# PREVALENCE AND RISK FACTORS OF DYSMENORRHEA AMONG FEMALE STUDENTS IN SELECTED SECONDARY SCHOOL IN EDO STATE

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**BENIN CITY**

**OCTOBER, 2025**

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**IN PARTIAL FULFILMENT OF THE AWARD OF THE DEGREE OF BACHELOR OF NURSING SCIENCES (B.NSC.) FACUITY OF NURSING SCIENCE, UNIVERSITY OF BENIN, BENIN CITY.**

**OCTOBER, 2025**

## DECLARATION

This is to declare that this research project titled "**PREVALENCE AND RISK FACTORS OF DYSMENORRHEA AMONG FEMALE STUDENTS IN SELECTED SECONDARY SCHOOL IN EDO STATE**" was carried out by **PRECIOUSGIFT CHIEMELAM OKAFOR** is solely the result of my work except where acknowledged as being derived from other person(s) or resources..

**MATRICULATION NUMBER: _____**

**IN THE FACULTY/COLLEGE: NURSING SCIENCES, COLLEGE OF MEDICAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY.**

**Signature: …….** **Date: …….**

## CERTIFICATION PAGE

This is to certify that this project was carried by **PRECIOUSGIFT CHIEMELAM OKAFOR** with Mat number **BMS1902256 .** Faculty of Nursing Science, under the supervision of **MRS. F. A. ESEBAME.**

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**External Examiner** **DATE**

**ABSTRACT**

*This study investigated the prevalence and risk factors of dysmenorrhea among female students inselected secondary school in Edo State. The study aims to ascertain the knowledge of dysmenorrhea, prevalence of dysmenorrhea and the risk factors of dysmenorrhea among female students in selected secondary schools in Edo State. The study adopted a non-experimental descriptive survey design. The study population consisted of* 545 *adolescents in public secondary* from Ezomo College, Ora Benin-city and Ekosodin Secondary School, Ekosodin, Benin-city. *A sample size of 331 respondents was selected for study using convenience sampling technique. The instrument for data collection was a well-structured questionnaire. The instrument was validated by the research supervisor. To ensure the reliability of the instrument, a pilot study of the instrument was carried. The data collected were analysed using both descriptive statistics (frequency, percentages and mean score) and inferential statistics (Chi square statistics) to test the research hypotheses at p < 0.05 level of significance. The result showed that* most of the adolescents have adequate knowledge of dysmenorrhea*. It was also revealed that the* prevalence of dysmenorrhea among adolescents is high. *It was further revealed that* weight loss, exercise, family history of dysmenorrhea, stress and childbirth are all risk factors of dysmenorrhea. It was also indicated that there is a relationship between the respondents' knowledge of primary dysmenorrhea and their age. *Based on the findings, it was concluded and recommended among others that State Ministry of health, National primary health care development Agency should invest in training and retraining of youths in dysmenorrhea, in order to promote their knowledge as it will help in the management of dysmenorrhea. Relevant agencies should create policy support for the training of adolescents on dysmenorrhea*

***Keywords:*** *Dysmenorrhea Knowledge,* Prevalence, Risk factors, Adolescents

## DEDICATION

This work is dedicated to GOD ALMIGHTY who is providing me with the strength to complete my academic journey.

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# CHAPTER ONE

# INTRODUCTION

## 1.0 Background to the Study

Dysmenorrhea, often known as painful menstruation, is characterized by severe, excruciating cramping in the lower abdomen that is frequently accompanied by additional symptoms such sweating, headaches, nausea, vomiting, diarrhea, and trembling (Lentz *et al.,* 2021). Dysmenorrhea comes in two forms: Primary dysmenorrhea is pain without a clear pathological condition of the pelvis, and it nearly invariably manifests itself in women 20 years of age or younger after the ovulatory cycle has established itself (Lentz *et al.,* 2021). Secondary dysmenorrhea is more prevalent in women over the age of 20 and is brought on by underlying pelvic problems or physiology (Impey and Child, 2021).

In comparison to other gynecological issues, dysmenorrhea is thought to be the most common symptom of all menstrual complaints. It has a significant impact on health-related quality of life, productivity at work, and use of healthcare services because it is a debilitating illness for many women (Ballagh and Haeyi, 2022). Due to the expense of drugs, medical treatment, and lost productivity, dysmenorrhea consequently causes significant economic losses (Lentz *et al.,* 2021).

The literature reports a wide range of dysmenorrhea prevalence rates. The frequency was often higher in young women, with estimates for those between the ages of 17 and 24 ranging from 67% to 90% (Titilayo *et al.,* 2021). In a recent, extensive Australian survey of senior high school girls, it was shown that a higher percentage—93%—of young women reported experiencing menstruation pain (Juang *et al*., 2022). The prevalence of dysmenorrhea among adult women is

less consistently reported in research and frequently focuses on a particular demographic, with rates ranging from 15% to 75% (Juang *et al*., 2022).

Age, smoking, a higher BMI, an earlier age at menarche, nulliparity, a longer and heavier menstrual flow, and a familial history of dysmenorrhea have all been linked to dysmenorrhea (Juang *et al.,* 2022). Oral contraception users typically experience dysmenorrhea that is less severe. The likelihood of dysmenorrhea has also been linked to stress and depression (Juang *et al.,* 2022). Other often used variables, including education, marital status, employment, alcohol intake, and physical activity, produce generally unfavorable or inconclusive findings (Titilayo *et al.,* 2021).

There is currently a substantial body of literature on dysmenorrhea, the bulk of which offers just a cross-sectional snapshot of the disorder and exhibits selection bias because it is based on convenience samples of primarily young college students. No current review that has taken these design elements into account is available. Therefore, this study aims to examine the prevalence and risk factors of dysmenorrhea among female students in selected secondary school in Edo State.

### 1.1 Statement of the Problem

Dysmenorrhea, which affects adolescent girls and women of reproductive age most frequently, is divided into two categories: primary dysmenorrhea and secondary dysmenorrhea. In the absence of an apparent organic pathology, primary dysmenorrhea (PD) refers to painful menstruation or cramps in the lower abdomen before, during, or after menstruation (Iarcovides *et al*., 2021). Secondary dysmenorrhea, on the other hand, describes menstrual pain brought on by physical

and/or obvious pelvic disease, such as endometriosis (Osayande and Mehulic, 2023). Around 6 to 24 months following menarche, in adolescence, is when PD often manifests (Dawood, 2023).

Because of the various criteria and evaluation techniques, studies on menstruation women have demonstrated that PD prevalence ranges from 45% to 95% (Rafique and Al-Sheik, 2021). According to reports, the frequency of PD among female university students was 64.0% in Mexico, 85.7% in Saudi Arabia, 85.4% in Ethiopia, and 89.10% in Iran (Habibi *et al*., 2023). Dysmenorrhea is one of the major factors that contribute to absence from school or work since it is a debilitating condition for many women. This has an adverse impact on academic performance, everyday functioning, and quality of life (Titilayo *et al.,* 2021). Therefore, due to its great frequency, the large population it affects, the high expense of treatments, and the lost productivity, this ailment presents a significant public health and academic burden.

Numerous studies in the recent literature have demonstrated that a variety of risk factors, including biological, psychological, social, and lifestyle factors, may be linked to dysmenorrhea . The biological causes may include earlier menarche age, heavier menstrual flow, and a family history of dysmenorrhea (Ortis *et al.,* 2023); the psychological causes may include stress, anxiety, and depression; the social causes may include a lack of social support (Faramazi and Salmalian, 2021); and the lifestyle causes may include smoking and an unbalanced diet.

In Nigeria, studies have shown that a substantial proportion of secondary school girls experience dysmenorrhea, yet many do not seek medical attention (Okoro *et al*., 2022). This is concerning, as untreated dysmenorrhea can result in chronic pain disorders and psychological distress (Omorogiuwa and Okonkwo, 2021). The condition has been linked to multiple risk factors, including early menarche, prolonged menstrual flow, stress, family history, and lifestyle choices

(Achebe and Oghenekaro, 2020). However, there is limited research on the prevalence and associated risk factors of dysmenorrhea among female students in Edo State, despite its potential to disrupt their education and well-being.

This study aims to address this gap by investigating the prevalence and risk factors of dysmenorrhea among female students in selected secondary schools in Edo State. Understanding the burden and determinants of dysmenorrhea in this demographic is crucial for developing targeted interventions to improve menstrual health education, pain management strategies, and overall reproductive health policies in schools.

### 1.2 Objectives of the Study

The main objective of this study is to examine the prevalence and risk factors of dysmenorrhea among female students in selected secondary schools in Edo State.

The specific objectives of this study are to:

i. Ascertain the knowledge of dysmenorrhea among female students in selected secondary schools in Edo State.
ii. Determine the prevalence of dysmenorrhea among female students in selected secondary schools in Edo State.
iii. Ascertain the risk factors of dysmenorrhea among female students in selected secondary schools in Edo State.

### 1.3 Research Questions

i. What is the knowledge of dysmenorrhea among female students in selected secondary schools in Edo State?

ii. What is the prevalence of dysmenorrhea among female students in selected secondary schools in Edo State?

iii. What are the risk factors of dysmenorrhea among female students in selected secondary schools in Edo State?

### 1.4 Hypotheses

1. There is no significant relationship between the prevalence of dysmenorrhea and the age of the respondents.

### 1.5 Significance of the Study

#### 1.5.1 Nursing Practice

This study is significant to nursing practice as it provides insights into the prevalence and risk factors of dysmenorrhea among female secondary school students in Edo State. Understanding these factors enables nurses to develop effective management strategies, including early screening, health promotion, and pain management interventions tailored to adolescent girls. School nurses and community health practitioners can utilize the findings to provide appropriate counseling on menstrual health, recommend lifestyle modifications, and advocate for accessible pain relief measures. Furthermore, the study emphasizes the need for a holistic approach in nursing care that addresses both the physical and psychological effects of dysmenorrhea, thereby improving the overall well-being of affected students.

#### 1.5.2 Nursing Education

The study contributes to nursing education by enhancing the curriculum on adolescent reproductive health and menstrual disorders. By incorporating evidence-based knowledge on dysmenorrhea into nursing training programs, educators can better prepare nursing students to

recognize, assess, and manage menstrual-related conditions effectively. Additionally, the findings can help nursing students understand the importance of patient education and culturally sensitive approaches in addressing menstrual health issues. Nursing educators can use this study to reinforce the significance of health promotion, self-care practices, and pain management techniques, ensuring that future nurses are equipped with the necessary skills to support young females experiencing dysmenorrhea.

### 1.5.3 Nursing Research

This study provides a foundation for further research on menstrual health among adolescent girls, particularly in Nigeria and other developing countries where cultural and social factors may influence the perception and management of dysmenorrhea. It highlights gaps in existing knowledge and encourages further investigations into effective interventions for reducing the burden of dysmenorrhea. Additionally, the study's findings can serve as baseline data for longitudinal studies exploring the long-term effects of dysmenorrhea on academic performance, mental health, and quality of life. Nursing researchers can also use this study to advocate for policy changes that integrate menstrual health education into school health programs and improve access to healthcare services for adolescent girls.

## 1.6 Scope of the Study (Delimitation)

This study will focus on the prevalence and risk factors of dysmenorrhea among female students in selected secondary school in Edo State. It will also be delimited to the objectives that will guide this study.

## 1.7 Operational Definition of Terms

**1.7.1 Prevalence of dysmenorrhea:** This refers to the proportion of female secondary school students in selected schools in Edo State who experience menstrual pain (primary dysmenorrhea) within a specific time frame.

**1.7.2 Risk factors of dysmenorrhea:** This refer to specific biological, lifestyle, environmental, and psychosocial factors that increase the likelihood of experiencing painful menstruation among female secondary school students in selected schools in Edo State.

**1.7.3 dysmenorrhea**: This refers to recurrent, cramp-like pain in the lower abdomen experienced by female secondary school students in selected schools in Edo State during menstruation, in the absence of any diagnosed pelvic pathology.

# CHAPTER TWO

# LITERATURE REVIEW

This section examined related literature with focus on the conceptual, empirical review and theoretical framework.

## 2.1 Concept of Dysmenorrhea

Primary dysmenorrhea (PD) affects both young and adult females and is a prevalent, ignored, underdiagnosed, and poorly treated problem. In women of childbearing age, dysmenorrhea is characterized as excruciating menstrual cramps of uterine origin and is one of the most prevalent gynecological illnesses (Iacovides, 2021). Due to the fact that the majority of females do not seek medical attention, the problem, despite being common, is typically underdiagnosed (Chen *et al.,* 2021). It is categorized as either primary or secondary dysmenorrhea (SD) depending on its etiology. One of the most prevalent complaints in both young and adult females is primary dysmenorrhea (PD), which is characterized as spasmodic and painful cramps in the lower abdomen that start just before or at the commencement of menses without any pelvic pathology (Sharghi *et al.,* 2021). Within six to twenty-four months following menarche, it primarily manifests during adolescence.

Dysmenorrheic pain often worsens on the first day of menstruation and can persist up to 72 hours. It has a distinct and cyclical pattern. Despite its great incidence and negative effects on everyday activities, it is frequently treated ineffectively and even ignored because many young female patients would rather suffer in silence without consulting a doctor. Females view Dysmenorrhea as embarrassing and taboo, and they also see the pain associated with menstruation as an expected reaction that must be tolerated (Chen *et al.,* 2021). Primary healthcare professionals

frequently deal with female patients who have dysmenorrheic symptoms (Rafique and Al-Sheikh, 2021) and as a result, they are crucial in identifying, educating, reassuring, and providing them with the therapy needed to improve the course of Dysmenorrhea treatment (Parra-Fernandez *et al.,* 2020).

### 2.2 Epidemiology of Dysmenorrhea

In females of reproductive age, Dysmenorrhea affects 45% to 95% of the population; 2% to 29% of those affected report severe discomfort (Mendiratta and Lentz, 2021). The disparities in the methodology employed to evaluate dysmenorrhea , the population that was chosen, age groups, ethnicity, and regional variations in pain perception may all contribute to this disparity in rates. Generally speaking, younger women (under 24 years old) had a higher prevalence (70% to 90%) (Abreu-Sanchez, 2020).

### 2.3 Impact of Dysmenorrhea on the Quality of Life

Dysmenorrhea affects young ladies' quality of life (QOL) and productivity in addition to their physical health (Borgelt and Gunning, 2021). According to earlier research, dysmenorrhea is one of the main reasons people miss out on school or job, resulting in a loss of 600 million hours annually and a $2 billion loss for the US economy (Rafique and Al-Sheikh, 2021). Among girls with Dysmenorrhea , the rate of school absence varied between 14% and 51% (Parra-Fernandez, 2020). There have been reports of a 29% to 50% drop in class attendance during menstrual cycles. According to a study done in Palestine, more than half of university students with dysmenorrhea abandon classes because their periods hurt (Abu-Helwa *et al.,* 2021). Furthermore, a study from Hong Kong found that the pain domain had the lowest QOL scores among young women with Dysmenorrhea. A study from Turkey that found adult females had a poorer perception of QOL also corroborated this (Parra-Fernandez, 2020).

## 2.4 Pathophysiology of Dysmenorrhea

Despite the lack of a fully understood etiology for dysmenorrhea, current research points to increased prostaglandin F2 (PGF2) and prostaglandin E2 (PGE2) release in the uterus during endometrial sloughing as the pathogenesis of the condition. As a result of the increased myometrial contractions and vasoconstriction caused by these prostaglandins, uterine ischemia and the generation of anaerobic metabolites result. Pelvic pain is the end result, and this causes the pain fibers to become hypersensitive (Sharghi *et al.,* 2021). The cyclooxygenase (COX) pathway, which is involved in the arachidonic acid cascade, is responsible for producing prostaglandins. Through the action of the lysosomal enzyme phospholipase A2, progesterone regulates the synthesis of arachidonic acid. The middle of the luteal phase, the last period of the menstrual cycle that takes place after ovulation, is when the progesterone level peaks. The corpus luteum deteriorates and the level of progesterone in the blood decreases if conception is unsuccessful. Menstrual bleeding, endometrial sloughing, and the release of lysosomal enzymes—which produce arachidonic acid and, in turn, prostaglandins—are all linked to this sudden drop in progesterone levels (Chen *et al*., 2021).

During the late luteal phase, women who have regular menstrual cycles have higher endometrial prostaglandin levels. However, multiple studies that examined endometrial biopsies and menstrual fluids to quantify prostaglandin concentrations in the luteal phase found that dysmenorrheic women have higher amounts of prostaglandins than eumenorrheic women (Chen *et al*., 2019). Therefore, increased levels of PGF2 and PGE2 in the endometrium are strongly correlated with menstrual cramps, pain severity, and related symptoms (Parra-Fernandez at al., 2020).

## 2.5 Characteristics and Symptoms

Dysmenorrhea discomfort commonly begins 1 to 2 days prior to the commencement of menses or right after the menstrual flow, and it lasts for 8 to 72 hours on average (Borgelt and Gunning, 2021). In addition to lower abdomen and pelvic pain, dysmenorrhea is frequently accompanied by symptoms that fall into one of two categories: physical symptoms or psychological symptoms. Systemic, gastrointestinal, and elimination-related symptoms are the ones that are most frequently felt physically. Lethargy, weariness, sleepiness/sleeplessness, sore breasts, a heavy lower abdomen, backache, aching knees and inner thighs, myalgia, arthralgia, and swollen legs are among the systemic symptoms.

While the symptoms connected to elimination include constipation, diarrhea, frequent urination, and sweating, the gastrointestinal symptoms include an increase or reduction in appetite, nausea, vomiting, and bloating. Women who are dysmenorrheic may develop mood disorders such anxiety, melancholy, irritability, and anxiousness as psychological symptoms (Borgelt and Gunning, 2021). It was found that women with dysmenorrheic pain had three times the rate of despair, anxiety, and excess somatic symptoms. While the heritability of both PD and psychological symptoms may point to a shared genetic variable, the co-occurrence of dysmenorrhea and psychological symptoms may indicate a neurological brain condition that causes menstruation discomfort.

## 2.6 Treatment

The major goal of Dysmenorrhea treatment is to give dysmenorrheic ladies enough pain relief to allow them to carry out their normal activities, enhance their quality of life, and reduce their absences from school or work. Potential management strategies for dysmenorrhea include complementary and alternative therapies that include both pharmaceutical and non-

pharmacological interventions. Since NSAIDs and hormonal contraceptives block the generation of prostaglandins, which are directly linked to period pain and its accompanying systemic symptoms, they are suggested as first-line therapy for the treatment of dysmenorrhea . The American Academy of Family Physicians advises starting empiric therapy with either NSAIDs or hormonal contraceptives for females who have a normal medical history and presentation of PD (Parra-Fernandez at al.,, 2020). The Canadian Society of Obstetricians and Gynecologists and the American College of Obstetricians and Gynecologists both endorse this. Nevertheless, there is no proof that hormonal contraceptives or NSAIDs are more effective than each other. Prior to switching to the second modality, the patient's adherence to the therapy must be evaluated if treatment with one modality fails or is found to be insufficient after a period of 3 to 6 months.

**2.7 Pharmacological Management**

Non Steroidal Anti-inflammatory Drugs: NSAIDs are excellent analgesics and anti-inflammatory drugs that are most frequently used to treat Parkinson's disease (Rafique and Al-Sheikh, 2021). Since they prevent the activity of cyclooxygenase, which prevents the formation of prostaglandins, they are regarded as the cornerstone in the management of dysmenorrhea. As a result, NSAIDs are advised as the first-line treatment for females who prefer taking analgesics or in situations where utilizing contraceptives is not advised. Based on the research at hand, there is no NSAID formulation that is better than another in terms of controlling dysmenorrhea , although different NSAIDs all have comparable efficacy and safety (Rafique and Al-Sheikh, 2021). To ascertain the effectiveness and safety of NSAIDs in dysmenorrhea , a comprehensive evaluation of 80 randomized controlled trials involving 5,820 female participants was carried out. It was determined that NSAIDs were not superior for pain alleviation but were more than twice

as effective as paracetamol and 4.5 times more effective than a placebo . However, NSAIDs were also linked to negative side effects, such as negative gastrointestinal symptoms and negative neurological effects. The NSAID's effectiveness is predicted by when it is given. NSAIDs should be started 1 to 2 days prior to the anticipated start of menses, given with meals to reduce unfavorable gastrointestinal effects, with a regular dose schedule, and continued for the first 2 to 3 days of bleeding for the best treatment efficacy and safety. It has been proven that starting NSAIDs prior to COX-2 cascade induction completely shuts down prostaglandin synthesis.

Therefore, delaying the consumption of NSAIDs results in partial or progressive suppression. A different therapeutic strategy is to substitute an NSAID of a different class if a patient's condition does not improve while taking a particular NSAID (Rafique and Al-Sheikh, 2021).

### 2.8 Hormonal Contraceptives

If not contraindicated, hormonal contraceptives are also regarded as first-line therapy for the treatment of dysmenorrhea. Typically, they are advised for dysmenorrheic women who require contraception, for whom the use of contraceptives is permitted, or for those who cannot tolerate or do not respond to NSAIDs. Hormonal contraceptives have been shown to inhibit ovulation and endometrial growth, hence preventing the synthesis of prostaglandins (Rafique and Al-Sheikh, 2021). A levonorgestrel intrauterine system, subcutaneous depot medroxyprogesterone acetate, combination oral contraceptives (COC), contraceptive transdermal patches or vaginal rings, and other hormone therapies have all been used to manage Parkinson's disease (PD).

**Acetaminophen**

For dysmenorrheic patients who do not want hormonal contraceptives and who are unable to tolerate NSAIDs due to their gastrointestinal disturbance, acetaminophen is a tolerable pharmacological analgesic.It is regarded as a safe analgesic with mild gastrointestinal side effects because of its weak COX inhibitory action, which lowers prostaglandin synthesis. Nevertheless, a number of studies that examined the effectiveness of various treatments for the management of dysmenorrhea have shown that acetaminophen performs less well than NSAIDs and hormonal contraceptives. Thus, it is only preferred for mild to moderate dysmenorrheic discomfort (Rafique and Al-Sheikh, 2021).

**2.9 Non Pharmacological Interventions**

Among women with dysmenorrhea, non-pharmacological therapies are frequently used. According to a recent meta-analysis of 12,526 dysmenorrheic females, 51.8% of them used various non-pharmacological coping mechanisms to deal with their monthly pain. Several non-pharmacological therapies have been suggested for the treatment of dysmenorrhea; these can be used either alone as an alternative therapy or in conjunction with NSAIDs or COCs as a complimentary therapy (Sharghi *et al.,* 2021). These therapies were thought to lessen menstruation pain through a number of processes, including boosting blood flow to the pelvis, preventing uterine contractions, triggering the production of endorphins and serotonin, and changing the brain's sensitivity to pain signals. Despite this, there is disagreement on the research backing the use of non-pharmacological therapies.

Exercise and topical heat application have been shown to greatly lessen menstrual pain, and their effectiveness is on par with that of NSAIDs. Due to their shown efficacy, cheap cost, and rarity

of side effects, the use of heating pads and regular exercise should be promoted as an alternative or supplemental therapy (Sharghi *et al.,* 2021). The effectiveness of nutritional supplements (such as vitamins B, D, and E or omega-3 fatty acids), acupuncture, yoga, massage, and herbal therapies in the treatment of dysmenorrhea , however, is not sufficiently supported by research.

Transcutaneous electrical nerve stimulation (TENS) is a non-invasive therapy method that has been successfully used to lessen menstrual discomfort (5,12,13,30,53).Using adhesive electrodes to administer electrical currents, it is a compact, battery-powered portable device applied to the pelvic skin surface. It has two separate pathways that mediate its analgesic effect. In order to reduce pain perception brought on by uterine hypercontractility during menstruation, the first mechanism involves raising the sensory uterine pain threshold by transmitting a series of afferent electrical impulses via the large-diameter sensory fibers. The second mechanism involves getting peripheral nerves to release endorphins, which also reduces pain. High frequency TENS (50 Hz) and low frequency TENS (2–5 Hz) are the two primary types of TENS, with high frequency TENS being the most popular because it has been shown to be more effective at relieving menstrual pain.

**2.10 Surgical Interventions**

Surgery has occasionally been suggested as a treatment option for patients with severe dysmenorrhea who don't respond to other forms of therapy. Laparoscopic uterosacral nerve ablation (LUNA), presacral neurectomy (PSN), and hysterectomy are examples of surgical procedures (Sharghi *et al.,* 2021). Both LUNA and PSN involve the transection of afferent nerve fibers in the uterosacral ligaments or pelvis to block cervical sensory pain fibers. However, these therapies are unlikely to be advised for treating dysmenorrhea because there is little data to support their efficacy and safety. Hysterectomy is also viewed as the last option in severe cases

that are recalcitrant, however it should be avoided in young girls, adolescents, and women who are trying to get pregnant (Sharghi *et al.,* 2021).

### 2.11 Prevalence and Risk factors of Dysmenorrhea

In the world's reproductive years, 50–90% of women face the condition of dysmenorrhea, which is characterized by painful menstruation (Al-Jefout and Nawaiseh, 2022). Most of these ladies are young girls with primary dysmenorrhea. With age, primary dysmenorrhea tends to lessen. Secondary dysmenorrhea, however, appears later in life. Between 60.9 and 89.7% of Saudi young women report having dysmenorrhea (Rafique and Al-Sheikh, 2021). These research were carried out in various Saudi Arabian cities (Saleem, 2022). Younger age (particularly in teenagers), smoking, and stress are risk factors for dysmenorrhea (Burnett and Lemyre, 2023). Hormonal contraceptives, increased parity, and giving birth to the first child at a younger age also reduce risk (Saleem, 2022).

### 2.12 Theoretical Framework

The theoretical framework will describe the theory and explain why the research problem under this study exist. It will relate the topic under study to the theory and explain why postulated solution may work.

#### 2.12.1 Health Belief Model

The health belief model asserts that when a person believes he or she is susceptible to a health problem with severe consequences, the person will more likely conclude that the benefits outweigh the barriers associated with changing one's behavior to prevent the problem. The health belief model is a great tool for nursing research offering a theoretical framework for helping patients prevent chronic disease or, if disease is present, improve quality of life.

The Health Belief Model (HBM) was developed in the early 1950s by social scientists at the U.S. Public Health Service in order to understand the failure of people to adopt disease prevention strategies or screening tests for the early detection of disease. Later uses of HBM were for patients' responses to symptoms and compliance with medical treatments. The HBM suggests that a person's belief in a personal threat of an illness or disease together with a person's belief in the effectiveness of the recommended health behavior or action will predict the likelihood the person will adopt the behavior.

The HBM derives from psychological and behavioral theory with the foundation that the two components of health-related behavior are 1) the desire to avoid illness, or conversely get well if already ill; and, 2) the belief that a specific health action will prevent, or cure, illness. Ultimately, an individual's course of action often depends on the person's perceptions of the benefits and barriers related to health behavior.

There are six constructs of the HBM. The first four constructs were developed as the original tenets of the HBM. The last two were added as research about the HBM evolved.

Perceived susceptibility - This refers to a person's subjective perception of the risk of acquiring an illness or disease. There is wide variation in a person's feelings of personal vulnerability to an illness or disease.

Perceived severity - This refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). There is wide variation in a person's feelings of severity, and often a person considers the medical consequences (e.g., death, disability) and social consequences (e.g., family life, social relationships) when evaluating the severity.

Perceived benefits - This refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease). The course of action a person takes in preventing (or curing) illness or disease relies on consideration and evaluation of both perceived susceptibility and perceived benefit, such that the person would accept the recommended health action if it was perceived as beneficial.

Perceived barriers - This refers to a person's feelings on the obstacles to performing a recommended health action. There is wide variation in a person's feelings of barriers, or impediments, which lead to a cost/benefit analysis. The person weighs the effectiveness of the actions against the perceptions that it may be expensive, dangerous (e.g., side effects), unpleasant (e.g., painful), time-consuming, or inconvenient.

Cue to action - This is the stimulus needed to trigger the decision-making process to accept a recommended health action. These cues can be internal (e.g., chest pains, wheezing, etc.) or external (e.g., advice from others, illness of family member, newspaper article, etc.).

Self-efficacy - This refers to the level of a person's confidence in his or her ability to successfully perform a behavior. This construct was added to the model most recently in mid-1980. Self-efficacy is a construct in many behavioral theories as it directly relates to whether a person performs the desired behavior.

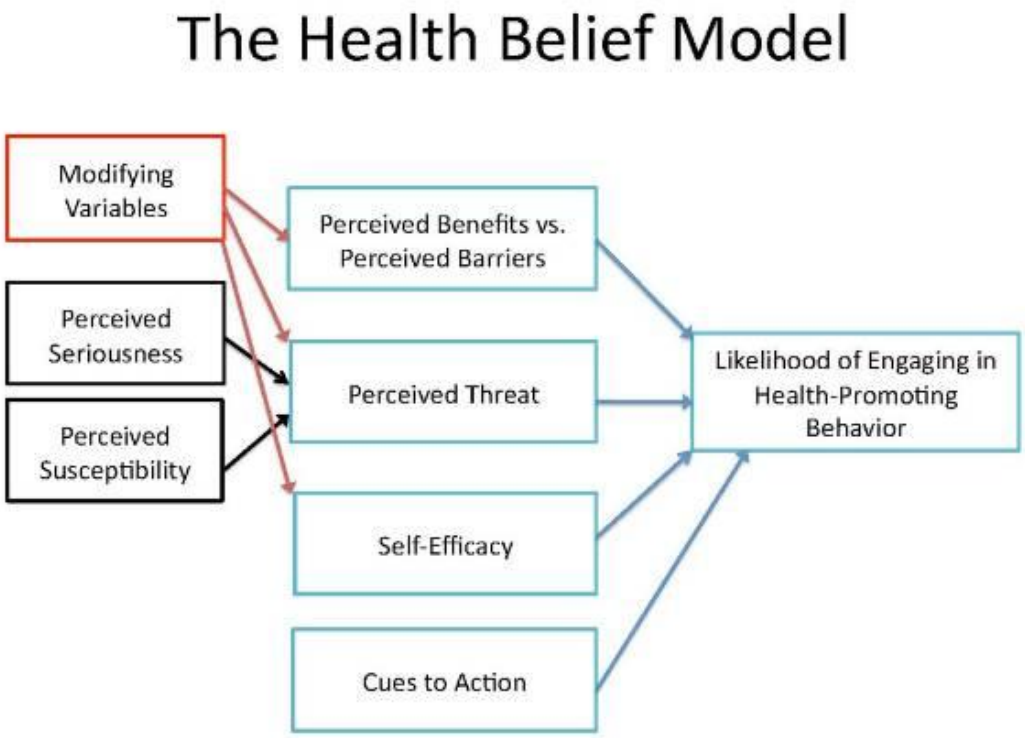


**Figure 2.2 Health Belief Model**

### 2.12.1 Application of Health Belief Model to Nursing Practice

The HBM may be applied in VVF perception and prevention which will help in determining and understanding how the influence of health communication interventions on the adolescent knowledge, practice on vesico-vagina fistula prevention and treatment, how it is understood by adolescent, their behaviours towards risk factors, and their willingness to help others to seeking remedy in cases where there is an incidence. Odoemelam and Ekwueme (2023) in their study, Integrated Development Communication Interventions in Vesico-Vaginal Fistula Prevention and Treatment in Ebonyi State of Nigeria applied the Health belief Model as a theoretical standpoint to provide insight on how intervention communication may foster health development

aspirations by making those at risk to have understanding of how their risk perspectives may culminate in positive behaviour change**.**

**Application of Health Belief Model on Individual Perception**

These talks about the knowledge and belief that a person has about his perception and the outcomes they could have. This section includes two main sections: perceived susceptibility and perceive severity.

### 2.12.2 Perceived Susceptibility

A child that is married off at early age has a high risk of developing VVF. If it is believed that early marriage is not at risk of developing VVF, they may have no reason in mind to have a change of behavior.

### 2.12.3 Perceived Severity

Most people are familiar with the word “severity” of how serious a situation or action can be. In the HBM, perceived severity address how serious the disease that a person is susceptible to can be. Adolescents or society without adequate knowledge of the complications and burden of VVF on adolescent may not have the intention to change to a better cultural practice. They also may not know the psychosocial implications it has on her.

### 2.12.4 Modifying Factor

While individual perceptions were internalized, aside the internalized individual perception in the HBM, modifying factors step outside the body to examine and use outside influences to affect how threatened a person feels by the outcome of continuing the same behaviour that exposed him to the risk factors.

### 2.12.5 Perceived Threat

Susceptibility as stated before displayed how someone acknowledges that their behaviour could head to a particular complication. Threats like the idea one step further by examining just how likely it is that the condition could be developed. For example threats like rape, malignancy tends to pose the individual.

### 2.12.6 Cues to Action

Cues to action are reason why an individual realize he could be threatened by the complication of an action or the quality of life after been affected and the mortality rate. These cues could be due to death of someone close by complications of an action or also the presence of complications like fistula, weakness, premature labour, etc. or after medical counseling by a healthcare provider. Cue to action are anything that triggers a decision to change behaviour. After becoming aware of the potential for developing a condition if behaviour does not chant it's important to weigh out the benefits and the barriers to taking action and determine if it is worth it.

## 2.13 Empirical Review

A study by Zhao *et al*., (2020) on Prevalence and Risk Factors Associated with Primary Dysmenorrhea among Chinese Female University Students: A Cross-sectional study where four thousand six hundred six female individuals were selected using a multistage cluster random sampling method. A self-administered questionnaire, which included socio-demographic information, lifestyle habits, emotional characteristics, and menstruation pattern, was used to collect data. The findings from this study revealed that the prevalence of dysmenorrhea was 41.7% (1921/4606) among Chinese female university students. Multivariate binary logistic regression indicated that being a minority, underweight, annual household income less than

80,000 CNY, maternal history of dysmenorrhea, age at menarche younger than 12 years, irregular menstrual cycle, and skipping breakfast were associated risk factors of dysmenorrhea. The study concluded that the prevalence of primary dysmenorrhea among Chinese university students is relatively high. Various risk factors were identified that associated with primary dysmenorrhea. The study therefore recommended that more effort and attention should be directed toward this health problem in China.

Another study by Samar *et al*., (2021) on Prevalence, risk factors, and management practices of dysmenorrhea among young females, this is a cross-sectional study conducted among 550 female students in six universities across Lebanon. The prevalence of dysmenorrhea , associated risk factors, and management-seeking practices were assessed using a self-administered questionnaire. The findings from this study revealed that the prevalence of dysmenorrhea was 80.9%. Most of the females with dysmenorrhea described their menstrual pain as moderate (56%) to severe (34.6%), which significantly affected their daily activities and studying ability ($P<0.001$). The major risk factors associated with dysmenorrhea included heavy menstrual flow (adjusted odds ratio [AOR]=10.28), family history of PD (AOR=2.52), history of weight loss attempt (AOR=2.05), and medical specialization (AOR=1.663). Only 36.9% of females with Dysmenorrhea sought formal medical advice. Most dysmenorrheic females (76.4%) received medications for the management of dysmenorrhea ,and remarkably none of them took hormonal contraceptives. Drugs commonly used for dysmenorrhea were mefenamic acid (26.2%), ibuprofen (25%), and paracetamol (11.5%), which were administered when the pain started (58.2%). All medications were significantly effective in reducing the pain score ($P=0.001$), and most NSAIDs were more potent than paracetamol in managing PD ($P=0.001$). However, no significant difference in adverse effects among medications was revealed. Moreover, no

superiority of any individual NSAID for pain relief was established. Nevertheless, mefenamic acid was associated with the lowest risk of abdominal pain (OR: 0.03, P=0.005) and the highest risk of flank pain (OR=12, P=0.02). The study concluded that suboptimal management of dysmenorrhea is practiced among university students in Lebanon. Therefore, the study recommended that health care providers should educate dysmenorrheic females to optimize the self-management support of dysmenorrhea . Furthermore, future research is required to investigate females' misconceptions about hormonal contraceptives in the management of dysmenorrhea, aiming to raise awareness and correct misconceptions.

A study by Ologele, Oyiza and Tijani, (2021) on Perceived Risk Factors of Dysmenorrhea among Female Undergraduates in University of Ilorin, Ilorin, Nigeria and descriptive research design of survey type was used for the study. Population for this study comprised of female undergraduates in the University of Ilorin for 2018/2019 academic session. Multi-stage sampling technique of simple, proportionate, purposive and convenience sampling techniques were used to select 263 respondents that participated in the study. The researcher developed a questionnaire which was validated by 3 experts from the field of health educator and community medicine was used for the study. Degree of consistency of the instrument used for the study was confirmed through test-re-test approach and result of r = 0.82 obtained. Non-parametric statistics of Chi-square was used to test the hypotheses formulated for the study at 0.05 alpha level. The findings of the study indicated that stress and high intake of sugar were risk factors for dysmenorrhea among female undergraduates in the University of Ilorin (Chi- square value of 83.45, p = 0.000 with 9 df, (Chi- square value of 64.06, p = 0.001 with 9 df). The researchers concluded that the inability to manage stress among female undergraduates and high intake of foods containing excessive sugar were risk factors of dysmenorrhea among female undergraduates at the

University of Ilorin. The researchers recommended that the school authority management should organize stress seminars and campaigns to help address stress problems experienced by female undergraduates in the University of Ilorin. Also, the university authority should organize enlightenment campaigns that will educate undergraduates on the risks involved in the consumption of unhealthy foods which contain excessive sugar such as biscuits or snacks to reduce pains experienced by female undergraduates in the University of Ilorin, during the menstrual period.

A study by Mesfin *et al*., (2023) on Prevalence of Primary Dysmenorrhea, Its Intensity and Associated Factors Among Female Students at High Schools of Wolaita Zone, Southern Ethiopia: Cross-Sectional Study Design, an institution-based cross-sectional study was conducted among female students at Wolaita soddo town high schools from October 1–30/2021. A total of 733 students were selected using a simple random sampling technique. The data were entered using Epi data version 3.1 and exported to SPSS version 25 for analysis. Binary logistic regression analysis was used. Variables with a p-value of <0.05 in the multivariable logistic regression analysis model were considered statistically significant. The findings of this study revealed that the prevalence of primary dysmenorrhea was 70% . Factors such as age <18 years, long duration of menstrual flow, irregular menstrual cycle, family history of dysmenorrhea and skipping breakfast were associated with primary dysmenorrhea. The study concluded that the prevalence of primary dysmenorrhea was high among high school students in the study area. Being younger age, long menstrual flow duration, irregular monthly menstrual cycle, family history of dysmenorrhea, and skipping breakfast were determinants of primary dysmenorrhea.

A study by Ju *et al*., (2022) on The Prevalence and Risk Factors of Dysmenorrhea, A comprehensive review was performed on longitudinal or case-control or crosssectional studies

with large community-based samples to accurately determine the prevalence and/or incidence and risk factors of dysmenorrhea. Fifteen primary studies, published between 2020 and 2021, met the inclusion criteria. The findings from this study revealed that the prevalence of dysmenorrhea varies between 16% and 91% in women of reproductive age, with severe pain in 2%–29% of the women studied. Women's age, parity, and use of oral contraceptives were inversely associated with dysmenorrhea, and high stress increased the risk of dysmenorrhea. The effect sizes were generally modest to moderate, with odds ratios varying between 1 and 4. Family history of dysmenorrhea strongly increased its risk, with odds ratios between 3.8 and 20.7. Inconclusive evidence was found for modifiable factors such as cigarette smoking, diet, obesity, depression, and abuse. Dysmenorrhea is a significant symptom for a large proportion of women of reproductive age; however, severe pain limiting daily activities is less common. This review confirms that dysmenorrhea improves with increased age, parity, and use of oral contraceptives and is positively associated with stress and family history of dysmenorrhea

A study by Karim *et al*., (2022) on Knowledge and Prevalence of Primary Dysmenorrhoea Among Female University Students, This is a descriptive, cross sectional study conducted in 2014 at SEGi University, Kota Damansara. A total of 200 participants were randomly selected from the medical and non-medical faculties. The data were collected using questionnaire and analyzed by SPSS Version 22.0. The study showed that the prevalence of primary dysmenorrhoea among the students was 103 (51.5%) where the primary dysmenorrhoea among female medical and non-medical was 53 and 50%, respectively. In terms of knowledge about primary dysmenorrhoea, 39% of medical students and 24% of non-medical agree that body mass index is a risk factor while smoking and drinking alcohol showed 55 and 45%, respectively as a risk factor of primary dysmenorrhoea. On the other hand, psychological stress factor confirmed

by 83% of medical students and 53% of non-medical students answered that psychological stress is correlated to primary dysmenorrhoea. The study concluded that the prevalence of primary dysmenorrhoea is very common in this study. The level of knowledge was shown lower, especially in the non-medical students. The results of this study showed the overall of primary dysmenorrhoea prevalence 51.5% and majority of medical student showed better knowledge about primary dysmenorrhoea. However, this study also has shown that there is lack of health education and may need programs in order to improve the knowledge and decrease the incidence of primary dysmenorrhoea.

### 2.14 Summary of Literature Review

The literature on the prevalence and risk factors of Dysmenorrhea among female students highlights the widespread nature of the condition and its significant impact on adolescents' health and academic performance. Dysmenorrhea, defined as painful menstruation in the absence of any identifiable pelvic pathology, is highly prevalent among female adolescents, with global estimates ranging between 50% and 90%. Studies conducted in various regions of Nigeria, including Edo State, report similarly high prevalence rates, indicating that dysmenorrhea is a common health concern among secondary school girls.

Several risk factors have been consistently associated with Dysmenorrhea. These include early menarche, long or irregular menstrual cycles, heavy menstrual flow, family history of dysmenorrhea, high levels of stress, poor dietary habits, and lack of physical activity. Psychosocial factors such as anxiety and emotional distress have also been linked to the severity of menstrual pain. Evidence suggests that girls who engage in regular physical exercise tend to experience less severe symptoms, while those with sedentary lifestyles may report higher pain intensity.

Furthermore, the literature indicates that Dysmenorrhea can lead to school absenteeism, reduced concentration, and lower academic performance, affecting the overall quality of life of affected students. Despite the high prevalence, many young girls do not seek medical help due to cultural beliefs, lack of awareness, or normalization of menstrual pain. As such, there is a need for increased health education, school-based awareness programs, and access to appropriate health services to address the burden of dysmenorrhea among secondary school girls.

In conclusion, dysmenorrhea is a prevalent condition among female students in secondary schools in Edo State, driven by a complex interplay of biological, behavioral, and psychosocial factors. Targeted interventions are essential to improve menstrual health and promote the well-being of adolescent girls.

# CHAPTER THREE

## 3.0 RESEARCH METHODOLOGY

This chapter discusses the research methodology that will be applied during this study to understand the prevalence and risk factors of dysmenorrhea among female students in selected secondary schools in Edo State. It entails the research design, study setting, target population, sample and sampling technique, instruments of data collection, validity and reliability of instrument, method of data collection, method of data analysis and ethical consideration.

### 3.1 Design

A non-experimental descriptive survey design will be utilized in this study. The design will be used to ascertain the prevalence and risk factors of dysmenorrhea among female students in selected secondary schools in Edo State.

### 3.2 Setting

The study will be carried out among female senior secondary students in Ezomo College, Ora and Ekosodin Secondary School, Ekosodin. both in Ovia North-east Local Government Area, Edo State. Ezomo College, Ora is a government-owned, co-educational combined junior and senior secondary school located in Ward 4, Ora in Ovia North East Local Government Area, Edo State, Nigeria. The school comprises of 9 classrooms with 257 students and 14 teachers, Ekosodin Secondary School, Isihor is also located in Ovia North-east LGA, Edo State. It is a government-funded, coeducational secondary school, which comprises of 11 classrooms with 288 students and 17 teachers.

## 3.3 Target Population

The target population for this research will consist of public senior secondary school students from Ezomo College, Ora Benin-city and Ekosodin Secondary School, Ekosodin, Benin-city, Edo State, which have a target population of 545.

**Table 3.1 Number of female students in each school**

| School | Number of female students |
|---|---|
| Ezomo College, Ora | 257 |
| Ekosodin Secondary School, Ekosodin | 288 |
| Total | 545 |

Source: Both Schools

## 3.4. Inclusion Criteria

- Adolescents who fall between age range 11yrs-20years
- Female Students that belong to SS1-SS3 class

## 3.5 Sample Size and Sampling Techniques

The sample size will comprise of 331 respondents which will be randomly drawn from the population. The simple random sampling technique will be employed in selecting the sample. The sampling technique will involve selecting a particular student and skipping others to select the $4^{th}$ and so on. This method is deemed appropriate in order to ensure equal representation of the population characteristics and thus eliminating bias. The sample size will be gotten from the total population of one thousand two hundred and fifteen (1215), using Taro Yamane, (1967) formula as shown below.

$$n = \frac{N}{1 + N(d)^2}$$ Where n = sample size

N = population size

D = level of precision (confidence interval)

N = 1215

D = 0.05

Thus n=1215/1+1215(0.05)2

n=1215/1+1215×0.0025

n=1215/1+3.0375

n=1215/4.0375

n=331

**Table 3.2 Sample size determination for each school**

| School | Population | Number of students to be sampled | Approximate number of students to be sampled |
|---|---|---|---|
| Ezomo Secondary School, Ora | 438 | (438÷1215)×331 | 119 |
| Ekosodin Secondary School, Ekosodin | 777 | (777÷1215)×331 | 212 |
| Total | 1215 | | 331 |

### 3.5 Instrument for Data Collection

A structured questionnaire will be used as an instrument of data collection for the study. The instrument will be divided into three sections. Section A will collect data on the demographic characteristics of the respondents, while section B will contain items which seeks information on the knowledge of dysmenorrhea. Lastly, section C will contain items relating to the research questions on perception of dysmenorrhea. It will be structured on a 4-point Likert scale of strongly agree, agree, disagree and strongly disagree to elicit perception . 4, 3, 2, 1 respectively will be assigned to them.

### 3.6 Validity of the Instrument

In order to ensure that the instrument measures what it is supposed to, it will be subjected to face and content validity by the project supervisor. Thus, comments and suggestions made will be used in updating the instrument and thus a final draft of the instrument will be produced and administered.

### 3.7 Reliability of the Instrument

A pilot study will be conducted among 20 secondary school students at Army Day secondary school, Ekenhuan who will not be part of the study sample. Cronbach Alpha reliability technique will be employed in ascertaining the reliability of the research instrument.

### 3.8 Method of Data Collection

The data will be obtained through the administration of questionnaires to the respondents. In order to ensure objective responses, efforts will be made to clarify some items that may prove difficult for the respondents to understand. After completion of the instrument, the researcher will make effort to retrieve them in order to minimize the incidence of loss of instrument, which

may impact on the outcome of the study. The data will be obtained between two (2) weeks from Monday through Friday between the hours of 9am to 2pm. The questions will be left with the students from various schools for few minutes thereafter collected. Research assistants will be utilized to distribute and retrieve the questionnaires who will be taught by the researcher.

### 3.9 Method of Data Analysis

The data collected will be analyzed using mean, frequencies and percentages and presented in tables. The stated hypothesis will be subjected to Chi-square statistical test and p-value which was set at a significance level of 0.05. The data coding and analyses will be done with the aid of Statistical Package of Social Sciences (SPSS) version 22.0. The decision rule on perception of dysmenorrhea will be based on mean score of 2.50. Any mean greater than 2.50 will be interpreted as agree, while any mean ($\bar{x}$) lesser than 2.50 will be regarded as disagree. If yes 2 will be assigned for yes and 1 will be assigned for No, the range for high will be 50% to 100%, and Low will be 1% to 49%.

### 3.10 Ethical Considerations

Ethical approval will be gotten from the ethics and research committee of Edo State Ministry of Education. Due permission will be gotten from the Head of Department, Department of Nursing Science, University of Benin, to go on with the research. Before data collection will commence, careful explanation of the purpose, content and implication will be made known to the participants. The participants will be given assurance of confidentiality, by so doing, there will be no disclosure of information as the information obtained will be personal and private.

The research will be conducted in accordance with the guidelines of research. The following ethical considerations will be maintained during the research exercise;

**Confidentiality**: The information provided by respondents will be treated with utmost confidentiality, no name or addresses will be requested for in the questionnaire. Respondents will be made to understand that their responses in the questionnaire will remain completely confidential and that the observations were intended to be used only for specific research purposes. To maintain this confidentiality and anonymity, no personal identifier will be used or indicated on any document or questionnaire.

**Self-determination/voluntary participation**: The respondents will be informed that they have the right to voluntarily decide whether to participate in the study or not without the risk of incurring any penalty or prejudicial treatment. They will be given the right to decide at any point during the study to withdraw their participation or refuse to provide any information on any point that is not clear to them.

**Avoidance of Plagiarism**: All authors used in this study will be appropriately cited both in the body of the work and at the reference page.

The study will also apprehend ethical considerations such as debriefing, informed consent, and privacy. A copy of the ethical approval certificate will be attached in the appendix

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## APPENDICES

## APPENDIX I: QUESTIONNAIRE

**DEPARTMENT OF NURSING SCIENCE**
**SCHOOL OF BASIC MEDICAL SCIENCE**
**UNIVERSITY OF BENIN**
**BENIN CITY**

Dear Respondents,

I am a 500lvl student of the above University, Faculty and Department. I am currently carrying out a research titled "**Prevalence And Risk Factors Of Dysmenorrhea Among Female Students In Selected Secondary School In Edo State.** " This questionnaire is purely for academic purpose only. The information supplied will be administered only for the purpose of this study and will be treated with utmost confidentiality.

Thanks for your cooperation.

**Socio-demographic data**

| **Variables** | **Attributes** | **Tick as applied** |
|---|---|---|
| Age (years) | 11-13 | |
| | 14-16 | |
| | 17-19 | |
| | 20-above | |
| Religion | Christianity | |
| | Muslim | |

### 4.2 Prevalence of Dysmenorrhea

| **Prevalence of primary dysmenorrhoea** |
|---|
| **Do you experience menstrual pain?**<br><br>Yes<br><br>No |

### Knowledge of dysmenorrhoea

| **When did you start experiencing menstrual pain?** |
|---|
| At menarche |
| Within first year of menarche<br>2 years after menarche |
| **When do you experience menstrual pain each month?** |
| 1-2 days before menstruation |
| First day of menstruation |
| **Do you experience menstrual pain every month?** |
| Yes |
| No |
| **What is the intensity of the menstrual pain?** |
| Mild |
| Moderate |
| Severe |
| **How long does the menstrual pain last?** |
| >3 days |
| <3 days |
| **What is the intensity of the menstrual flow?** |
| Light |
| Moderate |
| Heavy |
| **Which of the following do you experience during menstruation** |
| Headache |
| Dizziness |
| Nipple pain |
| Fatigue |
| |

**Risk Factors of Dysmenorrhea**

| | ITEMS | SA | A | D | SD |
|---|---|---|---|---|---|
| 1 | I attempted to lose weight within this year | | | | |
| 2 | I exercise often | | | | |
| 3 | I have a family history of dysmenorrhea | | | | |
| 4 | Heavy blood flow is a risk factor of primary dysmenorrhea | | | | |
| 5 | Dysmenorrhoea will stop when I start giving birth | | | | |
| 6 | Stress experienced in school puts me at risk of dysmenorrhea | | | | |