullanılarak belirlendi.

**Bulgular:** Kız öğrenciler arasında dismenore prevalansı çok yüksektir ve ortalama menarş yaşları yaklaşık 13 yıldır. Hala dismenore endişelerini başkalarıyla paylaşmak konusunda sessiz kalmayı tercih eden ve bunu kadınlar için normal bir fenomen olarak nitelendiren, diğerleri ise utanç ve damgalama nedeniyle bunun hakkında konuşmayı reddeden önemli sayıda öğrenci var. Dismenore öğrencinin okula devamını, uykusunu, yeni şeyler öğrenmesini ve sosyal yaşamını etkiler( $p<0.05$ ).

**Sonuç:** Çalışma, diğer değişkenler arasında uyku, akademik performans, sosyal yaşam, okula devam etmenin şiddetli dismenoreden olumsuz etkilendiğini buldu. Bu nedenle,



zellikle cinsel saęlık konularında okuldaki kız ęrencilere ynelik saęlık duyarlılıkları, kampanyalar ve danıřmanlık hizmetlerinin sunulması nerilmiřtir.

Anahtar Kelimeler: Dismenore, Kız ęrenciler, akademik performans, okula devam.

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## **1.0 INTRODUCTION**

The formative development in the female gender especially towards their teenage years set in process unique hormonal changes that triggers their evolution into a matured sexually being characterized with unique psychological, physical and cognitive transformation (Bhartiya,2013). One of these peculiar changes is the menstruation. In most culture especially, in the global south, the menarche of the human female is seen as a milestone phase that is widely and culturally celebrated for young girls in some culture as mark of womanhood while other culture considered such occurrence to be shrouded in secrecy (Bhartiya,2013; Beausang and Razor, 2000). One of the most common phenomenon associated with the female gender during their monthly cycle is painful menstruation (Fernandez,2019). Some women experience menstruation with pain which is called dysmenorrhea (Fernandez,2019). Menstrual disorder is prevalent among teen girls (Harlow and Ephross,1995). Most women experience mid lower abdominal pain and surge of discomfort suffer prior and during their periods. Dysmenorrhea is often inundated with the traits of pelvic pain and crampiness at the start of the menstrual flow and extending to about 1-3 days. (Unsal et al 2010) stated that 2–4 days prior the menstrual flow, the prostaglandins secretion flows into the uterine muscle where they become a reservoir to act as smooth muscle contractors that streamline the excretion of the endometrium layers. A number of women during this menstrual cycle have to endure this painful process

especially the burning sensation brought about by the pain in the abdominal part of the body. Some symptoms that also typified the onset of dysmenorrhea could be headache, sensation of vomiting and nauseous feeling, dizziness, backache and leg pains, throbbing or cramping pain in the lower abdomen that could be severe, dull, constant pain throughout, pain that flows to the thigh and lower back (Mathias et al., 1996).

The pain from menstruation results from the excess secretion of prostaglandins in the endometrium at the event of the ovulatory cycle process which then leads to myometrium contraction, vasoconstriction as well as sensitization of nerve ending (Evans et al.,2018). Symptoms of dysmenorrhea often begin at the time of menstruation and lasts within three days. Words such as menstrual cramps or painful periods are frequently used to describe these symptoms. A recent study done on dysmenorrhea in Japan found major symptoms are often under diagnosed and undertreated (In-Jung et al.,2014).

According to (In-Jung et al 2014), dysmenorrhea is described as a severe menstrual pain usually negatively impact daily activities during the menstrual period. A study on Primary dysmenorrhea which was done in Ethiopia shows the negative effect of Primary dysmenorrhea on total number of 440 female university students participated in this study. Among students with Primary Dymenorrhea, 88.3% reported that Primary Dymenorrhea affected student academics. Likewise, pertinent problems reported include school absenteeism, loss of class concentration, loss of class participation, limited sport participation, limitation in going out with friends, and inability to do homework. (Solomon et al., 2016).

Despite the fact that dysmenorrhea is not deadly, nevertheless, monthly recurrence of severe symptoms constitute a significant morbidity according to an Ethiopian study (Teshager et al., 2018). (Sharefah et al., 2019) in their study also reported that dysmenorrhea negatively impacts the quality of life of women and their relationships with family members and friends, school or work performance in addition to social and recreational activities. (Gumanga and Kwame 2012) opined that about 10–15% of women experience monthly menstrual pain severe sufficient to inhibit day to day functions in homes, schools or place of work.

(Amita, 2008) in a study conducted in India stated that dysmenorrhea negatively influences the physical, social and psychological well-being of adolescents girls as the study also reported that poor student attendance in school and skipping of classes is a frequent occurrence attributable to dysmenorrhea. A Nigerian study on dysmenorrhea also attributed school absenteeism to be prevalent among those that reported severe, mild, and moderate menstrual pain. Their study also linked dysmenorrhea with poor class concentration, low interest in social activities inclusion and sporting activities(Damilola et al.,2017.In a study, different wellbeing outcomes relative to the experience of dysmenorrhea or none dysmenorrhea experience was reported among women as pertain to pain and discomfort as (Iacovides et al., 2014) reported that there is an evidence of decreased quality of life among women experience dysmenorrhea in comparison to those not experiencing this condition. Furthermore, lower quality of life, poor school attendance, impeded social attraction and poorly academic performance were found to be associated with dysmenorrhea (Al-Jefout et al., 2015). Depression, poor interpersonal relationship and low record of school attendance was found correlated to the incidence of dysmenorrhea and more than half of the study



practiced self-medication to alleviate the menstrual cramp in an Ethiopian study (Teshager et al.,2018).

Studies have shown that school girls have limited information on their dysmenorrhea problem. In a study, (Helen, 2010) on 1000 adolescent school girls at Chennai, it was revealed that majority of the adolescent, especially during the pre-test period of the study had limited knowledge of dysmenorrhea as well as shows low positive attitude on practices that promotes their health. The post-test assessment indicated an increased knowledge and awareness of dysmenorrhea as well as increased in practices that improve their health condition. (Helen,2013) study on 1000 adolescent school girls at Chennai, revealed that majority of the adolescent, especially during the pre-test period of the study had limited knowledge of dysmenorrhea as well as shows low positive attitude on practices that promotes their health. The post-test assessment indicated an increased knowledge, coping and awareness of dysmenorrhea as well as increased in practices that improve their health condition. Greater number of individuals with dysmenorrhea challenges overlook the resulting pains while among those that took action, self-medication practices were engaged and other trado-practices like herbal remedy, physical exercises and hot water method were some of the strategies adopted

Girls are using different types of methods for coping with dysmenorrhea. A study done on dysmenorrhea shows that 79.3% of the students used Complementary Alternative Methods to manage dysmenorrhea. In this study endurance and relaxation; a form of mind-body therapy accounted for 32% of remedial strategy to lessen menstrual cramp. About 31% used the whole and alternative medicine such as the hot water therapy, 15% used biological-based medicine such as herbal products, and 22%

used the manipulative and body-based systems such as exercises (Samba et al., 2019). In (Karthiga, et al., 2011) study, 52.2% adolescent were diagnosed with dysmenorrhea and 40.43% were said to have clots during their period. These girls all reported to experience pains during their menstrual cycles and manages the pains using pain relief drugs. Some relief their pains by doing some physical exercise, taking simple analgesic which made them to feel depress and with negative expectations of their period. Seeking help for dysmenorrhea is very important, studies have shown that students have dysmenorrhea problem seek professional help. For instance, the study conducted by (Wijesiri and Suresh 2012) on 200 girls within the age of 12 years at school revealed that, about 84% of the subject had dysmenorrhea and these population, about 66% uses Paracetamol to relief pain during their period. In the study also, 95% revealed that they relief their pains and discomfort during this period with bathing. The researcher concluded that dysmenorrhea is common among young girls and it affects their mental health during their period.

A study by (Mariam Kabirian et al., 2011) on the severity of dysmenorrhoea and self-care behaviours among adolescent girls revealed that most of the girls with menstrual pain are not knowledgeable of dysmenorrhoea; and once taught, the severity of their pains reduced because of the knowledge on how to manage it. The study concluded that the better the knowledge of dysmenorrhoea, the lesser the pain and stress during period. In a study of (Monawara et al., 2016), a number of reasons were listed as why females experiencing dysmenorrhea are unperturbed which ranges from being a natural phenomenon and resorting to self-treatment management. Other reasons also given included feeling of shame and embarrassment as well as less motivated to seek healthcare support.

A study was conducted to determine the effect of evidence-based education on dysmenorrheic girl's self-care behaviors and the severity of primary dysmenorrhea at dormitories of Ferdowsi University in Mashhad, Iran. In this study evaluation the effect of evidence-based education on dysmenorrheic girl's self-care behaviours and the severity of primary dysmenorrhea was determined (Mariam et al., 2011). The study concluded that the better the knowledge of dysmenorrhoea, the lesser the pain and stress during period.

Offering of routine screening for dysmenorrhea cases among females, discussion forums as well as provision of seminars about dysmenorrhea and available relief options are some important roles Nurses can play. The objectivity of this should be targeted to aid women so as to have sufficient functionalities in their day activities under a lesser pain and to reduce the productivity loss commonly associated with dysmenorrhea (Monawara et al., 2016).

## **1.2 AIM OF THE STUDY**

The aim of this study is to assess prevalence, problems and coping ways of students with dysmenorrhea among African female students in Tourism faculty, faculty of Economics and administrative sciences in International Relation department and Tourism and Hotel management department in Near East University. The students in these aforementioned faculties and department in Near East University are the respondents for the study.

## **1.3 RESEARCH QUESTIONS**

1. What is the prevalence of dysmenorrhea in students?
2. What is the severity of pain in students?

3. How do female students cope with dysmenorrhea?
4. What type of problems are related to the cases of reported dysmenorrhea.
5. What are the lived problems of students with dysmenorrhea?
6. How students cope with dysmenorrhea problem?

### **Statement of the Problem**

Dysmenorrhea problem does cause lack of concentration among workers in organizations and making students skip classes. Many females going to school having the problem of menstrual cramp are quite known to record a drop in school attendance during this period while others attending school activities become less active to engage in academic engagement due to loss of concentration. This have also drive student poor academic performance and lesser productivity among female young workers. In spite of the dysmenorrhea has been an important problem for woman it has not been handled by the nurses enough. Woman who has this problem think that it is a normal process of menstrual cycles. (Proctor and Farquhar, 2006).

Apart from the menstrual pain experienced by most female, the stereotypes associated with menstruation have made this natural occurrence difficult for most adolescent to discuss about their painful menstrual events with others especially loved ones. This concealing attitude equally affect their willingness in seeking medical help as most of m will resort to self-medications and unorthodox treatment regiments which could at the end become detrimental to their general health and wellbeing. For that reason, this problem should be handled by nurses, education and counselling services of nurses will be useful for this group (Harel, 2008).

## **2.0 GENERAL INFORMATION**

### **2.1 Definition of Term (Dysmenorrhoea)**

The word dysmenorrhea, according to (Motta, et al., 2000), has its origin from the Greek language which means difficult menstrual flow; it is one of the most frequent gynaecological affections with higher or lower intensity during menstrual cycle. (Iacovides et al., 2015) define dysmenorrhoea as painful menstrual cramps in the uterine experience during menstrual period by most women. It is a common gynaecological condition which is found among women who have reached the age of reproduction.

(Gagua et al., 2013) study which was carried out among adolescent girls to determine their menstrual pattern, depression and anxiety level during menstrual cycle indicated that about 15.9% of girls with primary dysmenorrhoea experience moderate depression during their period when compare with girls with control subject where only 6.2% showing depression during their cycle. The same study revealed that 1.8% of girls with dysmenorrhoea experience severe depression during their period where 1.0% was shown among the control subjects. Again, about 44% of the study population with primary dysmenorrhoea indicated high anxiety during their period as against the 9.9% of the control group.

### **2.2 Etiology of Dysmenorrhea**

According to (Ju et al., 2013) dysmenorrhea is associated with hereditary as most young women with dysmenorrhoea had a member of their families from the older generation who had also experience same problem. (Dawood, 1987) associated the

pathogenesis of primary dysmenorrhea to overproduction of uterine prostaglandins as a result of the disintegrating of cells during sloughing. This results in myometrial hypercontractility, which causes ischemia and hypoxia of the uterine muscle, and, ultimately, pain (Gerzson et al., 2014; Dawood, 1987).

Secondary dysmenorrhea is menstrual pain associated with underlying pathology, and its onset may be years after menarche. Causative agents could stemmed out of disorders like endometriosis, pelvic inflammatory disease, intra-uterine devices, irregular cycles or infertility problems, ovarian cysts, adenomyosis, uterine myomas or polyps, intra-uterine adhesions, or cervical stenosis (Unsal A. et al.,2010).

### **2.3 Risk Factors for Dysmenorrhea**

It is common among women of reproductive age and have several risks factors selected across different literatures to include: heavier menstrual flow, smoking, earlier age at menarche, family history of dysmenorrhea. (Helwa et al., 2018) and (Habibi et al 2015) identified the following as risks factors for dysmenorrhoea:

- Low body mass index
- Early menarche
- Prolonged menstrual flow for seven days or longer
- Pelvic infections
- Genetic or family history
- Nulliparity
- Positive family history.
- Obesity
- Premenstrual somatic complaints

- A history of sexual assault
- Alcohol consumption and
- Smoking.

#### **2.4 Physiology and Type of Dysmenorrhea**

Physiology is the study of the functions of the human body. Women, generally undergo several bodily and emotional changes prior and during their menstrual cycle. At this stage, the body's reproductive system undergoes changes and developed rapidly as a result of change in hormones which follows an average of 28-day pattern with shifts in hormone levels, dysmenorrhea, and breast pain (Iacovides et al., 2015).

Dysmenorrhoea, according to (Iacovides et al., 2015), is painful menstrual cramps in the uterine experience during menstrual period by most women. It is a common gynaecological condition which is found among women who have reached the age of reproduction. (Barcikowska et al., 2020) pointed out that dysmenorrhea exists in two classes: primary or secondary dysmenorrhea.

The primary dysmenorrhea makes the adolescent to experience pains that is not related to identifiable pelvic pathology, and there is spasmodic cramping in the lower abdomen, just before and/or during menstruation, in the absence of any discernible macroscopic pelvic pathology (Iacovides et al., 2015). Primary dysmenorrhea is common with female within the age range of 20 and 24 years old, but its occurrence after passing this milestone. (Iacovides et al., 2015).

Studies had revealed that primary dysmenorrhea takes place in adolescence, at or shortly after (6–24 months) menarche once ovulatory cycles are established (Iacovides *et al.*, 2015; Dawood, 2006); And primary dysmenorrheic pain which

could last between 8 to 72 hours is said to be follow a temporal predictable pattern which is clear and starts during menstruation (Harel, 2008). This pain is most severe in the first or second day of menstruation. Some of the symptoms of dysmenorrhea, apart from the severe pains include vomiting, nausea, fatigue, diarrhoea, or insomnia. Its severity varies from person to person. The pains sometimes radiate to lower back. During this period, the female with dysmenorrhoea are exposed to some risks factors such as early age at menarche (less than 12 years) (Harel, 2008).

Another type of dysmenorrhea is the secondary dysmenorrheic pain. Unlike primary dysmenorrhea, the secondary dysmenorrhea may occur as a result of some identifiable pathological conditions, among which are endometriosis, Myomas or fibroid, adenomyosis, and pelvic inflammatory disease (Mavrelou and Saridogan, 2017). Secondary dysmenorrhea can occur at any time but more commonly, it occurs around two years, after menarche, and may be accompanied by some related gynaecological symptoms depending on the underlying conditions. Some of the common gynaecological symptoms of dysmenorrhea include: inter-menstrual bleeding and menorrhagia. The menstrual cycle's timing may be diffuse or constant and its intensity also varies; sometimes, it may not necessarily be connected with the menstrual period (Proctor and Farquhar, 2006).

One of the primary causes of secondary dysmenorrhea is endometriosis. (Janssen *et al.*, 2013) defines endometriosis as the “presence of endometrial tissue on extra-uterine locations, with an overall prevalence of 62% in adolescents”. Secondary dysmenorrhea can also occur as a result of Adenomyosis. This is a benign invasion of endometrial tissue into the myometrium, Secondary dysmenorrhea also has



secondary effects such as dyschezia and dyspareunia as a result of the underlying pathology. (Mavrelou and Saridogan, 2017; Benagiano et al., 2015).

Studies such as (Dawood 2006) and (Bush, *et al.*, 2017) revealed that secondary dysmenorrhea occurs to between 40% - 50% of female, and severity of the pains most time prevent some of them to skipped school. There is a wide variation in the estimate of dysmenorrhea from studies around the world reporting a range between 28% and 71.7%. (Burnett 2005). Result of ( Proctor et al., 2006), found that mean age of the surveyed students was 21.02+/-2.13 years, mean menarche age was 13.3+/-1.4 years, and menstruation frequency was 32.58+/-19.8 days. Of the students, 45.3% were found to suffer pain in each menstruation, 42.5% in some and 12.2% in none.

## **2.5 Diagnostic Approach of Dysmenorrhea**

Diagnosis of dysmenorrhea should start with taking a detailed history of woman.

History of women should include;

-Age

-Beginning of dysmenorrhea

-Nutrition status of woman

-Type of occupation

-Level of education

-Marital status

-Coping ways of women.

Primary dysmenorrhea examination is normal whereas secondary dysmenorrhea usually associated with significant clinical findings. In such case, pelvic examination

could be carried out and the result for women with endometriosis is likely to show a fixed retroverted uterus as a result of the occlusion of the pouch of Douglas. This could also be because of the thickened uterosacral ligaments or rectovaginal septum caused by the endometriotic nodules (Bush, *et al.*, 2017; Ryan, 2017; Mavrellos and Saridogan, 2017). For women who have fibroid, the uterus is usually enlarged, and the pelvic tenderness could be as a result of the gentle palpation, especially for women with pelvic inflammatory disease. However, pelvic examination is not suitable for teenager. For teenagers, the transabdominal scan will be more suitable. (Mavrellos and Saridogan, 2017; Bush *et al.*, 2017; Ryan, 2017).

Several diagnoses may be required before ascertaining that a patient suffers from dysmenorrhoea; however, the starting point is usually the pelvis ultrasound. Pelvic ultrasound will be able to reveal the presence of endometriosis, uterine fibroids, adenomyosis, and congenital uterine anomalies, which are all related with dysmenorrhoea (Mavrellos and Saridogan, 2017; Bush *et al.*, 2017; Ryan, 2017).

## **2.6 Treatment of Dysmenorrhea**

Several treatments abound depending on the severity as well as the symptoms of the disease. These include pharmacological and non-pharmacological methods. The following are different categories of treatment of pharmacological dysmenorrhea (Yeh *et al.*, 2013).

### **a. Symptomatic Treatment**

This treatment requires treating the symptoms to reduce the intensity of the effects. For instance, dysmenorrhoea is associated with pains; thus, patients can take pain relieving tablets to alleviate the pains, sedatives, physical exercise, antispasmodics,

and other forms of pain relieving treatment (Yeh et al., 2013; Jenabi, 2013; Wijesiri and Suresh, 2012; Helen, 2013).

### **b. Hormonal Treatment**

Another treatment is to deal with the hormone that is responsible for the situation. For instance, by using oral contraceptives which could help women who needs contraception and who do not have contraindications. Oral contraceptive helps to reduce the synthesis of prostaglandins which is associated to an atrophic endometrium (Renuka et al., 2014). Contraceptives decreases the menstrual flow and therefore the prostaglandins. It plays dual function, first is to serves as a contraceptive to the women, the second is to correct menstrual irregularities which is common with dysmenorrhea problem. According to (Botell and Bermúdez 2012) when inhibiting the ovulation, the prostaglandin content in the menstrual liquid diminishes below the normal figures and decreases its contractile effect on the uterine musculature. Botell and Bermúdez (2012), (Yeh, et al., 2013).

Cyclic combined hormonal contraceptives (CHCs) are commonly used as second-line therapy for dysmenorrhea, following first-line therapy of nonsteroidal anti-inflammatory drugs, CHCs may be prescribed as continuous, extended or flexible regimens. Cyclic use consists of 21 days of active hormone tablets followed by a 7-day hormone-free interval during which the patient experiences withdrawal bleeding. Continuous regimens skip the hormone-free interval to eliminate menstruation. Extended regimens lengthen the interval of active hormone to greater than 21 days, resulting in decreased and delayed menstruation (Tiffany et al., 2019).

### **c. Inhibitors of Prostaglandins**

Another way to deal with dysmenorrhoea is through inhibiting prostaglandins. According to (Botell and Bermúdez 2012), inhibitors of the synthetase of prostaglandins help to reduce dysmenorrhea. Also, clinical studies show that these drugs relieve the symptomatology of dysmenorrhoea (Iacovides et al., 2013).

### **d. Presacral neurectomy**

This is yet another treatment for dysmenorrhea and is also referred to as sympathectomy and constitutes a rational and effective procedure in patients that suffer intense dysmenorrhoea and don't respond to the treatment. Botell and (Bermúdez 2012). Sympathectomy can be used to relief pain in young women with dymenorrhea, and also an indicated to those who have persistent pelvic pain with pelvic pathology, A dilation of uterus and the correction of retrodisplacements will relieve about 65percent of cases of essential dysmenorrhea by performing sympathectomy on the remainder nearly 100percent will be cured. (Sultan, 2012) As with any surgery that requires anaesthesia, risks of sympathectomy include breathing problems or reactions to the anaesthesia during the procedure (Sultan, 2012).

(Botell and Bermúdez 2012) describe it as a bigger surgical intervention--with non-despicable risks, and benefits of faster recovery and resuming of regular activities and there is no guarantee of a beneficent answer.

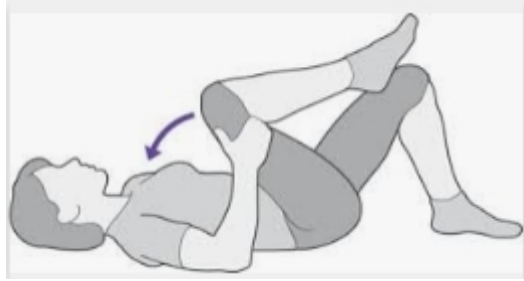
### **e. Hysterectomy**

In the case of secondary dysmenorrhoea, some patients are likely to undergo hysterectomy given the very extensive endometriosis and rebellious to treatments, tumorous like uterine myomas, will be suitable the total abdominal hysterectomy (Botell and Bermúdez, 2012). Though, modification of the body could be an after effect of hysterectomy, the relief effect on pains is advantageous and this method is of greater preference if fertility is not considered by patient. Due to the drastic pain relief that result from this method, functionalities of females are well improved and enhanced. A uterus is an important organ in woman's body which conducts pregnancy and supports the bladder and pelvic bones. So when it is removed there will be some changes within the body: The hormonal changes brought about through the hysterectomy with oophorectomy manifests as mood swings and irritability. There is less oestrogen in the body which boosts female emotional health, this cause the, mood swings in many women. (Botell and Bermúdez, 2012).

Apart from the various treatments mentioned above, dysmenorrhoea can also be managed using several therapies and exercises among these are:

- a. **Kinesitherapy:** This therapy aimed at achieving the relaxation of the back musculature, and to strengthen the different muscular groups with the purpose of avoiding antalgic postures that could cause, secondarily, contractions in adductors muscles and in the lumbar region (Botell and Bermudez, 2012; Malarvizhi and Judie, 2012). The following are some of the physical exercises proposed for this purpose:
  - i. **Balance of the back:** This is meant to stretch the paravertebral muscles, of the back and neck, as well as those of the buttocks. Here, the woman is meant to be in a supine position and relaxed, placing her

knees to the chest with hands intertwined in the hollow popliteal. Being in this position, the patient can practice slow swinging movements (Annesa, 2012).



(Cleciovier et al., 2018).

- ii. **Sit down partially:** The woman is required to sit down partially and should turn her upper part of body right side of the body to strengthen the abdominal muscles. Same exercises should be repeated by turning other side of the body.



(Botell et al., 2012).

- iii. **Basculation of the pelvis:** The goal for this exercise is to strengthen the abdominal and lumbar musculature. This is achieved when the women knees and feet on the floor with crisscross hands behind the nape. In this position, the patient will contract the muscles of the buttocks and abdomen firmly, as well as press the low part of the back against the support plane while trying to relax for some minutes.



(Malarvizhi and Judie., 2012)

- iv. Kegel's exercises:** The exercise is meant to strengthen the muscles of the floor of the pelvis. In this case, the patient sits in upright position and then attempts to contract the musculature of the floor of the pelvis strongly. (Cleciovier M, etal 2018).



(Cleciovier et al., 2018).

- b. Microwaves:** This involves the use of electromagnetic waves to produce heat in deep tissues, especially in those that have high content of water. It will keep the blood warm and relax the muscle, which is good in dysmenorrhoea by improving blood flow through the myometrium. That way, the prostaglandins which are responsible for pains will be eliminated. (Cleciovier et al., 2018).
- c. Tens:** This is an acronym for the electric transcutaneous nervous stimulation. It is an effective and innocuous method that helps in relieving pains, especially in primary dysmenorrhoea (Dawood and Ramos, 1990).
- a. Relaxation techniques:** According to (Asli and Serap 2020), this procedure involves “contraction followed by relaxation of 16 isolated

muscle groups, including dominant and nondominant hand and forearm, dominant and nondominant bicep, forehead, upper cheeks and nose, lower cheeks and jaw, neck and throat, chest with shoulders and upper back, abdomen and stomach, dominant and nondominant thigh, dominant and nondominant calf, and dominant and nondominant foot. Sympathetic activity decreases and parasympathetic activity increases with relaxation exercises. As a result, there is a decrease in heart rate, blood pressure, respiratory rate, oxygen demand, dilatation in peripheral vessels, muscle tension, and pain or pain perception as well as an increase in increase in blood flow in large muscle groups and sleep quality”.

According to (Botell and Bermúdez 2012), the progressive relaxation of Jacobson is the mostly recommended relaxation technique. As the name implies, it takes an hour to relax different parts of the body progressively until the patient achieve “differential relaxation” (Sathya and Samaga, 2014; Sharma, et al., 2014; Padmaja, 2014; Chien, Chang and Liu, 2013; Usha and Madhavi, 2013; Berger, et al., 2009).

(Celik and Ejder 2020) study shows that progressive relaxation exercises have an impact on decreasing dysmenorrhea pain when they are practiced on a regular basis. As the results of the study suggest, nurses should recommend the application of progressive relaxation exercises to those experiencing dysmenorrhea and inform them of its benefits.

**e. Spinal Manipulation:** In a study by (Cleciovier et al., 2018), spinal manipulation is also called spinal manipulative therapy. It’s a technique where practitioners use their hands or a device to apply a controlled thrust (that is, a force of a specific



magnitude or degree in a specific direction) to a joint of your spine. The amount of force can vary, but the thrust moves the joint more than it would on its own. Spinal manipulation is different from spinal mobilization, which doesn't involve a thrust (and is performed within a joint's natural range of motion and can be controlled by the patient). Spinal manipulation is one of the most common complementary health approaches used by adults and children in the United States, the 2012 National Health Interview Survey (NHIS) showed. For adolescents with chronic low back pain, adding spinal manipulation to exercise therapy was more effective than exercise alone over a 1-year period. The potential effectiveness of spinal manipulation for dysmenorrhea may involve decreasing tension on the broad ligament of the uterus and sacral nerve roots. (Evans Roni et al., 2018).

A study was performed by (Sharif et al., 2019), to determine the effect of spinal manipulation on pain reduction in dysmenorrhea with the 37 patients who entered the study, 32 patients were analyzed. The mean age of patients was 27.68 years and their pain score was generally higher than 5 out of 10. Paired t-test was used for variables with normal distribution and Wilcoxon test for those with non-normal distribution. The pain in the abdomen, pelvis, and lower back was decreased significantly in both groups, but the effect of manipulation + exercise was greater than exercise alone. This reduction in pain in the abdominal and pelvic region after the manipulation was significant in the 3 months of follow-up ( $P < 0.05$ ). Manipulation caused a reduction in diclofenac use in all 3 cycles, but in the exercise group, a significant decrease was only observed in the first cycle. The reduction in the number of days with pain after menstruation was significant after manipulation. Spinal manipulation seems to be a good alternative to medical therapy with much fewer complications. (Sharif et al., 2019).



(Cleciovier et al., 2018).

## **2.8 Impact of Dysmenorrhoea on Students' Study, Physical and Social Life**

Studies such as Oral, (Kirkan., 2012); (Gagua, 2013) revealed that dysmenorrhoea have several negative impacts on student's academic as it brings about absenteeism of student from the class resulting in poor performances. Another impact of dysmenorrhoea is to students' physical life as they experience great pains and stress during this period. According to (Gagua et al., 2013) dysmenorrhoea leads to diarrhoea, fatigue, dizziness, headache, back pain, nausea and vomiting, thus leaves the students in some physical pains and discomfort. This also affects their social life as most students preferred to isolate themselves from friends and family. Some preferred to lock themselves up at home with no intention of socializing or attaining any social event during their menstrual periods.

Dysmenorrhoea has significant impact on students' psychology and mental health. According to (Kollipakka et al., 2013) and (Iacovides et al., 2013) most students experience significant severe stress during their menstrual period. Other studies also

shared that dysmenorrhoeic women experiences some degree of stress and anxiety during their menstrual cycles ( Pramanik et al., 2010; Shanthi et al., 2008).

In another study by (Kollipaka et al., 2013) on about 164 students in a medical school in Pondicherry, India, it was revealed that students experience severe premenstrual symptoms, dysmenorrhoea and irregular cycles that required medical attention ( $p=0.000, 0.025, 0.035$ , respectively). The study also revealed that the students with premenstrual symptoms and dysmenorrhoea, and irregular cycles experience significant severe stress during their period compare with the control group.

Drawing across different studies and experiment, it could be concluding that dysmenorrhoea has significant impacts on the students' academic, physical, psychological, social and overall behavioural of the patients. It leads to pains, discomfort, makes students boycott to from school for at least a day per cycle as well as affects students' academic performance. Other impacts include abdominal cramps (63%), irritability (61.07%), headache (24.5%) and vomiting (22.8%). It had also been revealed that most of the patients take NSAID to reach their pains; some takes paracetamol, with only about 15% of the populations who consults a physician during this period. In spite of dysmenorrhea's resulting in serious problems, majority of individuals sees it as 'normal' and thus do not need medical attention. Furthermore, dysmenorrhea is deemed to have significant economic consequences. In the United States, the economic burden of dysmenorrhea has been estimated to be 600 million work hours or 2 billion dollars (In-Jung et al ,2014). In Japan, it has been reported that the total healthcare cost for patients with primary dysmenorrhea is 2.2 times higher than the healthcare cost for females with no dysmenorrhea after adjusting for baseline characteristics (Hyunjoo Kim et al 2014).

In a study conducted among undergraduate students in a Spanish university, about 76% of the entire student sample reported the problem of dysmenorrhea. The study concluded that dysmenorrhea affects quality of life of the students and students having this problem reported a significant higher pain score in the discomfort scale used (Fernández-Martínez et al., 2019).

According to a cross sectional study conducted in India by (Charu et al., 2012) to evaluate the prevalence of dysmenorrhea and its impacts on quality of life and general routine of students, they study survey 560 female medical students. By using the modified quality of life based on the American Chronic Pain Association (ACPA), the study concluded that students suffering from dysmenorrhea reported high school absenteeism, lower functional activities and negative reflection in quality of life.

(Al-Jefoutet al.,2015) conducted a study on dysmenorrhea in Jordan among 270 students in cross-sectional study. They concluded a very high prevalence of dysmenorrhea cases the surveyed students and concluded in the study that there is a negative impact of dysmenorrhea on the social functioning, school attendance and quality of life of the young adult female students.

## **2.9 Roles of Nurses in Dysmenorrhea Care**

Having established the backdrop of the problem of dysmenorrhea especially among female adolescents, the relevance of institutionalized care and support is needed for this cohort especially in the high schools and higher education institutions. It is a known fact that adolescents in this age categories are prone to self-medication and information reliance on peer groups, this can often lead to drug abuse or injection of

harmful products in a bid to ameliorate the pain from menstrual cramps (Lee et al., 2017; Bata et al., 2012).

The importance of integrations of Nurses into schools' system as a driver of health promotion cannot be overemphasized (Weissman et al., 2004). Most educational settings lack the place of nurses to see to the health welfare of the student. (Soydinc et al., 2013). Nurses have a key intervention role to help sensitize students about appropriate care and support as related to sexual health and other related problems. Nurses occupied a position which favour them to be often perceived as very caring and attentive. This makes them a good choice of confidants. Thus, Nurses should be very kind when dealing with female adolescents as harsh attitudes could deter the willingness and confidence of female adolescents having the problem of dysmenorrhea to share their problems (Soydinc et al., 2013).

Working close to the doctors, the nurse can offer counselling, referral and educational services to young female who are experiencing dysmenorrhea. Educating women concerning dysmenorrhoea since majority of the patients are ignorant of it and just consider it as normal pains experience during menstrual period (Hillard, 2014).

As pointed out (Lee *et al.*, 2006), most students have limited knowledge of physiological changes in their bodies during menstrual period and some of them are reluctant to face menstruation. Most girls did not like to share or talk about their menstrual problems with their family physician, and most often resulted to over-the-counter drugs. It becomes imperative for nurses to counsel these young girls and make them understand that what they are experiencing is a necessity and not a taboo to be panicked about. (Kural et al ., 2015).

The nurses could help the woman with some of the exercises that needed to be done in relax in order to minimize the pains. It is the duty of the nurses to prescribe healthy lifestyle to the patients and ensure that they adhere to doctors' prescriptions without resorting to self-medications and the like. The nurses should also help the students understand the side effects of contraceptives, especially those who uses contraceptive in treating dysmenorrhea (Weissman et al., 2004).

The nursing profession should be greatly motivated to campaign and advocate healthy life promotion especially among female teenagers and younger adults by advocating for activities such as sports and healthy nutrition to compliment any therapies already prescribed to help mitigate this painful experience (Lee et al., 2017).

Superficial heat that ranges from 40–45 °C treats the application site to a depth of about 1 cm. Traditionally, superficial heat has been used in different forms (e.g., hot water bags, towels, or bottles) to ease menstrual pain. Although deep heat, such as shortwave diathermy and microwave diathermy, treats deeper structures at depths of 2–5 cm, deep heat also causes vascular and metabolic changes in deeper tissues and organs. Studies have found that heat is a common (36.5–50%) method for coping with dysmenorrhea (Junyoung Jo and Sun Haeng Lee, 2018). For women with dysmenorrhea, the application of local heat can reduce muscle tension and relax abdominal muscles to reduce pain caused by muscle spasms. Heat can also increase pelvic blood circulation to eliminate local blood and body fluid retention and diminish congestion and swelling, thereby enabling a reduction in pain caused by nerve compression (Junyoung Jo and Sun Haeng Lee, 2018).

### **3.1 RESEARCH METHODOLOGY**

In this section of the research work, the design of the study, the study population, method of sample collection, study hypotheses and the research methods explaining the descriptive methodology implemented in the study will be expatiated.

### **3.2 STUDY DESIGN**

This study is cross sectional.

### **3.3 POPULATION of the STUDY**

Target population will be all African female students in Near East University Faculty of Economics and Administrative Sciences in the department of International Relations, and Tourism Faculty in Tourism and Hotel Management department. These faculties were selected due to the enormous presence of foreign international student of African origin. There are a total of 1176 African female students in all the departments considered namely 526 from the department of Tourism and Hotel Management, and 650 from the department of International Relations.

### **3.4 SAMPLE SELECTION**

Sample is defined as the sub-section or subset sets of the population. Thus, the sample utilized in this research were selected from the students undergoing training in the department of international relations from the faculty of Economics & Administrative sciences and department of tourism in faculty of tourism in Near East University. The minimum total sample required for this study is 298 students as shown below. The sample size (298) was determined using Slovin's formula (1960) which is expressed as;

$$n = \frac{N}{1 + N(e)^2}$$

Where n is sample size

N is population size, = 1,176

e is margin of error = 0.05

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{1176}{1 + 1176(0.05)^2}$$

$$n = \frac{1176}{3.94}$$

$$n = 298.477$$

$$n = 298$$

Thus, 298 is the minimum total sample required for this study.

### **Inclusion Criteria**

Students eligible to participate in this study, the following is required:

- To be African female students in Near East University.
- Reading and writing English language.
- Non pregnant students.

After the distribution of the questionnaire, we were able to receive 310 correctly filled responses which also fulfil the inclusion criteria for the study.



### **3.5 METHOD of DATA COLLECTION**

An online questionnaire was designed using the Google survey form. This questionnaire form was shared with the students. The questionnaires were shared on the most frequented online platform by the students while they are equally encouraged to share with their other friends known to be studying the aforementioned programs. The link to the form was also distributed using social network platforms such as whatsapp group of faculties and departments included in this study. This data collection method was adopted due to the COVID-19 pandemic restrictions.

The questionnaire form which was developed according to literature is made up of two parts. Introductory section of questionnaire which outline the context of the dysmenorrhea and the other section outline the socio-demographics characteristics of the students.

### **3.10 DATA ANALYSIS TECHNIQUE**

The Social Package for Social Scientist (SPSS) version 20 was used to analyses the data extracted from the Google form page. The frequency distribution, mean and Chi-Square methods was used for the data analysis in this research work.

## FINDINGS

In this chapter, the results of the analysis will be presented.

**Table 1:** Socio-Demographics Attributes of Respondents (N=310)

Variable	n	Percent (%)
<b>Age</b>		
20 yrs & below	72	23.20%
21-25 yrs	121	39.00%
26 yrs & above	117	37.70%
<b>Mean Age at Menarche</b>	Mean	SD
Age at Menarche(years)	12.67	1.75
<b>Marital Status</b>		
Single	217	70%
Married	93	30%
<b>Nationality</b>		
Nigerian	132	42.60%
Zimbabwean	52	16.80%
Cameroonian	56	18.10%
Kenyan	28	9.00%
Tanzanian	21	6.80%
Ghanaian	14	4.50%

Others*	7	2.30%
<b>Department</b>		
International Relations	180	58.10%
Tourism	130	41.90%

\*Gambia, Zambia.

According to this study 310 participated in this study, however 299 reported to have the problem of dysmenorrhea. Hence the following analysis would be based on the 299 that reported to have dysmenorrhea.

The table above provided the descriptive statistics of the 310 respondents that partook in the study. In terms of age distribution, 121(39%) are between age 21-25 years old.

Relative to marital status, 217(70%) are singles, nationals from Nigeria are the highest participants accounting for 132(42.60%) followed by Cameroonians with 56(18.10%) participants. Zimbabweans are 52(16.80%) and Kenyans are 28(9.00%). Regarding students' departments, 180(58.10%) are from the international departments and 130(41.90%) are from tourism department.

Table 2: Menstrual Characteristics of Students(N=310)

<b>Variable</b>	<b>n</b>	<b>Percent (%)</b>
<b>Gynecological Problem</b>		
Yes	65	21.00%
No	245	79.00%
<b>Gynecological Problem Type(n=65)</b>		

Myoma uteri	-	-
Endometriosis	14	21.50%
Ovarian cyst	25	38.50%
Uterine Polyps	-	-
Pelvic Inflam. diseases	19	29.20%
Uterine adhesions	-	-
Others(apart from listed above)	7	10.80%
<b>Menstrual Bleeding Length</b>		
One day	-	-
Two days	32	7.10%
Three days	101	32.60%
Four days	83	26.80%
Five days or more	104	33.50%
<b>Menstrual longevity</b>		
Long bleeding(5days or more)	154	49.70%
Short bleeding(2 to 3days)	156	50.30%
<b>Painful Dysmenorrhea</b>		
Yes	299	96.50%
No	11	3.50%
<b>Degree of Pain* (n=299)</b>		
4&less (low pain)	17	5.70%
5 to 7 (Mid-pain)	91	30.40%
8 to 10(High pain)	191	63.90%
<b>Onset of Pain (n=299)</b>		
1 day prior menstruation	49	16.40%
2 days prior menstruation	52	17.40%

3 days prior menstruation	51	17.10%
At the day of menstruation	63	21.10%
At the first day after menstruation	74	24.70%
At the 2 day of menstruation and more	7	2.30%
At the 3 day of menstruation	2	0.70%
At the 4 day of menstruation	1	0.30%
<b>Pain Persistence (n=299)</b>		
One day	26	8.70%
Two days	97	32.40%
Three days	102	34.10%
Four days	49	16.40%
Five days or more	25	8.40%

\*Degree of pain was evaluated according to the Visual analogue scale(VAS) of pain.

In terms of having a gynecological problem, (65) 21.00% of participants that reported to have gynecological problem, 14(21.50%) reported the problem of Endometriosis, 25(38.50%) are having Ovarian cyst, 19(29.20%) are having pelvic inflammatory diseases while 7(10.80%) have others forms of gynecological problems. Concerning menstrual bleeding length, individuals that reported bleeding for four days or more are the highest with 83(33.50%) of the participants (Table 2).

On the longevity of menstruation, 156(50.30%) of students reported to have a short menstrual length. Pertaining to painful experience of menstrual process

(Dysmenorrhea), 299(96.50%) participants experience painful menstruation. Regarding the degree of pain, 191(63.9%) indicated to experience a high pain of menstruation. Out of the 299 students' 74(24.70%) of participants that reported a dysmenorrhea problem, who experienced this at the first day of menstruation, 102(34.10) reported the highest pain persistence of 3 days (Table 2).

Table 3: Student's Dysmenorrhea Characteristics and Seeking Help for Dysmenorrhea (n=299)

Sharing dysmenorrhea problem	n	Percentage(%)
Yes	206	68.90
No	93	31.10
Persons dysmenorrhea problem was shared		
Physicians	69	33.05
Mothers	45	21.80
Friends	35	17.00
Sisters	9	4.40
Nurses	41	19.90
Others*	7	3.40
Seeking professional help		
Yes	143	47.80

No	156	52.20
Reason of not seeking help(n=156)		
Normal(a natural occurrence)	126	80.80
Shame	26	16.70
Other**	4	2.60
Students solving ways of dysmenorrhea (n=299)		
Went to Gynecologist	62	20.70
Went to a Nurse	57	19.10
Went to a Pharmacy store	165	55.20
Other***	15	5.00
Dysmenorrhea need medical help(n=299)		
Yes	201	67.20
No	98	32.80

\* Neighbours, distant relatives

\*\*Stigma

\*\*\* Endure the associated discomfort and Physician visitation

Among the 299 participants that reported dysmenorrhea, 206(68.90%) indicated that they share their dysmenorrhea with others. Students who shared with their mothers are the highest with 45(21.80%) of the participants. This is followed by 41(19.90%) shared this with Nurses, and 7(3.40%) shared this with other sources (Table 3).

Pertaining the quest of seeking professional service for dysmenorrhea, 143(47.80%) indicated they sought for professional help (Table 3).

Among the 156 participants that do not seek professional service, 126(80.80%) indicated they do not do this because they consider this a normal natural occurrence while 26(16.70) decline the need to seek for professional help because of shame (Table 3).

Generally, 62(20.70%) indicated that they visited the Gynecology during their dysmenorrhea experience and 57(19.10%) visited the Nurse. Most of the participants 165(55.20%) visited the pharmacy store and others 15(5.00%) consulted other sources (Table 3).

More than half of the participants 201(67.20%) indicated that dysmenorrhea require medical help while 98(32.80%) stated it does not require medical help (Table 3).

Table 4:Some Characteristics of Student's Using Pharmacologic/Non-Pharmacologic Methods for Dysmenorrhea(N=299)

Using pharmacologic methods(n=299)	n	Percentage(%)
Yes	223	74.60
No	76	25.40
Persons recommending pharmacologic methods(n=223)		
Doctor	55	24.70



Nurse	50	22.40
Relatives	36	16.10
Pharmacist	82	36.80
Using non pharmacologic method(N=299)		
Yes	202	67.60
No	97	32.40
Non pharmacologic method used(n=202)		
Hot bath	17	8.40
Heating pad	77	38.10
Hot tea	48	23.80
Herbs	60	29.70
Satisfaction of students from method they used		
Yes	185	61.90
No	114	38.10

Relative to the use of pharmacological method, 223(74.60%) indicate that they use pharmacologic method. Among users of pharmacologic methods, 55(24.70%) stated that the Doctor recommended this method for them. Up to 50(22.40%) reported that Nurses recommended this method, 36(16.10%) stated their relatives told them about

this and 82(36.80%) stated that the Pharmacist recommended them a pharmacologic method (Table 4).

Concerning the use of non-pharmacological method, 202(67.60%) indicated they use non-pharmacological method. Out of the 202 users of non-pharmacological method users, majority of this users make of heating pad which accounts for 77(38.10%) of the total users. This is followed by herb users with 60(29.70%) of the users. Hot tea users account for 48(23.80%) while 17(8.40) accounts for the hot bath users (Table 4).

Concerning satisfaction of method used in solving dysmenorrhea, 185(61.90%) are satisfied with the method they used (Table 4).

Table 5: Student's sleep quality during menstruation (N=299)

Sleep quality	n	Percentage(%)
Very good	8	2.70
Fairly good	108	36.10
Fairly bad	113	37.80

Regarding the sleep quality of the participants, more than one third of the participants amounting to 113(37.80%) considered it fairly bad, 108(36.10%) stated it is fairly good, and 8(2.70%) stated it is very good (Table 5).

Table 6: Comparison of Students Socio-demographic Characteristics with Degree of Pain (n=299)

Age	Low pain n(%)	Mid-pain n(%)	High pain n(%)	Chi sq & p-value
≤ 20 years	10(14.3%)	23(32.9%)	37(52.9%)	$\chi_r^2 = 21.591$ <0.05
21 – 25 years	2(1.8%)	24(21.2%)	87(77.0%)	
26 years & above	5(4.3%)	44(37.9%)	67(57.8%)	
Marital Status				
Single	14(6.80%)	53(25.6%)	140(67.6%)	$\chi^2 = 8.016$ <0.05
Married	3(3.3%)	38(41.3%)	51(55.4%)	
Nationality				
Nigerian	15(12.0%)	50(40.0%)	60(48.0%)	$\chi_r^2 = 40.823$ <0.05
Zimbabwean	-	16(33.3%)	32(66.7%)	
Cameroonian	2(3.6%)	14(25.0%)	40(71.4%)	
Other Nations(African)	-	11(15.7%)	59(84.3%)	
Faculty				
International Relations	15(8.6%)	50(28.7%)	109(62.6%)	$\chi^2 = 6.801$ <0.05
Tourism	2(1.6%)	41(32.8%)	82(65.6%)	

Examining the cross-tabulation analysis above, out of the 87(77.0%) of students aged 21-25 having high pain(p<0.05). The assumption of the chi-square distribution is violated (no cell should have an expected count cell less than five. Therefore, the likelihood Ratio

test is used to find out the association between age and degree of pain. The test result reveals that degree of pain is affected by age and it is statistically significant. It could be observed that individuals between 21-25 years old experienced greatest degree of pain in contrast to other groups considered (Table 6).

Out of the 207 participants in the study that are single, 140 (67.6%) expressed having high pain, 53(25.6%) experience mid-pain while 14(6.8%) expressed low pain. And out of the 92 participants are married, 51(55.4 %) of them experience high pain. The test result reveals that degree of pain is affected by marital status and it is statistically significant( $p < 0.05$ ). Thus, it can be inferred that participants who are single experienced greater pain than those that are married ( $p < 0.05$ ) (Table 6).

Also out of the 125 participants in the study that are Nigerians, 60(48.0%) expressed having high pain, 50(40.0%) experience mid-pain while 15(12.0%) expressed low pain. And out of the 48 participants that are Zimbabweans, 16(33.3 %) expressed mid pain, and 32(66.7%) experience high pain. Out of the 56 participants in the study that are Cameroonians, 2(3.6%) expressed having low pain, 14(25.0%) experience mid-pain while 40(71.4%) expressed high pain. out of the 70 participants in the study that are from other African countries, 11(15.4%) expressed having mid-pain, while 59(84.3%) expressed high pain. Using the Likelihood Ratio test, the test result reveals that degree of pain is influenced by nationality( $p < 0.05$ ). And it can be inferred that participants from other African nations reported highest degree of pain closely followed by the Cameroonians. Out of the 174 participants in the study that are from the department of International Relations, 109 (62.6%) expressed having high pain.

Out of those from Tourism department 82(65.6%) have high degree of pain. The Chi-square test result reveals that degree of pain is associated with the departments and statistically significant( $p < 0.05$ ) (Table 6).

Table 7: Student's Gynecological Problems and Degree of Pain(n=299)

Student's gynecological problems and degree of pain	Low Pain n(%)	Mid-Pain n(%)	High Pain n(%)	Chi square & p-value
Yes	-	13(20%)	52 (80%)	$\chi_r^2 = 14.808$ <0.05
No	17(7.3%)	78(33.3%)	139(59.4%)	

Considering the cross-tabulation analysis above, out of the 65 participants in the study that indicated to have a gynecological problem, 13 (20.0%) expressed having mid pain, and 52(80.0%) expressed having a high pain( $p < 0.05$ ). Relative to the 234 who stated not having a gynecological problem 139(59.4%) have high degree of pain. The Chi-square statistic test result reveals that degree of pain is associated with the condition of gynecological problem( $p < 0.05$ ) (Table 7).

Table 8: Comparison of Students Menstrual Bleeding Length Degree with Level of Pain and Duration of Menstruation(n=299)

Duration of Pain	Low Pain n(%)	Mid-Pain n(%)	High Pain n(%)	Chi-sq & p- value
Two days	-	4(22.2%)	14(77.8%)	$\chi^2$ =58.824  <0.05
Three days	15(14.90%)	37(36.3%)	49(48.5%)	
Four days	-	37(47.7%)	41(52.6%)	
Five days or more	2(2%)	13(12.7%)	87(85.3%)	

Considering the cross-tabulation analysis above, out of the 18 participants in the study that indicated to have a bleeding length of two days 14(77.8%) expressed having a high pain. Relative to the 101 who stated to have three days of bleeding 49(48.5%) have high degree of pain. Relative to the 78 who stated to have four days of bleeding 41(52.6%) have high pain. And of the 102 respondents who stated to have five days or more days of bleeding, 87(85.3%) have high degree of pain. The Chi-square test statistic reveals that degree of pain is associated with the bleeding length of days (Table 8) ( $p < 0.05$ ).

Table 9: Association Between Length of Menstruation and Degree of Pain (n=299)

Length of cycle*	Low Pain n(%)	Mid-Pain n(%)	High Pain n(%)	Chi-sq & p- value
Long menstrual cycle length	5(3.4%)	34(22.8%)	110(73.8%)	$\chi^2 = 13.095$ <0.05
Short menstrual cycle length	12(8%)	57(38%)	81(54%)	

\*Length of menstruation is given as day.

Examining table 9 above, out of the participants in the study that indicated to have a long menstrual cycle length, 110(73.8%) expressed having a high pain. Relative to the those having short menstrual cycle length 81(54.0%) have high degree of pain. The Chi-square test result reveals that degree of pain is associated with the menstrual duration and it is statistically significant (Table 9) ( $p < 0.05$ ).

Table 10: Comparison of Using Pharmacological Method with Pain Degree (n=299)

Using Pharmacological Method	Low Pain n(%)	Mid-Pain n(%)	High Pain n(%)	Chi-sq & p- value
Yes	15(6.7%)	71(31.8%)	137(61.4%)	$\chi^2 = 3.350$ 0.187
No	2(2.6%)	20(26.3%)	54(71.1%)	

Non-Pharmacological Method				
Yes	12(5.9%)	57(28.2%)	133(65.8%)	$\chi^2 = 1.452$
No	5(5.2%)	34(35.1%)	58(59.8%)	0.484

From the cross-tabulation analysis above, out of the participants in the study that are users of pharmacological method, 137(61.4%) expressed having a high pain. Relative to the non-users of pharmacological method, 54(71.1%) have high degree of pain. The Chi-square test statistic reveals that degree of pain is not associated with using or not using pharmacological method (Table 10) ( $p>0.05$ ).

Likewise, out of the participants in the study that are users of non-pharmacological method, 133(65.8%) expressed having a high pain, 57(28.2%) having mid pain and 12(5.9%) have low pain. Relative to the non-users of non- pharmacological method, 58(59.8%) have high degree of pain. Also, the Chi-square test statistic result reveals that degree of pain is not associated with using or not using pharmacological method (Table 10) ( $p>0.05$ ).

Table 11: Students Degree of Pain Relative to Sleep Quality, School Attendance, Learning new things and Social life (N=299)

Degree of pain	Sleep Quality			Chi-sq & p-value
	Not too affecting n %	Affecting n %	Severely affecting n %	
Very good	-	7(87.5%)	1(12.5%)	



Fairly good	15(13.9%)	41(38%)	52(48.1%)	$\chi_r^2 = 56.281$ <0.05
Fairly bad	2(1.8%)	35(31%)	76(67.3%)	
Very bad	-	8(11.4%)	62(88.6%)	
Degree of pain	School Attendance			
Low pain	17(100%)	-	-	$\chi_r^2 = 74.853$ <0.05
Mid-pain	21(23.1%)	63(69.2%)	7(7.7%)	
High Pain	25(13.1%)	114(59.7%)	52(27.2%)	
Degree of Pain	Learning new things			
Low pain	15(88.2%)	2(11.8%)	-	$\chi_r^2 = 35.197$ <0.05
Mid- pain	27(29.7%)	56(61.5%)	8(8.8%)	
High pain	37(19.4%)	130(68.1)	24(12.6%)	
Degree of Pain	Social Life			
Low pain	3(17.6%)	2(11.8%)	12(70.6%)	$\chi_r^2 = 56.604$ <0.05
Mid- pain	38(41.8%)	6(6.6%)	47(51.6%)	
High pain	135(70.7%)	28(14.7%)	28(14.7%)	

In the cross-tabulation analysis above, out of the participants in the study that have good sleep quality, there is a prevalence of pain experience. Relative to the participants who described to have a fairly good sleep quality, 52(48.1%) have high

degree of pain. Among the participants having fairly bad sleep quality, 76(67.3%) have high pain. For a very bad sleep quality, 62(88.6%) have a high pain experience. The Chi-square test statistic result reveals that degree of pain is associated with sleep quality and statistically significant( $p<0.05$ ).

Similarly, relative to school attendance, the participants having mid-pain, 63(69.2%) indicated that it is affecting their school attendance. Among the participants having high pain, 114 (59.7%) stated is affecting their school attendance and they are all statistically significant( $p<0.05$ ) according to the Chi-square test.

Also, out of the participants in the study that have low pain, 15(88.2%) stated that dysmenorrhea is not too affecting learning new things in school. Relative to the participants having mid-pain, 56(61.5%) indicated that it is affecting learning new things in school. Among the participants having high pain, 130 (68.1%) stated is affecting learning things in school. The Chi-square test statistic result reveals that degree of pain is associated with learning new things in school and statistically significant( $p<0.05$ ).

Also in the account of social life relative to the participants having mid-pain, 47(51.6%) stated dysmenorrhea is not too affecting their social life. Among the participants having high pain, 135 (70.7%) stated is affecting their social life. The Chi-square test statistic result reveals that degree of pain is associated with social life and statistically significant ( $p<0.05$ ).

Table 12: Some Characteristics of Students and Degree of Menstrual Pain related Altered body image, feeling down, personal care disruption, sexual life, concentration problem, sleep quality, success in school, work performance (N=299)

Some Characteristics of Students	Altered body image			Chi-sq & p-value
	Not too affecting	Affecting	Severely affecting	
Degree of pain				
Low pain	15(88.2%)	2(11.8%)	-	$\chi^2 = 33.504$
Mid-pain	32(35.2%)	52(57.1%)	7(7.7%)	<0.05
High Pain	43(22.5%)	122(63.9%)	26(13.6%)	
	Feeling down			
Degree of pain				Chi-sq & p-value
Low pain	13(76.5%)	2(11.8%)	2(11.8%)	$\chi^2 = 24.368$
Mid-pain	23(25.3%)	55(60.4%)	13(14.3%)	<0.05
High Pain	38(19.9%)	121(63.4%)	32(16.8%)	
	Personal care disruption			
Degree of pain				Chi-sq & p-

				value
Low pain	15(88.2%)	2(11.8%)	-	$\chi^2 = 27.864$
Mid-pain	46(50.5%)	38(41.8%)	7(7.7%)	<0.05
High Pain	61(31.9%)	104(54.5%)	26(13.6%)	
	Sexual life			
Degree of pain	Not too affecting	Affecting	Severely affecting	Chi-sq & p- value
Low pain	12(70.6%)	-	5(29.4%)	$\chi^2 = 24.631$
Mid-pain	46(50.5%)	38(41.8%)	7(7.7%)	<0.05
High Pain	75(39.3%)	92(48.2%)	24(12.6%)	
	Concentration problem			
Degree of pain	Not too affecting	Affecting	Severely affecting	Chi-sq & p- value
Low pain	12(70.6%)	-	5(29.4%)	$\chi^2 = 78.234$
Mid-pain	37(40.7%)	45(49.5%)	9(9.9%)	<0.05
High Pain	15(7.9%)	141(73.8%)	35(18.3%)	
	Sleep quality			

Degree of pain	Not too affecting	Affecting	Severely affecting	Chi-sq & p- value
Low pain	13(76.5%)	4(23.5%)	-	$\chi^2 = 117.823$ <0.05
Mid-pain	22(24.2%)	51(56%)	18(19.8%)	
High Pain	7(3.7%)	49(25.7%)	135(70.7%)	
Success in school				
Degree of pain	Not too affecting	Affecting	Severely affecting	Chi-sq & p- value
Low pain	13(76.5%)	4(23.5%)	-	$\chi^2 = 34.666$ <0.05
Mid-pain	22(24.2%)	65(71.4%)	4(4.4%)	
High Pain	30(15.7%)	134(70.2%)	27(14.1%)	
Work performance				
Degree of pain	Not too affecting	Affecting	Severely affecting	Chi-sq & p- value
Low pain	12(70.6%)	5(29.4%)	-	$\chi^2 = 46.686$
Mid-pain	31(34.1%)	52(57.1%)	8(8.8%)	

High Pain	20(10.5%)	134(70.2%)	37(19.4%)	<0.05
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As observed in table 12 above, relative to the participants having mid-pain, 52(57.1%) stated dysmenorrhea is affecting their body image and 122(63.9%) of students stated that high pain is affecting their body image. The Chi-square test result reveals that degree of pain is associated with body image and statistically significant (Table 12) ( $p<0.05$ ).

As seen in the table 12, relative to the participants having mid-pain, 55(60.4%) stated dysmenorrhea is affecting their feeling, 121(63.4%) of students with high pain stated dysmenorrhea is impacting students on feeling down. The Chi-square test result reveals that degree of pain is associated with the attitude of feeling down and statistically significant (Table 12) ( $p<0.05$ ).

In our results, 104(54.5%) stated dysmenorrhea is affecting their personal care. The Chi-square test result reveals that degree of pain is associated with personal care and it is statistically significant (Table 12) ( $p<0.05$ ).

In this study among the participants having high pain, 92(48.2%) stated it is affecting their sexual life. The Chi-square test result reveals that degree of pain is associated with sexual life and statistically significant (Table 12) ( $p<0.05$ ).

At the end of the study among the participants having high pain, 141(73.8%) stated it is affecting their concentration. The Chi-square test result reveals that degree of pain is associated with concentration and statistically significant (Table 12) ( $p<0.05$ ).

As seen in the table (12), relative to the participants having mid-pain, 51(56.0%) indicated that it is affecting their sleep quality. Among the having high pain,

135(70.7%) stated is severely affecting their sleep. The Chi-square test result shows that degree of pain is associated with quality of sleep and it is statistically significant ( $p < 0.05$ ).

From the cross-tabulation analysis above, relative to the participants having mid-pain, 65(71.4%) indicated that it is affecting successful performance in school. Among the participants having high pain, 134(70.2%) stated is affecting it affecting their successful performance in school. The Chi-square test result reveals that degree of pain is associated with success in school and this is statistically significant (Table 12) ( $p < 0.05$ ).

In this research, relative to the participants having mid-pain, 52(57.1%) indicated that it is affecting work performance. Among the participants having high pain, 134(70.2%) stated is affecting it their work performance. The Chi-square result reveals that degree of pain is associated with work performance and statistically significant (Table 12) ( $p < 0.05$ ).

## **DISCUSSION**

This study was undergone to examine Dysmenorrhea and related problems among African female students in NEU. The questionnaire tool used was divided into three major sections namely socio-demographic characteristics, menstrual characteristics and areas of life perceived to be affected by dysmenorrhea.

The average age of the participants at their first menarche was approximately 13 years (Table 1). The menarche of women was however considered to vary globally. For instance, in a study conducted in Haiti, the mean age of female at their menarche was 15.37 years (Thomas et al., 2001; Barnes-Josiah and Augustin,1997) while a study conducted in the US found the menarche of women to be between 12- 13 years (Chumlea et al., 2003). The prevalence of dysmenorrhea was 96.50% of the 310 participants that participated in the study (Table 2). In their study on the prevalence and correlates of dysmenorrhea among Nigerian college women, (Loto et al., 2008) conducted a study with 409 university students in Nigeria. They found that the prevalence of dysmenorrhea was 53.3%. Similarly, a cross sectional study conducted in India with 107 female students by (Singh et al., 2008) reported a prevalence of 73.83% in their study. A cross-sectional study involving 293 university students' participants in a Northern Ghana region on dysmenorrhea reported an 83.6% prevalence (Ameade et al.,2018). A Spanish study also posited a prevalence of 73.8% of dysmenorrhea among participants in their study (Abreu-Sánchez et al.,2020).

The most common gynecological problem experienced by the students was ovarian cysts with a 38.50% record (Table 2). This was in tandem with the study conducted by (Prakrit et al., 2015) on adolescent gynecological problem involving 75 participants. Ovarian cyst was also found to be prevalent among adolescent participants in a study carried out by (Zolton and Maseelall 2013). In this study half of the students have



short menstrual longevity. The menstrual bleeding length reported in the study is in consonance with the conclusion reached by (Azis et al., 2018).

In this study 96.50% of students have painful dysmenorrhea, 63.90% of students have high pain according to VAS. Approximately one in four of the students' pain starts at the first day of menstruation, two of ten of students' pain persist three days (Table 2).

Drawing from the conclusion of a study conducted by (Nakame et al., 2018) on the prevalence of dysmenorrhea among University students in Uganda, a high prevalence of dysmenorrhea with a record of 75.8% was reported. The onset of pain is found to be highest on the day (21.1%) of start of menstruation and 24 hours with a 21.1% and 24.70% record respectively. This is similar with assertion posited (Barcikowska et al., 2020) in their study that stated the report of highest onset of pain for the first 24 hours after menstruation or between 2-3 days. Concerning pain persistence, more than half of the participants reported a 2 to 3 days' pain duration. This is similar to the conclusion of half of the respondents who reported between 2 to 3 days of pain experience in the study conducted by (Kural et al., 2015).

In the study, we found that 31.1% of the participants were not willing to disclose their dysmenorrhea problem with anyone (Table 3). This shows most females still consider this as an issue to be considered private that needed not to be an open discussion. Similarly, in a qualitative study design conducted by (Chen et al., 2018) in the United

States, it was reported that most respondents suffering from dysmenorrhea not willing to share their concerns with others. In this present study, among those who shared their dysmenorrhea problem with others, Physicians mothers and Nurses are the top three major sources they are willing to share their plight with in discussion. In seeking professional assistance for dysmenorrhea, more than half of the respondents considered it to be an unnecessary decision to be taken which is congruent with an American study which reported that 86% of women decline seeking healthcare assistance for their dysmenorrhea challenge (Banikarim et al.,2000). According to this present study, among this category of people, majority of them see dysmenorrhea as a normal occurrence in women (Table 3). According to (Chen et al., 2000) some of the respondent also attributed this to natural occurrence.

Pertaining to recommendation and utilization of pharmacological methods when experiencing dysmenorrhea, a majority of the respondents sought the consultation with Gynecologist, Physicians and drug procurement at the pharmaceutical stores. Similarly, in a study conducted to examine dysmenorrhea among University students in Ghana, usage of community pharmacy stores and consultation with Gynecologists are some of the pharmacological outlets students seek after for relief (Ameade et al.,2018). More than half of the respondents came into agreement that dysmenorrhea requires medical advice. The use of pharmacological method was quite popular among the participants and majority of them stated that this method was

recommended for them by mostly by Pharmacists, Doctors and Nurses (Table 4). This result is similar to a study conducted by (Butsripoom and Sookprasert, 2018) which highlighted the importance of Nurses in the management of dysmenorrhea among patients.

In our study more than one in third are using heating pad and one in third are using heating pad and one in third were using herbs (Table 4). The use of these non-pharmacological methods was reported to be common in previous studies conducted on methods mostly used by women to seek relief from dysmenorrhea (Alkindi-Albulushi,2011; Agrawal,2009; Banikarim,2000). And more than half of the respondents in this present study are satisfied with the way they are treating the problem of dysmenorrhea (Table 4). About sleep quality, only 2.7% of the participants indicated to have a very good quality sleep while 23.4% decried a very bad sleep quality (Table 5). This is in tandem with a study conducted by Sahin (2014) who posited a correlation between poor sleep quality and dysmenorrhea.

Females between ages 21 -25 years reported more severe pain than other age categories considered in the study. Comparison of age groups of students with the pain degree was found statistically significant ( $p<0.05$ ) (Table 6). (Dawood, 2008) also concluded in a study that women between 20-24 years old witnessed greater menstrual cramp with more intense experiences reported before age 25 years (Table 6).

Majority of unmarried individuals were found to have a higher dysmenorrhea pain than their married counterparts ( $p < 0.05$ ). Nigerians reported a higher significance dysmenorrhea pain than other African nations (Zimbabwe, Cameroon) considered in the study ( $p < 0.05$ ). (Bello et al., 2017) highlighted in a study that female Nigerians with dysmenorrhea have pain more than other country in Africa (Table 6).

Participants with gynecological problems have higher prevalence of dysmenorrhea than those with no gynecological problems (Table 7). In a study conducted by (Bernardi et al., 2017), it was found that individuals with gynecological problems are predisposed to dysmenorrhea. Those with a longer pain of 5 days or more have more pain than those with lesser days of pain (Table 8). Individuals with a typical long menstrual cycle experience severe pain than those with short menstrual cycle (Table 9) (Monawara et al., 2016), shows a study that women with long menstrual cycle have more pain than women with short menstrual cycle ( $p < 0.05$ ). (Alonso and Coe 2001).

Comparison of using pharmacological methods with degree of pain reported statistically insignificant (Table 10) ( $p < 0.05$ ). Non-pharmacological users also reported lesser pain but difference between the groups was found statistically insignificant (Table 10) ( $p > 0.05$ ). A Taiwanese and a Ghanaian study on prevalence of dysmenorrhea also posited that users of pharmacological as well as non-

pharmacological methods reported pain relief from dysmenorrhea ( $p > 0.05$ ) (Gumanga and Kwame, 2012; Cheng and Yin, 2011).

In our study students sleep quality was affected from dysmenorrhea (Table 11) ( $p < 0.05$ ). Student's sleep quality was severely affected; degree of pain was found fairly bad ( $p < 0.05$ ). A study done by Mazlomeh et al., found poor sleep quality in students who have dysmenorrhea (Mazlomeh et al., 2019).

The study found that school attendance is grievously affected by dysmenorrhea ( $p < 0.05$ ). Those with severe dysmenorrhea have their school attendance greatly impaired (Table 11). This is similar to a study conclusion reached by (Sahar and Luma 2014) in their research seeking to investigate self-care practices during dysmenorrhoea occurrence among students in Egypt. In their study, they found that dysmenorrhea negatively affected student attendance, social events and sporting activities. In this present study, it was also found that student with severe dysmenorrhea find it very difficult to learning new things in school. In our study correlation of student's pain degree and learning new things was found statistically significant (Table 11) ( $p < 0.05$ ).

Social life and interaction is typical of human attributes but this is unfortunately affected by dysmenorrhea. Our study affirmed that those with severe and affecting dysmenorrhea have their social life greatly affected (Table 11) ( $p < 0.05$ ). This

assertion is in line with a study conducted by (Alonso and Coe 2001) titled *“Disruptions of social relationships accentuate the association between emotional distress and menstrual pain in young women”*. According to their study, it is posited that anxiety and depressive mood associated with dysmenorrhea impact on social lifestyle. In our study correlation of degree of pain with body image was found statistically significant (Table 12) ( $p < 0.05$ ).

A study on dysmenorrhea and body awareness affirmed that females felt unpleasant about their body perception during these painful episodes (Berger et al., 2019). Furthermore, (Alonso and Coe 2001) also concluded that people with severe dysmenorrhea are found to be prone in feeling down and a negative perception of body image. The feeling and mood swing that characterize severe dysmenorrhea is found to contribute to social withdrawal and self-negative perception as posited in a study carried out by in a bid to investigate dysmenorrhea management among University student in Ethiopia involving 389 participants (Gebeyehu et al., 2017).

It was also found in this study that, people that have severe dysmenorrhea experience their personal care disrupted (Table 12) ( $p < 0.05$ ). A study Ling Chen et al., 2019 show that student's self-care was affected from menstrual pain.

Sexual life of women was also found to be negatively affected by severe occurrence of dysmenorrhea (Table 12). Approximately one in fifth of students' have high pain sexual life were severely affected. Similar conclusion was reached in a study

conducted by the Yale University School of Medicine, on the effect of menstruation process and sexual activity, the study concluded that orgasm in women during menstruation is significantly affected by dysmenorrhea (Meaddough et al.,2002).

Concentration of individuals with severe dysmenorrhea was found to be highly affected. In this study majority of student's concentration was affected who have high pain ( $p < 0.05$ ) (Table 12). A study (Bilir et al., 2020) shows that 87 (34.7) of students have moderate dysmenorrhea suffer lack of concentration.

Sleep quality was stated to be severely affected (Table12) by individuals' experience high pain. Examining the study conducted by Arafa et al., (2020) in a cross-sectional study in an Egyptian city comprising of 4,122 women aged 12 to 25 years, using a multivariate analysis inferred that individuals having very painful menstrual process have an inhibited sleep experience. Common sleep disorder reported is insomnia. Similarly, a cross-sectional Georgian study on prevalence of among adolescent was found that women with dysmenorrhea have their sleeping negatively affected such as sleep deprivation (Gagua et al., 2013). (Ozturk 2004) in his study also conclude sleep disturbance among women with dysmenorrhea is very prevalent.

Learning new things of respondents with severe painful menstruation in school was highly affected (Table 12). This assertion was also in consonance with the study made by (Orhan et al., 2018) using a case control methodology to investigate the impact of

dysmenorrhea among University students in Turkey. They concluded that academic performance of students suffering from painful dysmenorrhea was negatively significantly. The same conclusion was also reached in a study conducted by Al-Zahrani et al., 2018) with an objective to study “*the impact of dysmenorrhea on academic performance among female nursing students at King Abdulaziz University (KAU)*” in Saudi Arabia. They found that females with severe form of dysmenorrhea resulted in poor academic performance.

Work performance of individuals with a very painful dysmenorrhea was evidently impaired. In our study students work performance were affected who have high pain. A 2017 study conducted in Netherlands found that women with severe dysmenorrhea exhibited low work productivity and an average loss of 23.2 days annually (Schoep et al., 2019). A Japanese study comprising 19, 254 participants also found that efficiency and productivity at the workplace by young women suffering from a severe dysmenorrhea was found to be lower (Erika et al.,2013).

## **6.0 CONCLUSION AND RECOMMENDATION**

In this concluding chapter, closing remarks on the study and recommendations to improve the self-care of females as regarding their well-being during menstrual process would be discussed in line with the research objectives of this study.



## CONCLUSION

In congruence with the aim and objectives of this study, the following results were derived from the study as follows:

- (1). The prevalence of dysmenorrhea is very high among female students.
- (2). The mean menarche is approximately 13 years.
- (3). There is still considerable number of students who prefers to keep mute on sharing dysmenorrhea concerns with others attributing it to be a normal phenomenon for female while others refuse to talk about it due to shame and stigmatization.
- (4). Most female students believe that managing dysmenorrhea requires professional help while most people prefer to share this problem with their mothers, nurses and physicians.
- (5). Patronizing pharmacy stores for pain relief medication and help advise is a common practice.
- (6) Heating pads and herbal usage are the most common non-pharmacological methods adopted.

(7) Severe dysmenorrhea was found to negatively affect sleep, social life, perceived body image, learning of new things, personal care, sexual life, concentration, academic performance and work performance.

(8). It was also found that the feeling of depression and loneliness is heightened by severe dysmenorrhea.

### **RECOMMENDATIONS**

Depending on the results achieved, it is recommended that the University health system should incorporate a specialized nursing services for female students. This nursing unit hub in higher education institutions should offer counselling and advising session to help female students maintain wellbeing during their menstrual cycle. All female students admit to health services should be screened by the nurses according to dysmenorrhea.

There should be public seminars and health educations conducted in Universities to help enlighten female students on women's health and self-cares. This also will help bolster confidence among females in voicing out their health problems and help reduce the stigmatization attached to menstrual process. Students should be educated on taking medical care for dysmenorrhea problem.

## REFERENCES

Abreu-Sánchez, A., Parra-Fernández, M. L., Onieva-Zafra, M. D., Ramos-Pichardo, J. D., & Fernández-Martínez, E. (2020). Type of Dysmenorrhea, Menstrual Characteristics and Symptoms in Nursing Students in Southern Spain. *Healthcare*, Vol.8, No.3. Pp. 302. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/healthcare8030302>

Al-Jefout, M., Seham, A.-F., Jameel, H., Randa, A.-Q., Ola, A.-M., Oday, A.-M., & Luscombe, G. (2015). Dysmenorrhea: Prevalence and Impact on Quality of Life among Young Adult Jordanian Females. *Journal of Pediatric and Adolescent Gynecology*, 28(3), 173–185.

Al-Kindi R, Al-Bulushi A (2011). Prevalence and impact of dysmenorrhoea among Omani high school students. *Sultan Qaboos University Medical Journal*. Vol.11, No.4. Pp. 485–491

Alonso, C., Coe, C. L. (2001). Disruptions of social relationships accentuate the association between emotional distress and menstrual pain in young women. *Health Psychology*. Vol. 20, No 6. Pp. 411–416. <https://doi.org/10.1037/0278-6133.20.6.411>

Agrawal, A, Venkat, A (2009). Questionnaire study on menstrual disorders in adolescent girls in Singapore. *Journal of Pediatrics and Adolescence Gynecology*. Vol. 22. Pp.365–71.

Ameade, E.P.K., Amalba, A. & Mohammed, B.S(2018). Prevalence of dysmenorrhea among University students in Northern Ghana; its impact and management strategies. *BMC Women's Health*. Vol.18, No. 39. <https://doi.org/10.1186/s12905-018-0532-1>

Al-Zahrani, A., Alabdulaziz, H., & Alghamdi, F. (2018). The Impact of Dysmenorrhea on Academic Performance among Female Nursing Students at King Abdulaziz University. *Journal of Nursing and Health Science*. Vol.7, No.6. Pp. 1–07. <https://doi.org/10.9790/1959-0706090107>

Amita. S, “Prevalence and severity of dysmenorrhea among first and second year female medical students,” *Indian Journal of Physiology and Pharmacology*, vol. 52, no. 4, pp.389–397,2008.

- Asli Sis Celik, Serap Ejder Apay (2020). Effect of progressive relaxation exercises on primary dysmenorrhea in Turkish student: A randomized prospective controlled trial, complementary therapies in clinical practices volume 42, Pp.101-280 <https://doi.org/10.1016/j.ctcp.2020.101280>
- Azis, A. A., Kurnia, N., Hartati, & Purnamasari, A. B. (2018). Menstrual Cycle Length in Women Ages 20-30 years in Makassar. *Journal of Physics: Conference Series*, 1028, 012019. <https://doi.org/10.1088/1742-6596/1028/1/012019>
- Barcikowska, Z., Rajkowska-Labon, E., Grzybowska, M.E., Hansdorfer-Korzon, R. Zorena, K. (2020). Inflammatory Markers in Dysmenorrhea and Therapeutic Options. *International Journal of Environmental Research and Public Health* 17 (1191), 1-14
- Barnes-Josiah D, Augustin A. (1997). Secular trend in the age at menarche in Haiti. *American Journal of Human Biology*. Vol.7. Pp.357–362
- Banikarim, C., Chacko, M. R., Kelder, S. H. (2000). Prevalence and impact of dysmenorrhea on Hispanic female adolescents. *Archives of pediatrics & adolescent medicine*. Vol.154, No.12, Pp.1226–1229. <https://doi.org/10.1001/archpedi.154.12.1226>
- Bata, M.S. (2012). Age at menarche, menstrual patterns, and menstrual characteristics in Jordanian adolescent girls. *Int J Gynaecol Obstet*, 119(3):281-3.
- Bello, FA., Akinyotu, OO., Odubamowo, KH., (2017). Dysmenorrhea among female students at a Teaching Hospital in South Western Nigeria. *Trop J Obstet Gynaecol* 2017;34:29–33
- Benagiano G, Brosens I, Habiba M. Adenomyosis (2015). A life-cycle approach. *Reprod Biomed Online*; 30:220–232.
- Bernardi, M., Lazzeri, L., Perelli, F., Reis, F. M., & Petraglia, F. (2017). Dysmenorrhea and related disorders. *F1000Research*, 6, 1645. <https://doi.org/10.12688/f1000research.11682.1>
- Beausang C.C, Razor A.G (2000). Young western womens experiences of menarche and menstruation. *Health care for women international* 21(6): 517 528, DOI:10.108007399330050130304.

- Bilir Esra, Şule Yıldız, Kayhan Yakın, Barış Ata. (2020). The impact of dysmenorrhea and premenstrual syndrome on academic performance of college students, and their willingness to seek help, *Turk J Obstet Gynecol* 2020;17:196-201.
- Botell, M.L. & Bermúdez, M. B. (2012). Dysmenorrhea, basic gynecology – Some related issues, Prof. Atef Darwish (Ed.), Intec, Available from: <http://www.intechopen.com/books/basic-gynecology-some-related-issues/dysmenorrhoea>
- Bhartiya Aru (2013). Dysmenorrhea: Menstruation, Religion and society international journal of social science and humanity. 3(6):523–527, DOI:10.7763/IJSSH.2013. V3.296
- Bush, D, et al. (2017) Endometriosis education in schools: A New Zealand model examining the impact of an education program in schools on early recognition of symptoms suggesting endometriosis. *Aust N Z J Obstet Gynaecol*; 57(4):452–457.
- Butsripoom, B., & Sookprasert, M. (2018). Nurse’s Role: Management of Primary Dysmenorrhea. *Ramathibodi Medical Journal*, 33(3), 216-224. Retrieved from <https://he02.tci-thaijo.org/index.php/ramajournal/article/view/138656>
- Berger, B., Böning, A., Martin, H., Fazeli, A., Martin, D. D., & Vagedes, J. (2019). Personal perception and body awareness of dysmenorrhea and the effects of rhythmical massage therapy and heart rate variability biofeedback—A qualitative study in the context of a randomized controlled trail. *Complementary Therapies in Medicine*, 45, 280–288. <https://doi.org/10.1016/j.ctim.2019.04.007>
- Chien, L.W., Chang, H.C., & Liu, C.F. (2013). Effect of yoga on serum homocysteine and nitric oxide levels in adolescent women with and without dysmenorrheal. *J Altern Complement Med*. 19(1):20-3.
- Charu, S., Amita, R., Sujoy, R., & Thomas, G. (2012). “Menstrual characteristics” and “Prevalence and Effect of Dysmenorrhea” on Quality of Life of medical students. *International Journal of Collaborative Research on Internal Medicine & Public Health*, Vol.4, No.4. pp.275-294
- Chen, C.X.; Shieh, C.; Draucker, C.B.; Carpenter, J.S(2018). Reasons women do not seek health care for dysmenorrhea. *Journal of Clinical Nursing*. Vol. 27.Pp. e301–e308.

Chumlea WE, Schubert CM, Roche AF (2003). Age at menarche and racial comparisons in US girls. *Pediatrics*. Vol.111. Pp.110 –113

Cleciavier Marcelo, Anderson Bracht, Macrolisboa Neves, Marian Junke-Cunha (2018). Effects of spinal manipulation and pain education on patients with chronic low back pain: a protocol of randomized Sham-controlled trial. *Elsevier integrative medicine research*. Doi:10/1016/j. imr2018.04.003

Damilola, M. Femi, A. Olutoyin, S. Olayinka, G. (2017). Dysmenorrhea and Its Effects on School Absenteeism and School Activities among Adolescents in Selected Secondary Schools in Ibadan, Nigeria, *Journal of the Nigeria Medical Association* 58(4):143, DOI: [10.4103/nmj.NMJ\\_47\\_17](https://doi.org/10.4103/nmj.NMJ_47_17).

Dawood, M.Y & Ramos J. (1990). Transcutaneous electrical nerve stimulation (TENS) for the treatment of primary dysmenorrhea: a randomized crossover comparison with placebo TENS and ibuprofen. *Obstet Gynecol*, 75:656–60.

Dawood, M.Y. (2006). Primary dysmenorrhea: advances in pathogenesis and management. *Obstet Gynecol*;108(2):428–41

Dawood Yusoff (2008). Dysmenorrhea | GLOWM. Retrieved May 20, 2021, from Glowm.com website: <https://www.glowm.com/sectionview/heading/Dysmenorrhea/item/9#:~:text=Dysmenorrhea%20is%20most%20common%20in,before%2025%20years%20of%20age>.

Elif Oral, Tulay Kirkan, Esra Yagici, Mustafa Gulec Zeliha Cansever and Nazan Aydin (2012). Premenstrual symptom severity, dysmenorrhoea and school performance in medical students. *Mood Journal of Disorder*, 2(4): 143-152.

Evans Roni, Haas Mitchell, Schulz Craig, Leininger Brent, Hanson Linda, Bronfort Gert (2018). Spinal manipulation and exercise for low back pain in adolescents: a randomized controlled trial. *National library of medicine*. Pp.159(7):1297-1307.

Erika Tanaka, Mikio Momoeda, Yutaka Osuga, Bruno Burden of menstrual symptoms in Japanese women: results from a survey-based study. *Journal of Medical Economics*. Vol.16, No.11. Pp. 1255-1266, DOI: 10.3111/13696998.2013.830974

Fernández-Martínez, E., Onieva-Zafra, M. D., & Parra-Fernández, M. L. (2019). The Impact of Dysmenorrhea on Quality of Life Among Spanish Female University Students. *International journal of environmental research and public health*, 16(5), 713. <https://doi.org/10.3390/ijerph16050713>

- Gagua, T., Tkeshelashvili, B., Gagua, D., & McHedlishvili, N. (2013). Assessment of anxiety and depression in adolescents with primary dysmenorrhea: a case-control study. *J Pediatr Adolesc Gynecol*. 26(6):350-4.
- Gebeyehu, M. B., Mekuria, A. B., Tefera, Y. G., Andarge, D. A., Debay, Y. B., Bejiga, G. S., & Gebresillassie, B. M. (2017). Prevalence, Impact, and Management Practice of Dysmenorrhea among University of Gondar Students, Northwestern Ethiopia: A Cross-Sectional Study. *International Journal of Reproductive Medicine*. Vol.2017. Pp. 1–8. <https://doi.org/10.1155/2017/3208276>
- Gerzson, L.R, Padilha, J.F, Braz, M.M & Gasparetto, A (2014). Physiotherapy in primary dysmenorrhea: literature review. *Rev Dor. São Paulo*, 15(4):290-295
- Gumanga, S and A. Kwame (2012). Prevalence and severity of dysmenorrhea among some adolescent girls in a secondary school in Accra, Ghana. *Postgraduate medical journal of Ghana*, vol. 1, no. 1.
- Habibi N, Huang MS, Gan WY, et al. (2015). Prevalence of primary dysmenorrhea and factors associated with its intensity among undergraduate students: a cross-sectional study. *Pain Management Nursing*. 16(6),855-61. <https://doi.org/10.1016/j.pmn.2015.07.001> (Accessed September 14, 2020).
- Harel Z. (2008). Dysmenorrhea in adolescents. *Ann N Y Acad Sci* .,1135:185–195.
- Harlow Sioban.D, Ephross Sara. A. (1995). Epidemiology of menstruation and its relevance, volume.17,issue2,1995,pages265286,<https://doi.org/10.1093/oxfordjournals.epirev.a036193>
- Helen M. Perdita (2013). A study to devise a module on health promotion to prevent health risk behaviors among adolescents. TNNMC, *Journal of Pediatric Nursing*, 1(1): 11.
- Helwa HA, Mitaeb AA, Al-Hamshr S, et al. (2018). Prevalence of dysmenorrhea and predictors of its pain intensity among Palestinian female university students. *BMC Women's Health*.;18(18). Available from: <http://doi.org/10.1186/s12905-018-0516-1> (Accessed 15 September 2020).
- Hillard PA (2014). Menstrual suppression: current perspectives. *International Journal of Women's Health*. 6: 631–637. Available from <http://doi.org/10.2147/IJWH.S46680> (Accessed September 14, 2020).
- Iacovides, S., Avidon, I. & Baker, F. C. (2015). What we know about primary dysmenorrhea today: a critical review. *Human Reproduction Update*, 21, (6) pp. 762–778

Iacovides S, Avidon I, Bentley A, Baker FC, Reduced quality of life when experiencing menstrual pain in women with primary dysmenorrhea, *Acta Obstet Gynecol Scand.* 2014 Feb; 93(2):213-7.

In Jung Cho, Hyunjoo Kim, Sinye Lim, Sinye Lim, Sung soo oh, Sung Jin park and Hee Tae Kang (2014). Emotional labour and dymenorrhea in women working in sales and call centers, *Ann Occup Environ med*, DOI: 10.1186/S4055701400459

Janssen, E.B., Rijkers, A.C., Hoppenbrouwers, K., Meuleman, C., & D'Hooghe, T.M. (2013). Prevalence of endometriosis diagnosed by laparoscopy in adolescents with dysmenorrhea or chronic pelvic pain: a systematic review. *Hum Reprod Update.* Vol. 19:570–582.

Ju. H, Jones, M, & Mishra, G. (2014). The prevalence and risk factors of dysmenorrhea. *Epidemiol Rev.*, Vol.4, No,36. Pp.104–113.

Junyoung Jo, Sun Haeng Lee (2019). Heat therapy for primary dymenorrhea: A systematic review and meta-analysis pf its effects on pain relief and quality of life. *Scientific reports.* Vol.8, No.1 Doi:10.1038/s41598-018-34303-Z

Karthiga, V., Abhijit, V.B., Shib, S.D., Suba, J., Sherin, B.A., & Anil, J.P (2011). Menstrual problems and pattern of consultation among adolescent school girls in Pondicherry. *Indian Journal of Medical Specialities*, Vol. 2, No.2, Pp.92-95.

Kollipaka, R., Arounassalame, B., & Lakshminarayanan, S. (2013) Does psychosocial stress influence menstrual abnormalities in medical students. *J Obstet Gynaecol.* Vol. 33, No.5, Pp. 489-93.

Kural M, Noor NN, Pandit D, Joshi T, Patil A(2015). Menstrual characteristics and prevalence of dysmenorrhea in college going girls. *Journal of Family Medicine and Primary care.* Vol.4, No.3. Pp.426–31. doi: 10.4103/2249-4863.161345

Ling Chen, Lu Tang, Shengyu Guo, Atipatsa Chiwanda and Huilan Xu. (2019). Primary dysmenorrhea and self-care strategies among Chinese college girls: a cross-sectional study, *BMJ Open.* 2019; 9(9): e026813, doi: [10.1136/bmjopen-2018-026813](https://doi.org/10.1136/bmjopen-2018-026813)

Loto, O. M., Adewumi, T. A., & Adewuya, A. O. (2008). Prevalence and correlates of dysmenorrhea among Nigerian college women. *The Australian & New Zealand journal of obstetrics & gynaecology.* Vol, 48, No 4.Pp. 442–444. <https://doi.org/10.1111/j.1479-828X.2008.00869.x>



- Malarvizhi and Judie (2012). Dysmenorrhoea among adolescent girls in selected schools. *The Nurse*. Vol., No.4, Pp. 10-12.
- Maryam Kabirian, Zahra Abedian, Seyed Reza Mazolm & Behroz Mahram (2011). Self- Management in Primary Dysmenorrhoea: Toward Evidence based Education; *Life Science Journal*, Vol.8, No.2, Pp.3.
- Mavrellos, D. & Saridogan, E. (2017). Treatment options for primary and secondary dysmenorrhoea. Retrieved online from: [www.rcog.org.uk](http://www.rcog.org.uk)
- Mathias S.D, Kuppermann M., Liberman R.F, Lipschutz R.C, Steege J.F (1996). Chronic pelvic pain: prevalence, health related quality of life, and economic correlates, *Obstet Gynecol*: PMID:8598948, DOI:10.1016/00297844(95)004580
- Mazlomeh Hamzekhani, Sedighe Jamali Gunwoman, Zeinab Tavakol, Mahdie Kiani (2019) The Relation between sleep quality and primary dysmenorrhea Students University of medical sciences Shahroud, *Journal of Advanced Pharmacy Education & Research | Oct-Dec 2019 | Vol 9 | Issue 4*.
- Meaddough, E. L., Olive, D. L., Gallup, P., Perlin, M., & Kliman, H. J. (2002). Sexual activity, orgasm and tampon use are associated with a decreased risk for endometriosis. *Gynecologic and obstetric investigation*. Vol.53, No.3.Pp. 163–169. <https://doi.org/10.1159/000058368>
- Monawara Begum, Sumit Das, Hemanta Kr. Sharma (2016). Menstrual Disorders: Causes and Natural Remedies. *Research journal of pharmaceutical, Biological and chemical sciences* 4(2):307\_320
- Motta, E.V, Salomão, A.J, & Ramos, L.O. (2000). Dismenorrea. *Rev Bras Ginecol Obstet*. Vol.57, No.5, Pp. 369-86.
- Nakame, R. M., Kiwanuka, F., & Robert, A. (2018). Dysmenorrhea among students aged 18-45 years attending University in Uganda: A cross-sectional multicenter study of three Universities in Uganda. *Nursing open*, 6(2), 268–275. <https://doi.org/10.1002/nop2.207>
- Orhan, C., Çelenay, Ş.T., Demirtürk, F., Özgül, S., Üzelpasacı, E. and Akbayrak, T. (2018), Effects of menstrual pain on the academic performance and participation in sports and social activities in Turkish university students with primary dysmenorrhea: A case control study. *Journal of Obstetrics and Gynaecology*. Vol. 44.Pp. 2101-2109.

- Öztürk A (2004) Dysmenorrhea prevalence in women who applied to gynaecology and obstetrics polyclinic and affecting factors. *Medical Network and Clinical Science Doctor*.Vol. 10.Pp. 208–213
- Padmaja Dhawale (2014). Reducing pain of dysmenorrhoea through Yoga. *Nightingale Nursing Times* Vol.10, No.5, Pp. 39-41.
- Pramanik, T., Shrestha, R., Sherpa, M.T., & Adhikari, P. (2010). Incidence of dysmenorrhoea associated with high stress scores among the undergraduate Nepalese medical students. *Journal of Institute of Medicine*.Vol. 32, No.3, Pp. 2-4.
- Prakriti Goswami, Geeta Ahirwar, Prabha Mishra, Veena Agrawal(2015).Adolescent Gynaecological Problems: A Prospective Study. *Journal of Evolution of Medical and Dental Sciences*. Vol. 4, No. 102, Pp. 16709-16712, DOI: 10.14260/jemds/2015/2500
- Proctor M, & Farquhar, C. (2006). Diagnosis and management of dysmenorrhoea. *BMJ* 332:1134–1138.
- Renuka, K. & Jeyagowri Subash, S. (2014). Primary dysmenorrhoea and exercises. *Pondicherry Journal of Nursing*. Vol. 7, No.3, Pp. 19-21.
- Sahin, S., Ozdemir, K., Unsal, A., & Arslan, R. (2014). Review of frequency of dysmenorrhea and some associated factors and evaluation of the relationship between dysmenorrhea and sleep quality in university students. *Gynecologic and obstetric investigation*, 78(3), 179–185. <https://doi.org/10.1159/000363743>
- Samba Conney C, Akwo Kretchy, Aseidu Danso M, Allotey Babington GL (2019). Complementary and alternative medicine use for primary dymenorrhea among senior obsterictics and gynecology international. DOI:1155/2019/8059471
- Sahar Mansoul Lamadah, and Luma Ghazi Al Zamil (2014). Self-Care Practices Among Adolescent Females During Dysmenorrhea.
- Atumm Al Qura University. *International Journal of Current Research*. Vol. No.6 pp. 7137-7144
- Sathya, S. P., J., & Samaga, L.N. (2014). Yoga: An Antidote to stress. *The Nurse International*. Vol. 6, No.3, Pp. 19-21
- Shanthi, S. & Venkatachalapathy, K. (2008). Yoga a tool to reduce stress among medical professionals. *Indian Journal of Holistic Nursing*.Vol. 3, No.4, Pp. 15-17.

- Sharma,N., Sagayaraj,M. & Sujatha, B. (2014). Menstrual characteristics and prevalence of dysmenorrhea in college students. *International Journal of Scientific and Research Publications*.Vol.4 No.10, Pp. 1–6.
- Sharefah Al-Matouq, Hessah Al-Mutairi, Ohood Al-Mutairi, Fatima Abdulaziz , Dana Al-Basri, Mona Al-Enzi, Abdullah Al-Taiar (2019). Dysmenorrhea among high-school students and its associated factors in Kuwait. P.M.C: Mar 18;19(1):80.doi: 10.1186/s12887-019-1442-6.
- Schoep, M. E., Adang, E. M. M., Maas, J. W. M., De Bie, B., Aarts, J. W. M., & Nieboer, T. E. (2019). Productivity loss due to menstruation-related symptoms: a nationwide cross-sectional survey among 32 748 women. *BMJ Open*, Vol. 9, No.6. Pp. e026186. <https://doi.org/10.1136/bmjopen-2018-026186>
- Solomon, H. Asrate, D. Nigussie, A. (2016). Primary dysmenorrhea magnitude, associated risk factors, and its effect on academic performance: evidence from female university students in Ethiopia. *International Journal of Womens Health* DOI: [10.2147/IJWH.S112768](https://doi.org/10.2147/IJWH.S112768)
- Soydinc, H.E., Evsen, M.S., Sak, M.E., Ozler, A., Turgut, A. & Gul, T. (2013). Association between mean Platelet volume and different phases of menstrual cycle in primary dysmenorrhoea. *Clinical and Experimental Obstetrics and Gynecology*.Vol.40, No.3, Pp. 429-32.
- Sultan C, Gaspari L, Paris F (2012) Adolescent dysmenorrhea. *Endocrine Development*: Vol.22, Pp. 171-180.
- Teshager Aklilu Yesuf, Nigist Assefa Eshete, and Eskinder Ayalew Sisay, Dysmenorrhea among University Health Science Students, Northern Ethiopia: Impact and Associated Factors, *International Journal of Reproductive Medicine* Volume 2018, <https://doi.org/10.1155/2018/9730328>.
- Thomas F, Renaud F, Benefice E, de Meeus T, Guegan,J. (2001) International variability of ages at menarche and menopause: patterns and main determinants. *Human Biology*.Vol.73. Pp.271–290
- Tiffany Damm, Georgine Lamvu, Jorge Carrila, Cheni Oilyang, Jesssica Feranec (2019). Continuous vs Cyclic combined hormonal contraceptives for treatment of dymenorrhhea; a systematic review. *Elsevier article contraception*, [https://doi.org/10.1016.j.conx2019.100002](https://doi.org/10.1016/j.conx2019.100002)
- Unsal A, Aranci U, Tozun M, Arslan G, Calik E (2010). Prevalence of dymenorrhhea and its effects on quality of life among a group of female university students.

*Uppsala journal of medical science*.Vol.115, No.2, Pp. 138-145.  
Doi:10.3109/03009730903457218

Usha N, Madhavi K (2013)., Meditation and yoga as alternative therapy for primary dysmenorrhea. *International Journal of Medicine and Pharmacy*. Vol.3, Pp. 39-44.

Weissman, A.M., Hartz, A.J., Hansen, M.D., (2004). The natural history of primary dysmenorrhoea: a longitudinal study. *BJOG*.Vol. 111, No. 4, Pp. 345-352

Wijesiri, H.S., & Suresh, T.S (2012). Knowledge and attitude towards, dysmenorrhea. *Nursing & health sciences*. Vol.15, No.1

Yeh, T.K., Chen, C.H., Xu,G., Wang, C.S.,Chen, K.H., 2013. The impact on the positioning accuracy of the frequency reference of a GPS receiver. *Surveys in Geophysics*.Vol. 34, Pp. 73–87, doi:10.1007/s10712-012-9202-2.

Zolton, J. and Maseelall, P. (2013). Evaluation of ovarian cysts in adolescents. *Open Journal of Obstetrics and Gynecology*.Vol.3. Pp. 12-16. doi: 10.4236/ojog.2013.37A1004.

## **APPENDIX**

### **DYSMENORRHEA AND RELATED PROBLEMS AMONG AFRICAN STUDENTS IN NEAR EAST UNIVERSITY**

This study was planned as a master thesis. Aim of this questionnaire is to determine dysmenorrhea related problems and coping ways of African student's in Near East University. If you are not from Africa, please do not answer the questionnaire.

Answering this questionnaire will take 15 minutes. Before answering the questions please read the questionnaire carefully and answer all the questions. If a question requires extra explanation, please write extra explanation. Please answer all questions as honestly.

(1). What is your age group? \*

- 20 years & below
- 21 - 25 years
- 26 years& above

(2). What is your marital status? \*

- Single
- Married
- Others

(3). What is your Nationality? \*

- Nigerian
- Zimbabwe
- Cameroon
- Kenya
- Tanzania
- Ghana
- Other

(4). What is your faculty? \*

- International Relations
- Tourism

(5). What is your first menstruation age? \*

(6). Do you have any gynecological problem? If YES, please answer question numbered (7) if no skip it. \*

- Yes
- No

(7). Which gynecologic problem you have?

- Myoma uteri
- Endometriosis
- Ovarian cyst
- Uterine polyps
- Pelvic inflammatory diseases
- Uterine adhesion
- Other

(8). What is your menstrual bleeding length? Please answer this question considering from the first day of a menstruation to the last day of menstruation. \*

- One day
- Two days
- Three days
- Four days
- Five days or more

(9). How long is your menstrual period last? Please answer this question considering from the first day of a menstruation to the first day of next menstruation \*

- Long menstrual cycle length
- Short menstrual cycle length

(10). Do you feel pain during menstrual bleeding (dysmenorrehea)? \*

- Yes
- No

(11). If you select Yes in Question (10). Please mark your pain degree. If you selected No, Please STOP answering the questionnaire \*

The scale shows the progression and degree of pain from 0(no pain) through 10(Severe pain). Where 5 indicates Moderate Pain

1    2    3    4    5    6    7    8    9    10

No Pain           Severe Pain

(12). When do you experience menstrual pain? \*

- 1day prior menstruation
- 2 days' prior menstruation
- 3 days' prior menstruation
- At the day of menstruation
- At the first day of menstruation
- At the 2 days of menstruation
- At the 3 days of menstruation
- At the 4 days of menstruation
- At the 5 days of menstruation

(13). How long does your pain persist? Please indicate below? \*

- One day
- Two days
- Three days
- Four days
- Five days or more

(14). Do you share dysmenorrhea problem with others? \*

- Yes
- No

(15). With whom do you share dysmenorrhea problem?

If you selected No in Question (14), please skip this question

- Physician
- Mother
- Friends
- Sister
- Nurse
- Doctor
- Other: .....

(16). Did you seek professional help for dysmenorrhea? \*

- Yes
- No

(17). Why didn't you seek help?

If you answer Yes in question (16), please skip this question

- I think it is normal for women
- Because of shame
  
- Other: .....

(18). What you did for your dysmenorrhea problem? \*

- Went to a Gynecologist
- Went to a Nurse
- Went to a Pharmacy Store
  
- Other: .....

(19). Do you think your dysmenorrhea problem require medical help? \*

- Yes
- No

(20). Do you use pharmacological method when having dysmenorrhea? \*

- Yes
- No

(21). Which medication do you use when having dysmenorrhea? (Please write the name below)

If you select No in Question (20), please skip this question

.....

(22). Who recommended a pharmacologic method to you?

If you select No in Question (20), please skip this question

- Doctor
- Nurse
- My relative
- A Pharmacist



- Other: .....

(23). Do you use a non- pharmacological method for dysmenorrhea challenge? \*

- Yes
- No

(24). Please mark the non-pharmacological method you use?

If you select No in Question (23), please skip this question

- Hot bath
- Heating pad
- Hot tea
- Herbs
- Other: .....

(25). Are you satisfied with the method you use for solving dysmenorrhea problem? \*

- Yes
- No

(26). Please mark your sleep quality during menstruation \*

- Very good
- Fairly good
- Fairly bad
- Very bad

Please indicate to what degree as dysmenorrhea problems affected these areas of your life as highlighted below.

The scale shows the progression and degree of how dysmenorrhea is affecting you in these specified areas. Answer items considering zero (0) means not affecting, 5 is moderate affecting and 10 is severely affecting

School Attendance \*

1 2 3 4 5 6 7 8 9 10

Not Affecting                 Severely  
Affecting

Learning new things in school \*

1    2    3    4    5    6    7    8    9    10

Not Affecting                 Severely  
Affecting

Social life \*

1    2    3    4    5    6    7    8    9    10

Not Affecting                 Severely  
Affecting

Altered body image \*

1    2    3    4    5    6    7    8    9    10

Not Affecting                 Severely  
Affecting

Feeling down \*

1    2    3    4    5    6    7    8    9    10

Not Affecting                 Severely  
Affecting

Personal care disruption \*

1 2 3 4 5 6 7 8 9 10

Not Affecting           Severely  
Affecting

Sexual life \*

1 2 3 4 5 6 7 8 9 10

Not Affecting           Severely  
Affecting

Concentration problems \*

1 2 3 4 5 6 7 8 9 10

Not Affecting           Severely  
Affecting

Sleep \*

1 2 3 4 5 6 7 8 9 10

Not Affecting           Severely  
Affecting

Success in school \*

1 2 3 4 5 6 7 8 9 10

Not Affecting                 Severely  
Affecting

Work performance \*

1    2    3    4    5    6    7    8    9    10

Not Affecting                 Severely  
Affecting

28.5.2020

**Yakın Doęu Üniversitesi Hemşirelik Fakóltesi Dekanlığına,**

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YDÜ Turizm Fakóltesi Dekanı



14.01.2021

**Konu: Anket Uygulaması hk.**

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İktisadi ve İdari Bilimler Fakültesi Dekanı



YAKIN DOĞU ÜNİVERSİTESİ  
BİLİMSEL ARAŞTIRMALAR ETİK KURULU

#### ARAŞTIRMA PROJESİ DEĞERLENDİRME RAPORU

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Yakın Doğu Üniversitesi Hemşirelik Fakültesi öğretim üyelerinden Prof. Dr. Gülşen Vural'ın sorumlu araştırmacısı olduğu, YDU/2020/79-1072 proje numaralı ve "Dysmenorrhea and Related Problems Among African Female Students in Near East University" başlıklı proje önerisi kurumumuzca online toplantıda değerlendirilmiş olup, etik olarak uygun bulunmuştur.

Prof. Dr. Rüştü Omur

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