DYSMENORRHOEA EXPERIENCES AND SELF MANAGEMENT PATTERNS AMONG THE FEMALE STUDENTS OF THE POLYTECHNIC, IBADAN.

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DEDICATION

This work is dedicated to all the young women, who at a point in their lives have suffered from dysmenorrhoea and those who are still suffering from it as well as my respondents. It is my belief that someday, we will overcome. Love you all.

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ABSTRACT

Dysmenorrhoea is a common gynaecologic complaint among adolescents and young adult females. Depending on its duration and severity, it has negative impacts on normal daily activities and quality of life of women. The manner in which females attempt to manage the problem is of less concern in Nigeria. This study therefore investigated dysmenorrhoea experiences and various management options employed by female students accommodated in female halls of residence at The Polytechnic, Ibadan.

A descriptive cross-sectional survey was conducted among 354 consenting female students aged 16-27 years who were residents of the two female halls of residence at the polytechnic. A three-stage sampling technique which involved proportionate selection of students from each hall, random selection of rooms from each hall and random selection of the final respondents. A self-administered, semi-structured questionnaire was used in assessing knowledge, perception, dysmenorrhoea experiences, effects of dysmenorrhoea on daily activities and self-management patterns. Knowledge was assessed on a11-point scale and scores ≥6 were categorised as good. Perception was also assessed on a 13-point scale and scores ≥7 were categorised as positive perception. Data were analysed using descriptive statistics and Chi-square test at p=0.05 level of significance.

Respondents' age was 20.4±2.4 years, 40.7% were in National Diploma (ND) 2, 97.7% were singles, 85.6% were Yoruba and 74.9% were Christians. Only 22.0% correctly stated the two types of dysmenorrhoea, 1.2% correctly identified excess level of prostaglandin as the major cause of dysmenorrhoea while 69.2% reported sugary intake as the cause. Some, (16.9%) correctly recognized family history, age of menarche (8.5%), and excessive sugar intake (87.6%) as factors that could make one experience dysmenorrhoea. Avoidance of excessive sugar intake (56.7%), use of drugs (35.1%), exercise (21.2%), and consulting medical professionals (4.5%) were stated as ways of preventing dysmenorrhoea. A larger proportion (67.2%) believed dysmenorrhoea is normal, while 10.2% believed it is hereditary. Majority (75.1%) agreed that dysmenorrhoea is a serious concern for young women. Many, (56.2%) menstruated for more than 4 days while 41.8% had theirs for 3 days. Some, (48.0%) experienced pain mostly at the onset of menstruation while (23.4%) experienced it before the flow. Nature of pain experienced by the respondents varied from mild (10.2%), moderate (44.4%) and severe (30.2%), with majority (91.2%) experiencing pain in the lower abdomen. Effects of dysmenorrhoea reported include strained relationship with friends (50.3%),

missing school (50.6%), mood swing (59.0%) and lack of concentration in class (61.6%). Majority, (87%) used drugs which are often associated with side effects. Few (6.8%) consulted family members, health practitioners (6.8%), religious centres (7.9%) and trado-medical centres (9.6%). The result showed that there is an association between nature of pain and self-management pattern.

Majority of the respondents had poor knowledge about the types and the major cause of dysmenorrhoea. Most of them practice pharmacological management than non-pharmacological methods and most of the drugs were not prescribed by a qualified medical personnel. There is therefore a need for health education programmes on the adverse effects of the drugs being used while multidisciplinary management approaches such as exercise, rest, and warm baths should be encouraged.

Key words: Dysmenorrhoea, Self-dysmenorrhoea management, Polytechnic students
Word Count: 499

CERTIFICATION

This is to certify that this study was carried out by ADEOYE, Tobi Esther of the Department of Health Promotion and Education, Faulty of Public Health, under the supervision of Dr. O.S Arulogun.

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LIST OF ABBREVIATIONS

NSAIDS	Non-steroids Anti-inflammatory Drugs
OTC	Over-the-counter
TENS	Transcutaneous Electrical Nerve Stimulation
FSH	Follicle Stimulating Hormone
LH	Luteinizing Hormone
PG	Prostaglandins

OPERATIONAL DEFINITION OF TERMS

PUBERTY: A period of rapid physical, psychological and social change during which a child, in physiological terms, becomes an adult capable of reproduction (Tfayli and Arslanian, 2007).

DYSMENORRHOEA: Dysmenorrhoea is defined as difficult menstrual flow or painful menstruation.

PRIMARY DYSMENORRHOEA: Refers to menstrual pain in the absence of an underlying pathology and is related to the fluctuation of hormones and prostaglandins experienced during menstruation (Parker, 2006).

SECONDARY DYSMENORRHOEA: Refers to menstrual pain associated with pelvic pathology.

MENSTRUATION: A periodic discharge of blood from uterus occurring more or less at regular monthly intervals throughout the active reproductive life of a woman. (Titiloye, Agunbiade, Banjo and Lawani, 2009).

PROSTAGLANDINS: Molecules in human reproduction that play an important role in the rupture of follicle during menstruation and also in myometrial contraction.

NON-PHARMACOLOGIC THERAPIES: Therapeutic management without the use of drugs.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Puberty is the period of transition between childhood and adult life, in which relevant physical and mental changes take place, (Ana, 2013). According to Tfayli and Arslanian (2007), puberty is a period of rapid and radical physical, psychological and social change during which a child, in physiological terms, becomes an adult capable of reproduction.
The major hormonal changes that are associated with the onset of puberty include a two-fold increase in the secretion of growth hormone and an increase in the sex steroids that lead to the development of secondary sexual characteristics, remarkable increase in height, and change in body composition. The hypothalamus region of the brain secretes gonadotropin-releasing hormone (GnRH) which starts the process of thelarche and menarche. The secretion of this hormone is, in turn, affected by hormones, enzymes and neurotransmitters in the brain. The Sex Information and Education Council of Canada reports that puberty is marked by the development of breast tissue (thelarche), growth of pubic hair (pubarche) and the beginning of menstruation (menarche).

Over the last 50 years, several changes have occurred in sexual and reproductive health pattern globally, which has caused an increasing early onset of puberty. Breast development is the first sign of puberty and it begins, on average, one to two years earlier than it did in the mid-20th century (Ana, 2013). While the average age of menarche has also fallen, it has not fallen as dramatically as the average age of thelarche. Studies of American children indicate that the mean age of thelarche is 10 years for white girls and 9 years for black girls and that the process of puberty, from breast and pubic hair development to menstruation now starts earlier and takes longer to complete.

Puberty consists of a series of predictable events, and the sequence of changes in secondary sexual characteristics has been categorized by several groups. Conceptually, pubertal maturation can be described in terms of sequence, timing, and tempo. From puberty and thereafter a normal female is faced with a myriad of changes in her body physiology and with an expectation of a monthly menstrual cycle. Menarche is the term given to the onset of menstruation during puberty, occurring when the reproductive organs become functional (Concise Medical Dictionary, Oxford Reference Online, 2002). It is considered to be one of the most expressive milestones in a woman's life because it symbolizes entrance into

womanhood. Menarche, the first menstruation, is a unique experience of female maturation, representing the transition from childhood to womanhood (Memnun, Geulten¸ Aygeul, and Fatma, 2013). It is an event that indicates sexual maturation and the beginning of reproductive life and it serves as an intermediate health outcome that affects the women's wellbeing at later stages of life (Al-Sahab, Ardern, Hamadeh and Tamim, 2010).

According to Al-Sahab et al, the first scientific record on age at menarche is 150 years old. The menarcheal age in the mid-19th century ranged from 16-17 years of age. Studies from 67 countries published between the 1960s and the 1990s put the mean age at menarche at (13.53 years ± 0.98). This trend signifies a decline rate of 3 to 4 months per decade. Researchers generally agree that the reasons behind this steady decline in the age of menarche are multifaceted and involve a range of genetic and environmental influences. Although it has been suggested that the downward trend has slowed, or even stopped, but in some European countries, the trend is still on-going especially in the US and Asia. A national study in the United States has shown that the age at menarche has dropped from 12.75 years in the 1960s to 12.5 years in the 1990s and again to 12.3 years in the 2000s. In North America, the average age of menarche in girls of European descent is 12.8 to 13.3 years but slightly earlier in girls of African origin (12.5 years and even lesser), (Rogol, Roemmich and Clark, 2002).

Onset of menstruation is governed by a girl's general health condition, genetic, socio-economic and nutritional factors, ethnic or racial background, birth weight and mother's age at menarche and is coordinated by the actions of the hypothalamic-pituitary-ovarian axis (Parker, 2006; Hugo, Sofia, Patricia and Guillermo, 2012). Every mature female menstruates on the average of 3-5 days each month until menopause. (Ezeukwu, Elochukwu and Ojukwu, 2014). Although menstruation itself is physiological, it often leads to physical and psychological problems in women of reproductive age. Conditions such as an irregular menstrual cycle, premenstrual pain, and excessive menstrual bleeding may be a warning of disorders affecting a woman's reproductive health and fertility (Wijesiri & Suresh, 2012). Sometimes, this cycle is associated with painful uterine contractions and discomfort known as dysmennorrhea.

Dysmenorrhoea or painful menstruation which is characterized by variable painful cramps starting before or during menstruation is a condition that negatively affects health. Dysmenorrhoea is a generally undiagnosed gynaecological disorder commonly seen in adolescent and adult females of reproductive age (Roberts, Hodgkiss, DiBenedetto, & Lee,

2012). Dysmenorrhea is categorized as primary or secondary (Ozerdogan, Sayiner, Ayranci, Unsal and Giray 2009). Primary dysmenorrhea is experiencing pain during menstruation without any underlying pathological reason. Secondary dysmenorrhea is painful menstruation due to an anatomical or pelvic pathology. A distinction cannot exactly be made between regular menstrual pain and dysmenorrhea, but normal menstrual pain is milder than dysmenorrhea.

Dysmenorrhoea usually appears with symptoms such as cramps and pain in the lower back and abdomen, as well as nausea, vomiting, fatigue, nervousness, appetite changes, diarrhoea, and headache. Although mild symptoms experienced because of dysmenorrhea are evaluated as normal experiences due to menstruation, severe symptoms negatively affect the female's physical and psychosocial health. Dysmenorrhoea is reported to be affected by the following factors: age at menarche, the amount of menstrual bleeding, body mass index, genetic predisposition, active or passive smoking, hormonal contraceptive use, socioeconomic status, diet, and stress and mental health disorders.

The high prevalence of dysmenorrhoea among adolescents especially in the first years of reproductive life, influences their daily activities and can lead to high rates of school absentism and is thus, a major public health problem. It causes changes in women's daily living activities (ADL) and social roles and reduces their quality of life. It also causes negative effects such as increased absenteeism (not being able to go to work) and reduction in school success and productivity in adolescents and young women in particular. Studies have shown that not less than 10% of menstruating young women are incapacitated for up to three days or more all because of monthly menstrual disorder. (Titilayo, Agunbiade, Banjo and Lawani, 2009). Sometimes, the effect of menstrual disorder and discomfort on a woman's life could be so severe as to confine the woman to bed (Titilayo et al, 2009). He further complemented this by reporting that the burden of dysmenorrhoea is greater than any gynaecological complaints.

However, there is paucity of data on experiences of menstruation and its impact on the health status, quality of life and social integration among women in developing countries. This is because dysmenorrhoea, a menstrual disorder and discomfort have attracted little or no health concern. Such issues are often omitted in the public health agenda of many low and middle income countries. If any, very few attempts have been made at exploring menstrual cycle problems in sub-saharan Africa. (Titilayo et al, 2009)

Many reasons have however been deduced as the factors responsible for the low public attention attracted to menstrual disorder and discomfort. Some women see menstruation as a 'taboo', and subject not to be discussed publicly. Also, some women perceive the issue of menstruation as a personal affair and if discussed publicly could cause discomfort. Lastly, the broader reproductive health concern has made some other health problems associated with women (among which is menstrual discomfort or dysmenorrhoea) and their implications irrelevant to public discourse.

Dysmenorrhea is an important reproductive health problem that concerns public health, occupational health, and family practice because it affects both the quality of life of women and the national economy due to short-term school absenteeism and loss of labour. However, many young women lack experience and knowledge of effective management of dysmenorrhoea and other menstrual discomfort. The situation is further aggravated by the fact that the manner in which females attempt to manage the problem is given less concern in most developing countries, one of which is Nigeria. (Ezeukwu et al, 2014; Potur, Bilgin, and Komurcu, 2013).

1.2 Statement of the problem

Dysmenorrhoea is a common problem, yet it remains poorly understood and is rarely taken into consideration when assessing adolescents' health and life experiences. The prevalence of dysmenorrhoea reaches its peak during the adolescent years and, as the greatest single cause of lost working hours and school days among young women represents a significant problem from an individual and public health perspective. Thus, an evidence for continuing importance of dysmenorrhoea as a significant public health problem of this age. In addition to the physical effects of dysmenorrhoea, its effects on activities of daily living (ADL), the cognitive and psychosocial development of adolescents is reported to be negatively affected, (Memnun, Gulten, Aygul and Fatma, (2013).

There has also been substantial ignorance or misinformation among young females regarding effective management of dysmenorrhoea. Also, the discussion of effective therapeutic options for dysmenorrhea has not been part of routine health care visits for adolescent women. Hence, young women do not have accurate information regarding the issue and they now view menstrual pain as something to put up with like the generations before them.

In Nigeria, menstrual disorder and effective management patterns has received little research attention especially in the public health agenda. A study that was done in Nigeria by

Mohammad, Baghiani, Azam, Hossein and Mehdi, (2012) showed that the knowledge of Nigerian females was low regarding dysmenorrhoea and effective management patterns.
In an effort to fill this gap, this study focused on dysmenorrhoea experiences and self-management patterns of dysmenorrhoea among female students of the Polytechnic, Ibadan.

1.3 Justification for the study

In a developing country like Nigeria where the young population is faced with enormous socioeconomic challenges, it is pertinent to know the methods or patterns female undergraduates adopt to counter the effects of the physiological challenges of dysmenorrhoea on their Activities of Daily Living (ADL). Hence, the need for this study to determine the pain relief strategies or health seeking behaviour of a sample of Nigerian female students who frequently experience dysmenorrhoea.

This study may communicate the intensity of menstrual pain experienced by female undergraduates in the polytechnic and thus help improve awareness among health care providers by allowing them to be more sensitive to issues relating to the management of dysmenorrhoea in order to minimize disruption to their lives, as well as to determine when menstrual pain requires further investigation to rule out pathology. Hence, improving the adolescents' quality of life. The findings from this study will help in providing evidence on which further interventions can be built in order to prevent unnecessary suffering and interruption in the adolescents' education, thereby, improving school success and improving their productivity.

Dysmenorrhoea affects quality of life and reduces productivity of women, therefore, findings from this study could help improve the quality of life and productivity of adolescents and young adult women by serving as a baseline information and guide to healthcare providers who want to design an effective systematic menstrual health education program for female adolescents and young women. Thus, adolescents will be encouraged to seek help from the right sources such as consulting the physician or a gynaecologist while harmful strategies or management patterns will be discouraged. Being a common and significantly bothersome health problem, particularly affecting young women, dysmenorrhoea is a significant problem and worthy of study. (Chia, Lai, Cheung, Kwong, Lau, Leung and Wong, 2013).

1.4 Research questions

The following research questions were answered by this study:

1. What is the knowledge of female students of the Polytechnic Ibadan about dysmenorrhoea?
2. What is their perception towards dysmenorrhoea?
3. What are the dysmenorrhoea experiences of the female students in the polytechnic?
4. What influence does dysmenorrhoea have on their daily academic activities and psycho-social relationship with other people?
5. What are the different management patterns or health seeking behaviour employed by the female students of the polytechnic?

1.5 General objective

The general objective of this study was to investigate the nature of dysmenorrhoea experiences and various options of dysmenorrhoea management among female students of the Polytechnic, Ibadan, Oyo State.

1.6 Specific objectives

The specific objectives were:

1. To assess the knowledge of dysmenorrhoea among female students in the Polytechnic Ibadan.
2. To determine the perception of the female students in the polytechnic towards dysmenorrhoea.
3. To identify the dysmenorrhoea experiences of the female students in the polytechnic.
4. To determine the effect of dysmenorrhoea on daily academic activities among female students in the polytechnic.
5. To identify the management patterns employed by the female students in the polytechnic.

1.7 Research hypothesis

The study tested the following null hypotheses:

1. There is no association between the days of dysmenorrhoea experiences and school attendance.
2. There is no association between the days of dysmenorrhoea experiences and relationship with friends.
3. There is no association between nature of pain and poor academic performance.
4. There is no association between nature of pain and self-management patterns.

CHAPTER 2

LITERATURE REVIEW

2.1 Puberty

Tfayli and Arslanian, (2007) defined puberty as a period of rapid physical, psychological and social change during which a child, in physiological terms, becomes an adult capable of reproduction. Rogol, Roemmich and Clark, (2002) stated that one of the hallmarks of puberty is the adolescent growth spurt. In girls, this typically occurs at around age 10 to 13; in boys, it occurs between 12 and 15 or even lesser. According to Tanner 1996, adolescents experience several types of maturation, including cognitive (the development of formal operational thought), psychosocial (the stages of adolescence), and biologic. The complex series of biologic transitions are known as puberty, and these changes may impact psychosocial factors. It is difficult to decide exactly when adolescence begins or ends, as both boundaries are subject to individual variation. For this reason, psychologists working on adolescence tend to define the period broadly, as a time of transition between childhood and adulthood, acknowledging that the timing and pace of development is subject to considerable variation.

The most visible changes during puberty are growth in stature and development of secondary sexual characteristics. Equally profound are changes in body composition; the achievement of fertility; and changes in most body systems, such as the neuroendocrine axis, bone size, and mineralization; and the cardiovascular system. Tanner, (1996) reported that the emergence of secondary sexual characteristics in girls, involves an increase in subcutaneous fat and rounding of the body, the beginnings of breasts and, towards the end of the spurt, pubic hair and the menarche (the first period). In boys, the penis, testes and scrotum begin to enlarge, pubic hair appears, the voice begins to deepen, and muscles grow and strengthen. At around 13 to 14, most boys experience ejaculations or nocturnal emissions (wet dreams). Underlying all of these external changes, there are important hormonal developments, due to the increased production of oestrogen (in girls) and androgen (in boys). Young people are now heading towards their mature size and form, but the pace of development varies markedly across individuals.

From puberty myriad of changes takes place in the body physiology of a girl and with an expectation of a monthly menstrual cycle, (Ezeukwu, Elochukwu, and Ojukwu, 2013). Menarche is the term given to the onset of menstruation during puberty, occurring when the reproductive organs become functional (Concise Medical Dictionary, Oxford Reference

Online, 2002). It is considered to be one of the most expressive milestones in a woman's life because it symbolizes entrance into womanhood.

2.2 Menstruation

The teenage years are a physical and emotional roller coaster ride for many. During this time an adolescent girl will usually begin to menstruate. Whilst this is an exciting and significant landmark in the transition from girl to woman, the pathway can be bewildering due to the variation in symptoms associated with menstruation ranging from the physical - heavy bleeding and painful cramping, to the emotional – feeling teary, irritable or 'down'. The experience of menstruation is not like any other previous event in a young woman's life and there is no reference point or baseline from which to gauge the experience.

Titiloye, Agunbiade, Banjo and Lawani, (2009) described menstruation as a periodic discharge of blood from uterus occurring more or less at regular monthly intervals throughout the active reproductive life of a woman. According to Jarrah and Kamel, (2012), Menstruation is the monthly discharge of blood from the uterus through the vagina, while the first onset of menstruation is known as menarche. It is a traumatic experience for some women and could at times truncate their life dreams. Menstrual disorder and discomfort in diverse ways affect 40-95% of menstruating women.

Menstruation is also the term given to the shedding of the endometrium, the internal lining of the uterus, during the menstrual cycle. Menstrual effluvium is composed of blood and tissue fragments. Across the menstrual lifespan of a woman, the menstrual pattern can vary in adulthood from what it was during adolescence, and may change after a woman has given birth. Menstrual bleeding patterns vary greatly amongst women, which results in broad parameters for 'normal' menstruation. Parker, (2006) suggests that menstruation is often irregular for the first two to three years after menarche, cycles usually range from 21-45 days, and it takes two years to establish a regular ovulation cycle after menarche.

Menstrual bleeding patterns are characterised according to Parker, 2006 as:

Cycle length and regularity of occurrence - number of days from the first day of bleeding from one menstruation to the first day of bleeding at the next menstruation; the cycle length of adulthood is more likely to range between 21-35 days.

Duration of bleeding - the number of days that menstrual bleeding occurs;

Heaviness of bleeding - usually varies between light-moderate-heavy during each day of menstruation. Judgments about heaviness of bleeding are more difficult to measure quantitatively and individual reports of heaviness are highly subjective (Paula, 2013).

2.3 Menstrual cycle

A menstrual cycle starts with the first day of vaginal bleeding. It ends with the first day of vaginal bleeding of the next period. An average cycle lasts about 28 days. During the cycle, two hormones (estrogen and progesterone) are made by the ovaries. These hormones cause growth changes in the endometrium (the lining of the uterus) so that the uterus will be ready for a possible pregnancy. On about day 14 of the cycle, an egg is released from one of the ovaries. This is called **ovulation**.

When a human female is born, her ovaries already contain all the immature eggs that will later mature and produce functional eggs during her lifetime. Eggs usually begin to mature between the ages of 12 and 14, when a release of hormones triggers puberty and a young woman reaches sexual maturity. Most commonly, eggs mature every 28 days or so. They usually mature one at a time, in alternating ovaries. This rhythmic maturation of eggs and the other chemical and physical events that accompany the process are called the **menstrual cycle.**

Pubertal/ Menstrual changes are governed by coordinated hormones carried in the bloodstream from their releasing gland to their responding target cells. These hormones act through feedback mechanisms. The pituitary gland, at the base of the brain, secretes the two hormones that trigger the growth and development of the egg in the ovary — FSH (follicle stimulating hormone) and LH (luteinizing hormone). As a reaction to increasing levels of the hormone FSH (follicle stimulating hormone), eggs start to mature in a woman's ovary. Each egg matures inside an egg sac, or follicle, near the surface of one of the ovaries. When the egg is fully mature, another hormone — LH (luteinizing hormone) reaches peak level. As a reaction to these high hormone levels, the follicle bursts open and releases the egg. This process is called ovulation. Tiny microscopic hairs, called cilia, on the cells at the opening to the Fallopian tube or oviduct, sweep the egg into the tube which leads to the uterus. As a reaction to increasing levels of the hormone estrogen, the lining of the uterus has been prepared to receive a fertilized egg by building up its lining with nurturing tissues and blood vessels. After the egg is released from the follicle in the ovary, the remaining follicle tissue

becomes a hormone secreting gland, the corpus luteum ("yellow body"). The gland releases the hormone progesterone. High levels of progesterone help maintain the uterine in its built up, nurturing phase. The egg then moves into one of the two fallopian tubes connected to the uterus. There it can be fertilized by a sperm. If this happens, the fused egg and sperm move through the fallopian tube, attach to the uterus, and pregnancy occurs. If the egg is not fertilized, it triggers further hormonal changes. Both estrogen levels and progesterone levels drop. That signals the uterus to shed its lining, which is when the menstrual period begins. As a result both unfertilized egg and uterus lining are shed and pass out of the body. This periodic loss of tissues and fluids from the uterus is a normal function known as menstruation (a period).

In response, the ovary then secretes the two sex hormones that controls the development of the egg and uterus lining — estrogen and progesterone. When ovarian hormones reach low levels, "feeds back" mechanism stimulates the pituitary gland to once again secrete its hormones to stimulate the development of another egg for another cycle. For some women this menstrual bleeding causes mild cramps, for others it causes severe pain.

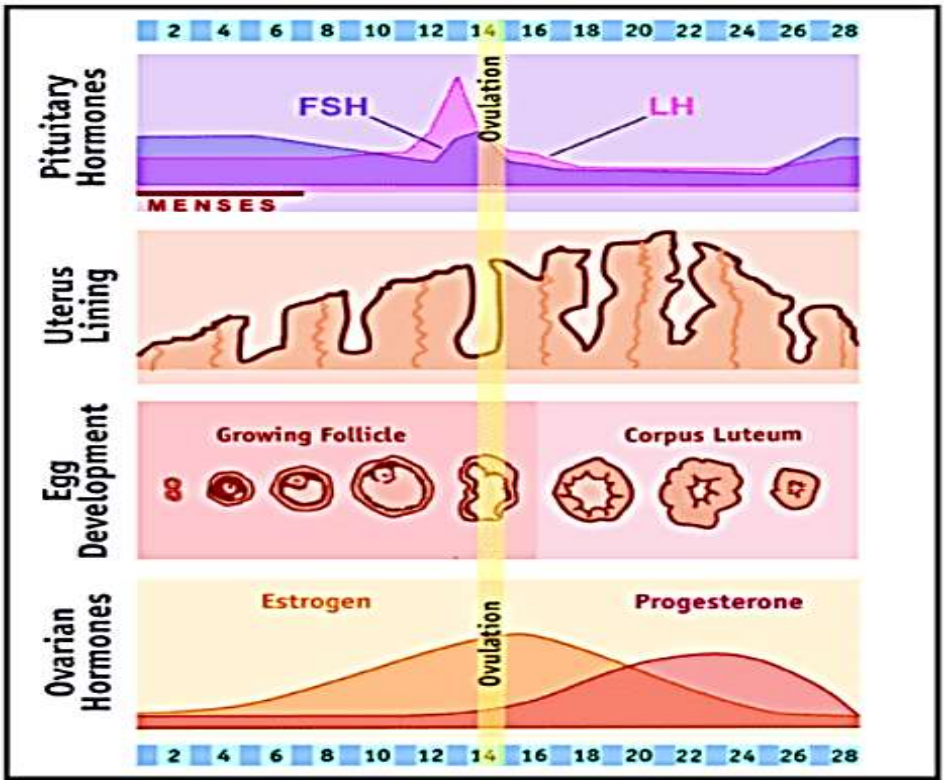

Fig 2.1 Stages of the human menstrual cycle

Adapted by Kim B. Foglia • www.ExploreBiology.com • ©2008

2.4 Cycle length and Ovulation

American Academy of Pediatrics Committee on Adolescence reported that menstrual cycles are often irregular through adolescence, particularly the interval from the first to the second cycle. According to the World Health Organization's international and multicenter study of 3,073 girls, the median length of the first cycle after menarche was 34 days, with 38% of cycle lengths exceeding 40 days. Variability was wide: 10% of females had more than 60 days between their first and second menses, and 7% had a first-cycle length of 20 days. Most females bleed for 2–7 days during their first menses.

Early menstrual life is characterized by anovulatory cycle, but the frequency of ovulation is related to both time since menarche and age at menarche. Early menarche is associated with early onset of ovulatory cycles. Despite variability, most normal cycles range from 21 to 45 days, even in the first gynecologic year, although short cycles of fewer than 20 days and long cycles of more than 45 days may occur. Because long cycles most often occur in the first 3 years postmenarche, that overall trend is toward shorter and more regular cycles with increasing age. By the third year after menarche, 60–80% of menstrual cycles are 21–34 days long, as is typical of adults. An individual's normal cycle length is established around the sixth gynecologic year, at a chronologic age of approximately 19 or 20 years.

Sometimes menstruation is characterized by some abnormal patterns in some people. This may be characterized as abnormalities of volume or frequency. They include hypermenorrhea (excessive volume during cyclic menstrual bleeding or abnormally long or heavy menses, lasting>7 days or involving blood loss >80 mL), hypomenorrhea (an abnormally small amount of menstrual bleeding), polymenorrhea (frequent menstrual bleeding occurring at less than 21 days apart), oligomenorrhea (menstrual bleeding occurring more than 35 days apart; -cycles occurring outside the usual 21-45 day cycle), menometrorrhagia (bleeding that is irregular in both frequency and volume) and amenorrhoea (the absence of menstrual flow or abnormal cessation of the menses).

2.5 Attitudes and beliefs related to menstruation

The cyclical occurrence of menstruation has generated different myths and superstitions in various cultures over the ages. A woman’s culture, reference group, educational status and religious inclination largely influence her perception of menstruation. While some women take the monthly menstruation for granted, finding in it a reassurance of womanhood, fertility and freedom from pregnancy, for others, it represent an unhygienic ennui and connotes moral

and spiritual uncleanliness, a sign of disease or a curse for evil. A woman's positive disposition to menstruation often derives from pre-menarcheal preparation, education and positive early menstrual experiences, (Umeora and Egwuatu, 2008).

A variety of myths and meanings have been associated with menstruation and the symptoms that accompany this cyclic process. A woman's beliefs regarding menstrual sensations and pain may directly influence her willingness to report dysmenorrhoea and expect or accept treatment for it. The attitudes a woman holds with regard to her menstrual cycles are often formed quite early in life and may be heavily influenced not only by her culture, religion, and family, but also by her friends and sexual partners. This emotional over lay may be further complicated by a woman's unique perception of her fertility, ability to bear children, or demands by her sexual partner(s) or a woman may prefer not to experience any sensation or discomfort that accompanies menstruation, (Durain, 2004).
Beyond cultural and family influences, many girls begin menstruating with little or no accurate information about the normal reproductive cycle and may be frightened or distressed by menses and menstrual sensations. The experience of "bleeding" accompanied by pain may quite easily lead the uninformed girl to assume that she must be ill, diseased, or even dying. Menses may also be viewed as "punishment" for sexual behaviour as well as other real or imagined transgressions, (Durain, 2004).

As part of a multi-country study of sexual maturation financed by the Rockefeller Foundation, the Forum of African Women Educationalists, Uganda (FAWEU) conducted extensive research with girls and their families in rural communities of Uganda (FAWEU, 2004). It was however discovered that menstruation is seen as a mysterious weakness of women rather than a biological and normal recurring experience of life for post-pubescent girls and women. A series of myths, euphemisms and mysterious language have been adopted to hide this lack of knowledge and understanding; for example, the phrase 'going to the moon' is commonly used to refer to the menstrual period. This however serves to reinforce misunderstandings about natural bodily processes, and to perpetuate the stigma that is attached to menstruating women and girls. Girls explain that menstruation is a taboo subject even within their own families, describing a 'culture of silence' with regard to their menstruation. They feel unable to discuss menstrual issues with their mothers and certainly not with their fathers. Not being able to talk about their experience and having limited

information means that menstruation becomes something shameful and something to hide, and is consequently ignored in families, schools and communities (FAWEU, 2004).

Kirk and Sommer, (2006) reports that In India, menstruation is considered a polluting factor among Hindus. In many places menstruating girls and women are considered untouchable. Even where strict untouchability is not observed, girls learn from early adolescence that during their monthly cycle they may not touch anything in the kitchen or visit a temple. As an additional example, it is commonly believed that picklesmade by a menstruating girl/woman will rot. Some of such taboos are also prevalent among non-Hindus. Jarrah and Kamel, (2012) reports that in Saudi Arabia, girls avoided certain foods and drinks; additionally, they restricted some daily routine activities such as showering, performing perineal care and practicing certain rituals during menstruation period. In Egypt, girls had inadequate personal hygiene during menstruation, and it was found that rural girls had insufficient use of sanitary pads.

In some communities the tradition of excluding menstruating women and girls from normal activities or tasks and public spaces is also practiced. This creates significant challenges for women and girls who are prepared to overcome the practical difficulties of menstrual management and other gender-related barriers in order to participate fully in the public realm. A study of women teachers in Nepal highlights such an issue.

Jackie and Marni, (2006) reports that, local cultural expectations that menstruating women should remove themselves from public spaces has led to classes taught by female teachers being discontinued for several days at a time – or to women teachers who continue to teach during menstruation being viewed negatively by the community. Not only does this disrupt the learning process, but it may simultaneously perpetuate very negative messages about what is expected of women and girls. Having said this, he further stressed that, it is important to recognize the potential for intra-cultural variations in the interpretation of meanings of menstruation, and how ‘taboos’ may in fact serve the interests of women, even if at first glance they appear to be negative. For example, women may appreciate the ‘banishment’ to menstrual huts as they are given a rest period from the normal intensity of daily chores.

The ability to explore menstruation with young girls prior to menarche is an excellent opportunity to help them view themselves as normal, healthy individuals and to inform them

in a positive manner of the expectations of gynaecologic care. Lacking sympathetic and empathetic adults as sources of accurate information, a young woman may have no one to affirm the normalcy and beauty of her womanhood or help her to identify truly abnormal conditions.(Umeora and Egwuatu, 2008).

The American College of Obstetricians and Gynaecologists addresses the importance and usefulness of encouraging contact with girls prior to menarche. Jarrah and Kamel, (2012) reported that the midwifery approach to women's health care is an ideal framework for this positive approach to gynaecologic care, within which physical and hormonal changes are viewed as normal life events, and health care decisions are shared between the provider and the client.

2.6 Dysmenorrhoea

'Dysmenorrhoea'. '**Dys**' meaning: abnormal; difficult; impaired, and '**menorrhoea**' meaning: normal menstrual flow (Medlineplus Medical Dictionary, Merriam-Webster, 2005).

Dysmenorrhoea is defined as painful menstruation; the word is derived from the Greek words '**dys'**, meaning difficult/painful/abnormal, **'meno'**, meaning month, and **'rrhea'**, meaning flow, (Paula, 2013). Pain is an unwanted experience that can affect the individual experiencing it negatively depending on its intensity, location, quality and duration. Emmanuel, Achema, Gimba, Mafuyai, Afoi, and Ifere, (2013). The American Pain Society defines pain as an "unpleasant sensory and emotional experience associated with actual and potential tissue damage, or described in such terms of damage". One of the causes of pain among women is dysmenorrhoea.

Dysmenorrhea is defined as difficult menstrual flow or painful menstruation. It is one of the most common gynecologic complaints in young women who present to clinicians. A significant population of women experience mild, moderate or severe pain during menstruation.

Emmanuel, et al (2013) reports that seventy five percent (75%) of menstruating women experience dysmenorrhoea, making it the leading cause of incapacitation in adolescents. The study further reported that International association for the study of pain posited that dysmenorrhoea affects forty to ninety percent (40-90%) of women. The figures indicated a high prevalence of the condition and indicate a challenge to care givers. Ezeukwu, et al (2013) described dysmenorrhea as the commonest gynaecologic disorder among adolescent and young females and the most common complaint during clinical consultations. As a result

of the enormous negative impact it has on Activities of Daily Living (ADL), females are left with no option than to look out for ways to alleviate the pain or discomfort.

According to Harel, (2006), dysmenorrhoea is the most common gynaecologic complaint among adolescent and young adult females. Dysmenorrhoea in adolescents and young adults is usually primary (functional), and is associated with normal ovulatory cycles and with no pelvic pathology. In approximately 10% of adolescents and young adults with severe dysmenorrhoea symptoms, pelvic abnormalities such as endometriosis or uterine anomalies may be found. Potent prostaglandins and potent leukotrienes play an important role in generating dysmenorrhoea symptoms. Chia, Lai, Cheung, Kwong, Lau, Leung and Wong, (2013) reported that dysmenorrhoea is experienced as uterine pain or cramps in the lower abdomen, occurring just before and/or during menstruation, with variations among different females. It has been proposed that the release of prostaglandins in the menstrual fluid leads to uterine contractions that give rise to the pain of dysmenorrhoea. According to Parker (2006), the question of whether menstrual pain or dysmenorrhoea is considered to be a menstrual disorder is probably governed by its severity, requirements for medication and interference on life activities. The word 'dysmenorrhoea' seems to imply more than just 'menstrual pain'.

2.7 Types of dysmenorrhoea

Ana et al, 2013 described dysmenorrhoea as the most common gynaecological complaint among women at a fertile age; and can be ranked as primary or secondary. Primary dysmenorrhoea is defined as pain during menstruation in women with a normal pelvic anatomy, whereas secondary dysmenorrhoea refers to menstrual pain associated with pelvic pathology. Pain can begin shortly before or at the same time as the menstruation and usually lasts between 1 and 3 days.

According to Brown and Brown, (2010), Primary dysmenorrhoea is defined as menstrual pain that is not associated with macroscopic pelvic pathology (ie, occurs in the absence of pelvic disease) or when there is no identifiable pelvic disease. It typically occurs in the first few years after menarche and affects as many as 50% of post pubertal females. Ezeukwu et al, (2013) also reported that primary dysmenorrhoea is known commonly in this environment as menstrual pain and thus defined primary dysmenorrhoea as painful menses in women with normal pelvic anatomy, usually beginning during adolescence. The pain is usually spasmodic in character and felt mainly in the lower abdomen, but it may radiate to the back and along the thighs.

Primary dysmenorrhoea also refers to menstrual pain in the absence of an underlying pathology and is related to the fluctuation of hormones and prostaglandins experienced during menstruation (Parker, 2006). In order to control bleeding as the endometrium comes away during menstruation, prostaglandins (produced by the endometrium) enhance vasoconstriction and myometrial contraction leading to ischaemia of the endometrial lining. The excess of prostaglandins in some women causes uterine cramping and varies from mild to severe cramping pain, this is more specifically referred to as 'spasmodic dysmenorrhea'.

Secondary dysmenorrhea is defined as menstrual pain resulting from anatomic or macroscopic pelvic pathology as is seen in women with endometriosis or chronic pelvic inflammatory disease. It is most often observed in women aged 30-45 years. Secondary dysmenorrhoea can occur many years after menarche and is associated with identifiable pelvic pathology, for example endometriosis, (Brown and Brown, 2010). The term secondary dysmenorrhoea is used to describe significant period pain that is caused by an underlying pathology or disease (Parker, 2006). In secondary dysmenorrhea the pain may begin several days before and last throughout the period.

Emmanuel et al (2013), defined secondary dysmenorrhea as that which may occur due to outlet obstruction which may result from a partial imperforated hymen or uterine malformation. Secondary dysmenorrhea may begin later in life compared to primary dysmenorrhea. This type of pain associated with secondary dysmenorrhoea often lasts longer than normal cramps. For instance, it may begin long before menstrual period starts. The pain may get worse with menstruation and not go away after your period ends.

Common causes of secondary dysmenorrhoea include:

- Endometriosis: This is a condition in which tissue from the lining of the uterus is located outside of the uterus, such as in the ovaries and fallopian tubes.

  This tissue still acts like it does in the uterus. It responds to monthly changes in hormones and also breaks down and bleeds.

  This bleeding, which occurs outside of the uterus and vagina, can cause pain, especially right before, during, or after your period.It could also be defined as a common pathology which may cause (secondary) dysmenorrhoea in adult women and adolescents (Parker, 2006), and is defined as a disease where endometrial glands or stroma that usually line the uterine cavity, are found outside the uterus and on any of

the organs or structures within the pelvic cavity. The majority of endometriosis implants are located in the pelvis, with the ovaries being the most common site.

- Adenomyosis — painful menstruation, that may be accompanied by heavy menstrual bleeding.
- Fibroids —muscle tumors or growths that form on the outside, the inside, or in the walls of the uterus. These tumors can cause pain and heavy menstrual bleeding.
- Endometrial polyps — more common in women older than 50 years of age. Abnormal vaginal bleeding may occur.
- Pelvic inflammatory disease — lower abdominal pain and tenderness that may be accompanied by dyspareunia, abnormal vaginal bleeding, and abnormal vaginal discharge. In acute infection, fever may be present.
- Intrauterine device (IUD) — a history of IUD insertion, usually 3–6 months previously. Pain may be accompanied by longer and heavier periods, often with bleeding or spotting in between periods.

2.8 Dysmenorrhoea symptoms

Dysmenorrhoea, as a general term, has been described by Parker, (2006) as a syndrome of symptoms associated with menstruation: "Severe, cramping pain in the lower abdomen that occurs during and or prior to menses. Pain may also occur in the lower back, lower abdomen and upper thighs and may be associated with nausea, vomiting and headache".

Others symptoms cited with menstrual pain are diarrhoea, altered appetite, backache, fatigue, headache, dizziness and syncope, breast tenderness, irritability, anxiety, mood lability, and depression. Women with secondary dysmenorrhoea often have chronic pelvic pain associated with a structural abnormality.

Anandha, Priy, Saraswaki, Saravanan and Ramanchandran, (2011) reported that it is unusual for symptoms to start within the first six months after menarche and that affected women experience sharp, intermittent spasm of pain usually concentrated in the supra pubic area. Pain may radiate to the back of the legs or the lower back. Systemic symptoms of nausea, vomiting, diarrhoea, fatigue, mild fever and head ache or light headedness are fairly common. Other symptoms include decrease in concentration, loss of appetite, dizziness, fainting, sweating. Pain usually develops within hours of the start of menstruation and peaks as the flow becomes heaviest during the first day or two of the cycle. The defining symptom of primary dysmenorrhea is crampy midline lower abdominal pain that begins with menstrual

flow or a short time before. Typically, the cramps are most intense on the first or second day of flow and resolve before the end of the menstrual flow. The pain may be referred and experienced as lower back or anterior thigh pain. Nausea or vomiting may occur in some individuals, (Paula, 2013).

Secondary dysmenorrhea on the other hand is more likely to begin several days or even 1 to 2 weeks prior to the onset of bleeding and to persist through the end of menstrual flow. Associated symptoms, including heavy bleeding, may suggest uterine fibroids as a cause. (Paula, 2013). The main factor associated with dysmenorrhoea is the increased production of prostaglandins by the endometrium, which are released during the menstrual flow causing uterine contractions and pain. In addition, vasopressin also increases uterine contractility and causes ischemic pain as a result of vasoconstriction.

2.9 Prevalence

Reported prevalence rates are so high as 90 percent. Paula, (2013) stated that dysmenorrhea is the most common gynaecologic disorder among female adolescents, with a prevalence of 60% to 93%. A systematic review, in 1998, of chronic pelvic pain in the UK concluded that the prevalence of dysmenorrhoea was between 45% to 97% while a review of primary dysmenorrhoea in adolescents found the prevalence to range from 20% to 90%, with 15% describing their symptoms as severe. Brown and Brown, (2010) also reported in another systematic review of studies in developing countries that 25% to 50% of adult women and 75% of adolescents experienced dysmenorrhoea and that participation in usual activities was adversely affected in 5% to 20% of these women.

Mohammad, Azam, Hossein, and Mehdi (2012), reported that the data on a research on prevalence of primary dysmenorrhea in different parts of the world from 1981- 2006 showed the increasing prevalence of dysmenorrhea. He further stated that the results of studies in different parts of Iran showed the prevalence of primary dysmenorrhea in female students to be 85.5% in Rafsanjan, 71% in Tehran and 73.2% in Gilan. This prevalence in other parts of the world was 40.7% in Delhi, 14% in Gambia, 73% in the USA, 42.2% in Thailand, 58% in Nigeria and 52.2% in Mexico City.

According to Titilayo et al, (2009), the prevalence of dysmenorrhoea among young women varies widely from country to country. Studies of university students showed its prevalence to be 64% in Nigeria and Mexico, 84% in Thailand, 88% in Turkey, and 93% in Taiwan. Studies of high school students also revealed diverse dysmenorrhoea prevalence rates, being

48% in Mexico, 72% in Ethiopia, and 93% in Australia. In a local study on secondary school girls, its prevalence was 69%.

A recent prospective study of college students, based on diaries kept for one year, found that 72 percent of monitored periods were painful, most commonly during the first few days of menses. Sixty percent of women studied reported at least one episode of severe pain. It has also been reported that some women experienced pain in the first day of menstruation only, majority in this study reported that they experienced pain on the second, third or throughout the period of menstruation. This indicates that most students may be incapacitated in one way or the other as a result of dysmenorrhoea.

According to United States Statistics, dysmenorrhea may affect more than 50% of menstruating women, and its reported prevalence has been highly variable. A survey of 113 patients in a family practice setting showed a prevalence of 29-44%, but figures as high as 90% in women aged 18-45 years have been reported. The use of oral contraceptives (OCs) and non-steroidal anti-inflammatory drugs (NSAIDs), both of which are effective in ameliorating symptoms of primary dysmenorrhea, may hinder accurate assessment of prevalence.

Dawood, (2006) according to international statistics reported that the prevalence of dysmenorrhea worldwide is similar to that in the United States. Reported prevalences have ranged from 15.8% to 89.5%, with higher rates reported in adolescent populations.

A study of 408 young Italian women found that the prevalence of dysmenorrhea was 84.1% when only menstrual pain was considered, 55.2% when menstrual pain was associated with a need for medication, 31.9% when menstrual pain was associated with absenteeism, and 25.3% when menstrual pain was associated with both a need for medication and absenteeism.

The prevalence of primary dysmenorrhea decreases with increasing age: prevalence is highest in the 20- to 24-year-old age group and decreases progressively thereafter. There appears to be no relationship with parity when age is factored in. (Dawood, 2006).

2.10 ETIOLOGY

The measurement of intra-uterine pressure, an indication of uterine contractility, in women with dysmenorrhoea and in women without dysmenorrhoea, has been crucial in understanding the aetiology of primary dysmenorrhoea. Women experiencing dysmenorrhoea, when compared to women without dysmenorrhoea in the menstrual phase of

the cycle, have an increase in resting uterine tone, active intra-uterine pressure and number of contractions, which decrease myometrial blood flow and cause uterine ischaemia, (Avidon, 2008). The increased production and release of biologically active compounds that increase myometrial activity and decrease uterine blood flow, such as prostaglandins, leukotrienes and vasopressin, have been implicated in the pathogenesis of primary dysmenorrhoea.

According to Anandha et al, (2011), the aetiology of dysmenorrhoea is not precisely understood, but most symptoms can be explained by the action of uterine prostaglandins. During endometrial sloughing, the disintegrating endometrial cells release prostaglandins as menstruation begins. It also stimulates myometrial contractions, ischemia and sensitization of nerve endings. The clinical evidence is quite strong. Women who have more severe dysmenorrhoea have higher levels of prostaglandins in their menstrual fluid. These levels are highest in the first two or three days of menses, when symptoms peak. In adult women, most of the cycles are ovulatory and regular, lasting between 21 and 35 days.

Harel, (2006) reported that during the first half of the cycle (follicular phase), pulsatile GnRH secretion from the hypothalamus stimulates secretion of luteinizing hormone (LH) and follicle-stimulating hormone (FSH) from the anterior pituitary gland. FSH and LH stimulate development of a dominant follicle in the ovaries. The oestrogen produced by the ovaries is capable of exerting a positive stimulatory feedback on LH release, leading to LH surge around day 14 of the cycle. Ovulation occurs approximately12 hours after the LH surge. If ovulation has occurred, progesterone is secreted from the corpus luteum during the second half of the cycle (luteal phase) with a peak around 8 days after the LH surge. While the luteal phase is constant and lasts 14 days, the number of days required for follicular growth and maturation in the follicular phase may vary, leading to slight variability in cycle length among women. Regression of the corpus luteum results in a decrease of both progesterone and estrogen, triggering asynchronous sloughing of the endometrial lining (menstruation).

Zeev (2006), further reported that the average blood loss during the menstrual period is 40mL, with a normal range between 25 and 69 mL. Most of the blood loss occurs during the first few days of the menstrual period, which generally lasts from 2 to 7 days. In adolescents, the positive stimulatory feedback mechanism of oestrogen on LH does not mature, and the LH surge does not occur, until 2-5 years after menarche. As a consequence, 50-80% of the

cycles are ovulatory and irregular during the first 2 years after menarche, and approximately 10-20% of cycles remain an ovulatory up to 5 years after menarche.

The length of the interval between the onset of menses and the establishment of ovulatory cycles is associated with the age of menarche, with earlier menarche correlating with a shorter interval. The eventual attainment of ovulatory cycles by the teenagers leads to normal, repetitive menstrual bleeding while dysmenorrhoea (menstrual cramps and other menstruation associated symptoms) is less common during the first 2-3 years after menarche, when most of the menstrual cycles are anovulatory, it becomes more prevalent during mid and late adolescence, with the establishment of ovulatory menstrual cycles.

The primary actions of prostaglandins in the etiology of dysmenorrhoea appears to be constriction of uterine blood vessel with consequent uterine ischemia; increased abnormal uterine contractions; and direct pain-producing properties caused by sensitizing pain receptors. The effectiveness of nonsteroidal anti-inflammatory agents, which inhibit overall prostaglandin synthesis and compete for prostaglandin receptor sites, in relieving subjective dysmenorrheic symptoms has been well documented and lends further credence to the etiologic role of prostaglandins in dysmenorrhoea. (Avidon, 2008).

2.11 Prostaglandins and dysmenorrhoea

According to Avidon, (2008) prostaglandins are recognized as key molecules in human reproduction. It plays an important role in the rupture of follicle during menstruation and also in myometrial contraction. The process of menstruation, which involves the shedding of the endometrial lining in the absence of fertilization, also is dependent on prostaglandins. There is substantial evidence for the involvement of prostaglandins, in the pathogenesis of primary dysmenorrhoea. Studies, both recent and old, have documented dysmenorrhoea in women who have significantly higher than normal concentrations of prostaglandins in their endometria, endometrial jet washing and endometrial fluids. Avidon, (2008) further confirmed that women with dysmenorrhoea, compared to eumenorrhoeic women, have twice the amount of Prostagladins in their menstrual fluid.

2.12 Associated risk factors

Tinatin, Besarion and David, (2012) reported that the following risk factors are associated with more severe episodes of dysmenorrhea:

- Earlier age at menarche
- Long menstrual periods
- Heavy menstrual flow
- Smoking
- Positive family history

  Some (not all) studies have found obesity and alcohol consumption to be associated with dysmenorrhea.

2.13 Effects of dysmenorrhoea on school performance and activities of daily living (ADL)

Women's health issues have attained higher international visibility and renewed political commitment in recent decades. The health of families and communities are tied to the health of women – the illness or death of a woman has serious and far reaching consequences for the health of her children, family and community. The slogan, "Healthy women, Healthy world" embodies the fact that as custodians of family health, women play a critical role in maintaining the health and wellbeing of their communities. Thus, reproductive health of a woman should be considered as vital important and one that has widespread implications on health, wellbeing and developments of the entire population.

The menstrual function is deemed to be one of the factors reflecting the functional potentiality of women and that may be affected by stress. There is also a growing evidence of an association between psychosocial stress and menses-associated health problems in women. These conditions are not life threatening but they can seriously decrease the quality of life of many women and affect their mental health and their productivity.

School absence related to menstrual pain and symptoms is a significant problem that has been inadequately addressed by families, health professionals and the education system, and accordingly, it has being identified as a 'public health problem for this age group' (adolescents).

Research further suggests that while menstrual pain and symptoms cause school absence for teenagers, they also interfere with life activities. Mohammad et al, (2012) reports that dysmenorrhoea may have negative effects on daily activities and function of women in and out of the home and may deteriorate their living. In some of the countries, more than half of the employed subjects are women and their absence from work is an important problem in

that country. Being such a common experience, it causes considerable disturbance in the daily activities of young women, which includes school absenteeism.

The problem of school absenteeism from school or work is also underappreciated. In one study of college women, 42 percent of the study subjects reported absenteeism or loss of activity on at least one occasion due to dysmenorrhoea. In an older study, dysmenorrhoea accounted for 600million lost work hours and $2 billion in lost productivity annually. Anandha et al, (2010) reported that in United States, dysmenorrhoea is the leading cause of recurrent short-term school absenteeism. Several studies have shown that adolescents with dysmenorrhoea report that, it affects their academic performance, social and sports activities. Gulsen, Funda and Turkan (2010) also reported that in academic life, students tends to be absent from school, unable to focus on their courses, and are distracted from lectures due to dysmenorrhoea. Other studies also confirmed female adolescents' negative attitudes toward education due to excessive pain and other discomforting symptoms.

In a study carried out in eastern Turkey on the dysmenorrhoea prevalence and effects on school performance and relationship with family and friends, it was reported that 46% of female adolescent students could not go to school one day or more every month. The results of another research done in Turkey showed that the cause of 25.6% of absence of girls from school was dysmenorrhoea. In a study from Mexico, 65% of women interviewed recounted limitation in daily activities and 42% reported absenteeism, while a local study found that only 10% had taken sick leave due to dysmenorrhoea. In another study conducted in Mexico, it showed that 19.8% of students' absences from classes was due to dysmenorrhoea.
Gulsen et al, (2010) further stated that 46% of adolescents with dysmenorrhoea could not go to school for half a day or a day; 36% for two to three days; and 18% for more than four days. Among the adolescents whose education was affected, absenteeism was common; most of them, failed to do home work, could not understand the content of their lessons and some of them could not answer questions on exams even though they knew them.

Throughout the 1980's and 1990's a number of studies on dysmenorrhoea reported its effect on a large number of teenagers (59.7-91%), that dysmenorrhoea interfered with teenagers lives in terms of participation in life activities and school attendance (Parker, 2006).

In another study reported by Parker, (2006), he stated that 55% of the girls being studied reported that cramps affected their academic work with 26% missing classes. The literature indicates that 14-5 1% of teenagers take time off school related to their periods.

2.14 Effects of dysmenorrhoea on social interaction

Effects of dysmenorrhoea on relationship and social interactions with family and friends include living apart, not fulfilling family responsibilities, unwilling to talk, being irritable and uncomfortable. In a study by Parker, (2006) it was reported that 58.9% of girls studied said that menstrual cramps caused a decrease in their activities such as participation in sports and going out with friends.

Hence, there are implications here for social and physical development in teenage girls which can affect the formation of relationships, self esteem and self-view in relation to peers, confidence in sporting activities, overall physical fitness, well-being and body weight management.

2.15 Self management patterns

No matter the intensity of pain, women affected by dysmenorrhoea experience discomfort, distress and suffering and will do anything within their reach to eradicate or reduce the pain.

For many women, dysmenorrhoea have significant impact on the quality of life at least a portion of each month.

The management of primary dysmenorrhoea involves the use of Non-Steroidal Anti inflammatory Drugs (NSAIDs), which are cyclooxygenase inhibitors that reduce the production of prostaglandins (PGs). Some NSAIDS, in particular meclofenamic acid, inhibit both cyclooxygenase and lipoxygenase pathways, inhibiting the production of leukotrienes as well. This theoretical advantage has not been shown to result in a clear-cut advantage of one NSAID over another. In addition, Harel, (2006) reported that the most common pharmacological treatments for dysmenorrhea are NSAIDs. NSAIDs inhibit cyclooxygenase, leading to a reduction in prostaglandin production. The resulting lower level of prostaglandin leads to less vigorous contractions of the uterus, and, therefore, to less discomfort.

Over-the-counter pain medications frequently are also being used for dysmenorrhoea; such use has been reported in 30% to 70% of adolescents. However, many adolescents are

unaware of the differences in the mechanism of action of over-the-counter analgesics and often do not distinguish between those that have effective components and those that do not.

A Cochrane systematic review concluded that "NSAIDS are an effective treatment for dysmenorrhoea, although women using them need to be aware of the significant risk of adverse effects" and that "there is insufficient evidence to determine which (if any) individual NSAID is the most safe and effective for the treatment of dysmenorrhoea. (Paula, 2006)

2.16 Non-pharmacologic Therapies

Some non-pharmacologic therapies have been shown in small series to be effective for dysmenorrhoea. Two of these therapies, transcutaneous electrical nerve stimulation (TENS) and spinal manipulation, have been included in a Cochrane systematic review of efficacy with conclusions of efficacy for primary dysmenorrhoea.

2.16.1 Transcutaneous electrical nerve stimulation

Transcutaneous electrical nerve stimulation (TENS) involves stimulation of the skin using current at various pulse rates (frequencies) and intensities to provide pain relief. TENS appears to work by blocking efferent pain stimuli.

Also, topical heat, in the form of either a hot water bottle or heating pad or newer chemical heat-producing adherent pads, may be effective and is associated with minimal risks.

Other methods include:

2.16.2 Oral Contraceptives

Combination oral contraceptives have been prescribed widely in the last 40 years for dysmenorrhoea in those who have not experienced sufficient relief with NSAIDs or who also require contraception. Oral contraceptives reduce PG release by inhibiting ovulation and, thus, decreasing the progesterone-induced increase in PG synthesis. Decreases in both PGs and leukotrienes have been noted in the menstrual fluid of women taking oral contraceptives compared with controls. Paula, (2006) stated that adolescents who experience relief of dysmenorrhoea are more likely to use oral contraceptives consistently and correctly and that combination oral contraceptives for management of dysmenorrhoea are an appropriate therapy if no significant medical or family history precludes their use.

2.16.3 Herbal and dietary supplements

The evidence on herbal and dietary supplements is limited by poor quality studies and small sample sizes in that the efficacy and its safety have not really been considered when advising women about herbal and dietary supplements for dysmenorrhoea. Herbal preparations such as

black cohosh, oil of fennel, and evening primrose oil have been suggested, but the data to support their use and safety are also sparse. (Paula, 2006). Studies of fish oils and the Japanese herbal remedy toki-shakuyaku-san, are too small to draw meaningful conclusions.

There is some evidence that both magnesium and vitamin B6 may provide pain relief; however a disparity of dosing and high drop out rates make it difficult to draw firm conclusions. There is also some evidence that vitamin E may be effective in relieving dysmenorrhoea.

Harel, (2006) reported that a low-fat vegetarian diet was also associated with a decrease in dysmenorrhea duration and intensity in young adult women. He further reported that dietary supplementation with omega-3 fatty acids had a beneficial effect on dysmenorrhoea symptoms in adolescents in one study. Increasing dietary omega-3 fatty acids intake leads to production of less potent prostaglandins and less potent leukotrienes, which may have accounted for the reduction in menstrual symptoms observed in adolescent girls in that study.

Approaches to deal with dysmenorrhoea differ in different cultures. Young women cope with their dysmenorrhoea using different approaches. According to the study from Mexico, 62% of university students with dysmenorrhoea self-medicated while 26% consulted physicians. A US study showed that apart from medication, all adolescent girls used non-pharmacological remedies such as sleeping and heat application to soothe pains due to dysmenorrhoea.

Some of the strategies used in the management of pain among women in Taiwan include bed rest, paracetamol, heat, exercise, ginger tea, brown sugar and low fat food.

According to a study on pain relief strategies among a cohort of undergraduates in Nigeria by Emmanuel et al (2013), it was discovered that Strategies used by female undergraduates in pain relief are drugs, relaxation/rest, warm bath, exercise, diet modification and herbal remedies. Drugs, warm bath, rest and exercise were the most used strategies adopted in managing menstrual pain among female undergraduates.

Ezeukwu et al, (2014) reported that treatments for primary dysmenorrhoea vary across different world population, and include lifestyle modification, complementary and alternative modalities, over-the-counter and prescription analgesics and hormonal contraceptives.

A study carried out among female students of university of Enugu, Nigeria also revealed that rest was mostly preferred as a means for pain relief, pharmacological methods which

included paracetamol, Aspirin, NSAIDS (Non-Steroidal Anti inflammatory Drugs) such as Ibuprofen, Feldene, Cataflametc, Other means included avoidance of sweet foods like coke was followed by rest then exercise was also a moderately preferred means of pain relief. Some females or young adults with dysmenorrhoea self-medicate with the over the counter preparations; as few consult health care providers. Heat packs also presented as a preferred means of pain relief by the participants of the study.Consumption of fruits, vegetables and decreasing the salt consumption during menstruation period has also been identified by some studies as means of managing dysmenorrhoea.

Brown and Brown, (2010) suggested physical exercise as a non-medical approach to the management of dysmenorrhoea. However, limited studies have suggested a decline in dysmenorrhoea with physical exercises, but critical analysis and other studies do not support any evidence-based relationship between exercise and primary dysmenorrhoea. (Dawood, 2006).

A multidisciplinary approach involving a combination of life style modification and allied health services should be used to limit the impact of dysmenorrhoea on activities of daily living. Use of non steroidal anti-inflammatory drugs is the most common strategy among many women today.

2.17 Conceptual framework

The health providers and promoters need to understand that different people in the communities not only behave differently but also have different reasons and explanations for behaving the way they do. Hence the need to direct a health education programme based on the diagnosis about health behaviours in each community. Therefore PRECEDE model will be used in this study to explain human behaviour as related to dysmenorrhoea experiences and self-management patterns among female students in the polytechnic.

Precede Model

This model provides a comprehensive structure for assessing health and quality-of-life needs of the populace and for designing, implementing, and evaluating health promotion and other public health programmes to meet these needs. It was developed by Green, Kreuter and associates in 1970s and modified in 1999. The PRECEDE acronym stands for Predisposing, Reinforcing, Enabling Constructs in Educational/Environmental Diagnosis and Evaluation.

Predisposing Factors

The characteristics of individual such as age at menarche, educational level, knowledge, cultural beliefs, individual's perception and experiences of dysmenorrhoea comes to play at this level.

Enabling Factor

These are factors that enable people to act on their predisposition. They include availability of information, resources such as money, time to visit a physician or a gynaecologist.

Reinforcing Factors

This factor encourages repetition and persistence of behaviour after abehaviour has been initiated. The reinforcing factors include influence of significant others such as friends, peer groups, acquaintances, parents, religious leaders, mass media and other contacts in schools. Friends and peer pressure are relevant factors that can also influence the opinion and belief of the students about the subject matter. Peer group and acquaintances can advise the students to employ a particular management pattern as a way of managing dysmenorrhoea, which eventually can change their perception towards dysmenorrhoea and also make them dependent on such health seeking behaviours or coping mechanisms. Interventions targeted at the peer groups, friends and acquaintances will surely help in correcting opinions and perceptions that might be a deviant from the normal societal norms and values as well as health seeking behaviours that could be harmful.

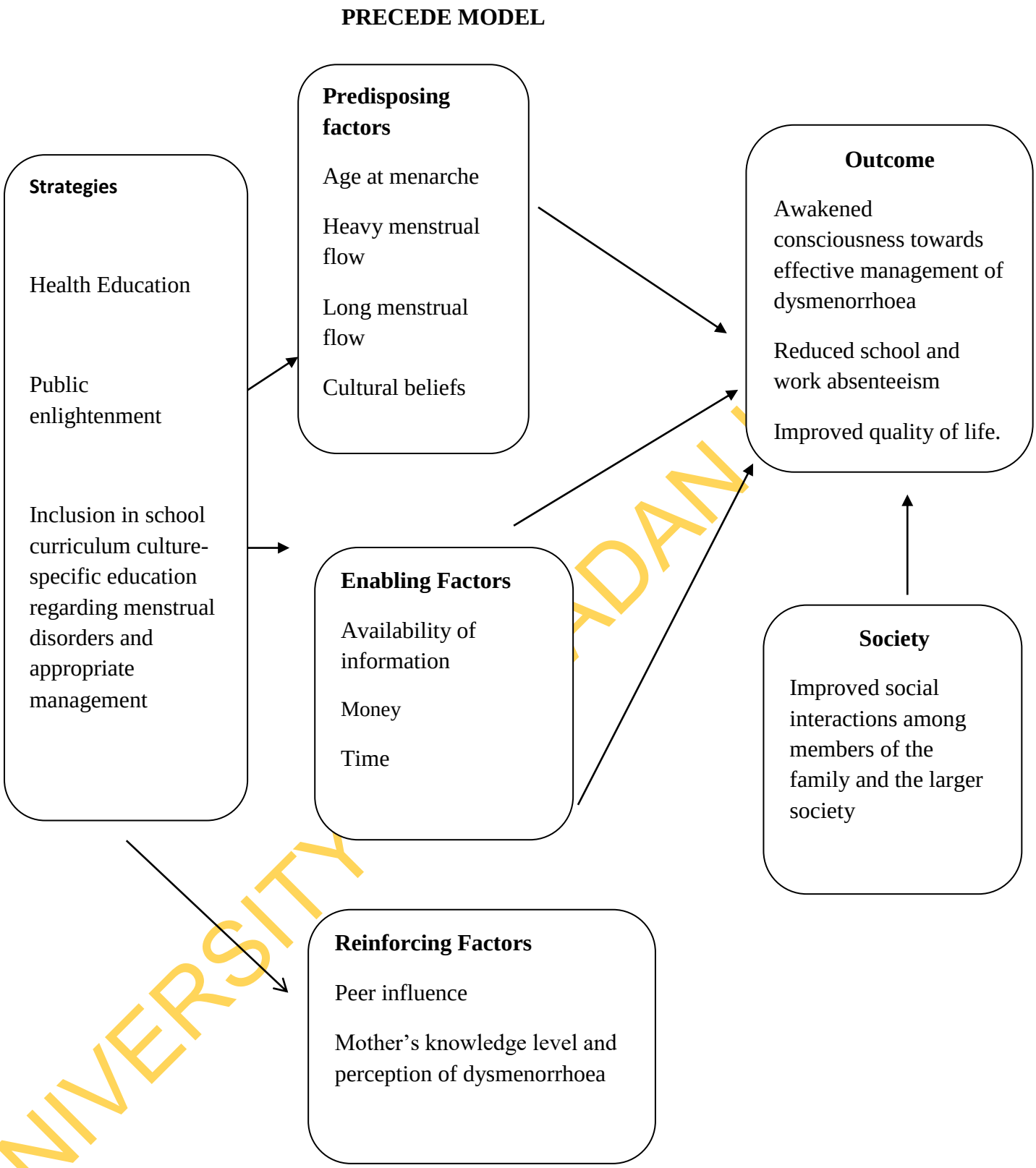

Fig 2.2 Precede model applied to this study ***(****Adapted from Change Process- A social and Behavioural Foundation for Health Education and Health Behaviour and Health Education Theory, Research and Practice).*Source: Green, Kreuter and Associates, 1970.

CHAPTER THREE
METHODOLOGY

3.1 STUDY DESIGN

This study was a descriptive cross sectional study using self administered questionnaire. The study looked into dysmenorrhoea experiences and self-management patterns or practices among the female students of the Polytechnic, Ibadan.

3.2 STUDY LOCATION

This study was carried out at The Polytechnic, Ibadan. The institution was established in 1970 as a successor to the erstwhile Technical College, Ibadan under the provision of a principal Edict cited as The Polytechnic, Ibadan Edict 1970. The Edict has undergone several amendments in order to make The Polytechnic relevant to the present day needs of Oyo state. The primary function of The Polytechnic is to provide for students training and development of techniques in applied science, engineering, environmental science and commerce.

Since 1975/76 academic session, The Polytechnic, Ibadan has been operating on faculty system for easier work co-ordination and management. At present, there are five faculties with a population of over 19000 students. The five faculties are: Engineering, Science, Environmental Studies, Financial and Management Studies and Business and Communication Studies. The faculties run National and Higher National Diploma. The Polytechnic main campus has at present four Halls of Residence with a total capacity of nearly 4000. The Halls are: Orisun Hall (South Campus), Ramat Hall (North Campus), Unity Hall (North Campus), Olori Hall (Female Hostel). Only bonafide registered full time students of the polytechnic are allowed to live in the hall of residence. However, the Polytechnic has rules and regulation that guide students' sexual and social activities on campus (Students' Information Handbook, The Polytechnic Ibadan, 2010).

3.3 STUDY POPULATION

The study population contained female students who are residents in the female halls of the Polytechnic Ibadan. The female residential halls are two namely; Olori hall and Ramat hall.

3.4 INCLUSION CRITERIA

For the purpose of this study, females who are National Diploma and Higher National Diploma students of the Polytechnic were involved in the study. Also, participants were

residents of the identified residential halls and have heard and experienced dysmenorrhoea before or still experiencing it.

3.5 EXCLUSION CRITERIA

This study excluded part-time or sandwich students in the polytechnic. This was because students running these programmes are not regular students and their academic calendar is different from the regular students.

3.6 SAMPLE SIZE

Sample size for this study was estimated from the Leslie Kish formula for single proportion which is as follows:

$$N = \frac{Z\alpha^2 pq}{d^2}$$

N= Minimum sample size required

Zα= Standard normal deviation set at 1.96 normal interval

P= Prevalence proportion of people estimated to be with the condition under investigation. (proportion of female undergraduate students experiencing dysmenorrhoea is 64%; Titilayo et al, 2009)

Q= Proportion of people without the condition under investigation. [Q= (1-p),

Q= 1-0.64=0.36]

D= degree of accuracy set at 0.05 (precision set at 5%)

Therefore, the sample size $N = \frac{(1.96)^2 \times 0.64 \times 0.36}{0.05 \times 0.05}$

$$N = \frac{3.8416 \times 0.2304}{0.0025}$$

$$N = \frac{0.8851}{0.0025}$$

$$N = 354.04$$

A non-response rate of 10% of 354= 354x10 = 35.4 approximately 36,

Therefore, 36 was added to sample size calculated to make the sample size 390 in order to address any possible case of incomplete response.

3.7 SAMPLING TECHNIQUE

A multi-stage sampling technique was employed in selecting female students residing in the female residential halls of the polytechnic. The study sample was drawn from the population of female students residing in the two female halls of residence (Olori and Ramat).

Olori hall has seven blocks with equal number of rooms while Ramat hall has four blocks with equal number of rooms.

STAGE ONE: Proportionate sampling technique was used in determining the number of students to be selected from each hall.

STAGE TWO: Simple random sampling was used to select rooms from the blocks in each hall.

STAGE THREE: Simple random sampling was used in selecting the respondents who have heard and experienced or experiencing dysmenorrhoea.

Table 3.1: Distribution of students based on halls of residence

HALLS OF RESIDENCE	**TOTAL NUMBER OF ROOMS**	**TOTAL NUMBER OF STUDENTS IN EACH HALL**
Olori	270	637
Ramat	192	384
TOTAL	**462**	**1021**

NUMBER OF STUDENTS TO BE SELECTED IN EACH HALL

Olori → 637÷1021 × 354 = 221

Ramat → 384÷1021 × 354 = 133

SELECTION AT OLORI HALL

221 rooms was selected from 270 rooms using simple random sampling, a student was then picked randomly from the occupants of the room.

SELECTION AT RAMAT HALL

133 rooms was selected from 192 rooms using simple random sampling. In each of the rooms selected, a respondent was then selected at random from the occupants of the room.

3.8 INSTRUMENT FOR DATA COLLECTION

A semi-structured questionnaire (Appendix I) was used as the tool for data collection. The questionnaire was developed after evaluation of relevant literature. The questionnaire included various sections such as:

SECTION A: Questions regarding socio-demographic characteristics

SECTION B: Knowledge on dysmenorrhoea

SECTION C: Perception towards dysmenorrhoea

SECTION D: Dysmenorrhoea experiences

SECTION E: Effect of dysmenorrhoea on daily activities

SECTION F: Strategies or management patterns employed in managing dysmenorrhoea

3.9 VALIDITY OF THE INSTRUMENT

Validity of the instrument was ensured through the development of a draft instrument by consulting relevant literatures. Literatures for this research were acquired from reliable sources and were limited to recent journals. After development, the questionnaire was reviewed by staff and lecturers in the Department of Health Promotion and Education of the Faculty of Public Health, University of Ibadan. The questionnaire was then pretested among the female undergraduate students who are residents of the female halls of the University of Ibadan using 10% of the sample size calculated. After pre-test, it was corrected and modified before the final questionnaire was produced and used for the research.

3.10 RELIABILITY OF THE INSTRUMENT

This refers to the measure of internal consistency. All copies of the administered questionnaire were checked one after the other in order to ensure completeness and accuracy. Serial number was then assigned to each questionnaire for easy identification, correct entry and analysis. A coding guide was also developed to code and enter each question into the computer for analysis. The data entered into the computer was then subjected to statistical analysis in order to determine the reliability using the Cronbach's Alpha coefficient. For this study however, a reliability of 0.794 was gotten. This shows that the instrument is reliable.

3.11 DATA COLLECTION PROCESS

Two research assistants were recruited who were female students of the polytechnic and residents of the female halls as well. Research assistants were trained for 2 hours a day to ensure proper understanding and administration of the instrument. Visits were made to the sample site to seek permission. Informed consent and signing of the informed consent forms by the respondents after which copies of the questionnaires was administered. Each copy of the questionnaire was reviewed by the research assistants.

3.12 DATA MANAGEMENT AND ANALYSIS

The principal investigator checked all copies of administered questionnaire one after the other for the purpose of completeness and accuracy. Serial number was assigned to each questionnaire and question for easy identification and for correct entry and analysis. A coding guide was then developed to code and enter each question into the computer for analysis. The data was subjected to descriptive and inferential (Chi-Square) statistical analyses. Finally, information obtained was summarized using appropriate descriptive statistic parameters. Knowledge was assessed on a 11- point scale and knowledge score‘0-5’categorized as **poor** while knowledge score ‘6-11’ was categorized as **good.** Perception was assessed on a 13-point scale with score ‘0-6’ categorized as negative while scores between ‘7-13’ were categorized as positive. Each correct score was awarded one mark while each wrong answer was awarded zero score.

3.13 ETHICAL CONSIDERATION

Participants were informed on the purpose of the study and given option to either participate or not verbally or in a written form. Related ethics such as informed consent, volunteerism, and confidentiality was also observed. The information that was provided by the respondents was treated with confidentiality. Also, information about participants’ identity was not included with the other data and only the principal investigator had access to the information.

CHAPTER FOUR

RESULTS

The results gotten from this study are presented in this section. They are organized into the following subsections:

- Socio demographic characteristics
- Knowledge on dysmenorrhoea
- Perception about dysmenorrhoea
- Dysmenorrhoea experiences
- Effects of dysmenorrhoea on daily activities
- Self management patterns employed to manage dysmenorrhoea

4.1 Respondents' Socio-Demographic Characteristics

Results of respondents' socio-demographic characteristics are presented in tables 4.1 with a response rate of 91%. Respondents' age ranged from 16 to 27 years with a mean age of 20.4±2.4 years. Majority (53.7%) of the respondents fall within the age bracket of 15-19 years; 40.7% of the respondents were in National Diploma 2, followed by 40.1% in National Diploma 1, 39% in Higher National Diploma 2 and 29% in Higher National Diploma 1. Most of the respondents (13.8%) belong to the department of Office Technology Management, 13.3% belong to Science Laboratory Technology, 13% belong to Geology followed by 10.2% in Insurance, A larger percentage of the respondents (37.3%) belong to the Faculty of Science followed by 31.1% belonging to Business and Communication Study, 24.6% belonging to the faculty of Financial Management Study, 4.0% belonging to the faculty of Environmental Studies and the least being 3.1%belonging to the faculty of Engineering.

Majority of the respondents (61%) reside in Olori Hall while a few percentage (39.0%) of them reside in Ramat Hall. Also, a higher percentage of the respondents were from Yoruba ethnic group, followed by 9.6%who reported to be from Igbo, 1.7% from Edo, 1.1% from Hausa, 0.3% from Igbira, Urobo, Middle belt, Annanng, Calabar, and Ika respectively. A large percentage (74.9%) practice Christianity Religion while 25.1% practice Islamic Religion.

Table 4.1: Respondents' Socio-Demographic Characteristics (N=354)

Characteristics	Frequency	Percentage (%)
Age (in years)		
15-19	136	38.4
20-24	190	53.7
25-29	28	7.9
Level of study		
ND 1	142	40.1
ND 2	144	40.7
HND 1	29	8.2
HND 2	39	11.0
Faculty		
Science	132	37.3
Business and Communication Study	110	31.1
Financial Management Study	87	24.6
Environmental Study	14	4.0
Engineering	11	3.0
Hall of Residence		
Olori	216	61.0
Ramat	138	39.0
Ethnicity		
Yoruba	304	85.9
Igbo	34	9.6
Edo	6	1.7
Hausa	4	1.1
Others	6	1.7

4.2 Respondents knowledge about Dysmenorrhoea

Majority of the respondents (59.6%) admitted that they do not know the types of dysmenorrhoea, 22.2% reported that the types of dysmenorrhoea are the primary and secondary types, 12.7% reported that there is only primary dysmenorrhoea while 5.5% are of the opinion that it is only secondary dysmenorrhoea.

When asked about the causes of dysmenorrhoea, a larger percentage of the respondents (69.2%) said that high sugar intake is the major cause of dysmenorrhoea, 25.1% reported that too much of stress or fatigue could also cause dysmenorrhoea, 15% further reported that family history is another cause of dysmenorrhoea in that it could be hereditary. Also, 6.5% of the respondents stated that dysmenorrhoea is normal or natural or could be due to individual's body system, 2.8% stated that it could be caused by excess fat and oil, 2.3% reported that it could also be caused by puberty or hormonal changes and lack of exercise during menstrual period respectively. 2.3% of the respondents stated that it could be caused by both infection and unhealthy diet, 2.0% admitted that dysmenorrhoea could occur as a result of use of un-prescribed pain killers or drugs or drug abuse or body response to some certain drugs during the menstrual period as well as taking of cold drinks during the period respectively. 1.7% stated that having sex prior to menstruation is another cause of dysmenorrhoea while 1.1% stated that it could occur as a result of excess level of prostaglandins. 1.1% of the respondents further admitted that fibroid or ovarian cyst is another cause of dysmenorrhoea. 0.6% of the respondents reported that each of Adenomyosis, Endometriosis, intestinal worms, food intake, environment and spiritual attack can cause dysmenorrhoea while 0.3% reported that tilting back of uterus and state of virginity could also result into dysmenorrhoea. Other responses are shown in the table 4.2.

In another statement testing their knowledge on factors that can make someone experience dysmenorrhoea, few of the respondents (16.9%) agreed that Family History is a factor that can make someone experience dysmenorrhoea while a larger percentage (82.8%) disagreed to that. Also, a minority of the respondents (8.5%) agreed that Age of Menarche is a factor that can make someone experience dysmenorrhoea while the majority of the respondents (91.2%) disagreed. As regards the intake of sugary things, a larger percentage of the respondents (87.6%) admitted that it is a factor that can make one experience dysmenorrhoea while a few percentage (12.1%) disagreed.

Furthermore, in assessing the respondents knowledge on how dysmenorrhoea can be prevented, majority of the respondents (42.1%) reported that the major way in which dysmenorrhoea can be prevented is by avoidance or reduction of sugary things or substances prior to the time and during menstruation. Similarly, 35.0% reported that another way in which dysmenorrhoea can be prevented is by using drugs or painkillers, 21.2% further stated that exercise is a way of preventing it. 6.5% are of the opinion that avoiding stress is a major way of preventing it, 11.9% stated that drinking of hot water or tea is a way of preventing it, 7.3% also reported that resting during the menstrual period is a way of preventing it. In addition, 6.8% identified healthy diet as a way of preventing it, 4.2% went ahead to state that consulting medical professionals or seeking medical advice during the period could help prevent it, 2.5% identified the use of herbs or bitter substances during the period as a way of preventing it, 2.3% further stated that having sex prior to the time or getting married is a way in which dysmenorrhoea could be prevented. 1.7% are of the view that lying on one's belly or massaging one's belly could help prevent it while 1.4% admitted that both avoidance of fatty food or junks and adoption of an healthy lifestyle is a way of preventing it. Other responses by the respondents are further shown in the table 4.2.1. A larger percentage (42.4%) was of the opinion that there is a cure for dysmenorrhoea while 19.8% opined that dysmenorrhoea has no cure.

Of the total number of respondents 354, scoring the knowledge on dysmenorrhoea, there was low percentage of respondents (7.9%) with good knowledge on dysmenorrhoea while a higher percentage (92.10%) had poor knowledge most especially on the types, causes and factors that could make someone experience dysmenorrhoea. The mean knowledge score obtained by the students was 4.4±0.8.

Table 4.2: Respondents knowledge about Dysmenorrhoea

Knowledge Variable	Frequency	Percentage
Types of dysmenorrhoea (N=354)		
Primary	45	12.7
Secondary	18	5.1
Primary and Secondary	78	22.0
I don't know	211	59.6
No response/ Not Applicable	2	0.6
****Causes of Dysmenorrhoea**		
High Sugar Intake	245	69.2
Stress/ Fatigue	89	25.1
Hereditary/ Normal/ Family History	53	15.0
Natural/ Normal/ Nature	23	6.5
Excess Fat and Oil/ Protein	10	2.8
Infection/ Toilet disease/ STI	8	2.3
Unhealthy diet/ Lack of fruits/ Not eating in time	8	2.3
Age/ Age of Menarche	8	2.3
Lack of body exercise during the period	8	2.3
Puberty/Hormonal changes/Changing of menstrual cycle	8	2.3
Taking of cold drinks during the period	7	2.0
Blood clot or inability of blood to flow	7	2.0
Use of un-prescribed pain killers/ Drug Abuse	7	2.0
Having sex prior to menstruation	6	1.7
Excess Carbohydrate	5	1.4
Excess level of Prostaglandin*	4	1.1
Fibroid/Ovarian Cyst*	4	1.1
Tight Pelvic/ Pelvic Congestion	4	1.1
Pelvic Inflammatory	3	0.8
Weather	3	0.8
Hard drug/ Alcohol	3	0.8
Endometriosis*	2	0.6
Adenomyosis*	2	0.6
Spiritual Attack	2	0.6
Intestinal worms	2	0.6
Environment	2	0.6
Tilting back of the uterus*	1	0.3
Dysentery/Diarrhoea	1	0.3
Staying in a place for a long period of time	1	0.3
Excess Oestrogen	1	0.3
State of Virginity/ Tight Vaginal	1	0.3
Unhealthy Lifestyle/ Being dirty	1	0.3

NB * Correct responses

** Multiple Responses.

Table 4.2.1: Respondents knowledge about Dysmenorrhoea (Ways of preventing dysmenorrhoea) N=354

Knowledge Variable	Frequency	Percentage
Ways of preventing dysmenorrhoea (Non-pharmacological ways)		
Avoidance or Reduction of sugary substances	149	42.1
Exercise*	75	21.2
Drinking hot or warm water	42	11.9
Rest/ Relax	26	7.3
Healthy diet*	24	6.8
Avoiding Stress	23	6.5
Consulting Medical Professionals/ Medical Advice*	15	4.2
Taking herbs or bitter substances	9	2.5
Having sex/ Marriage	8	2.3
Hot bath	6	1.7
Lying on one's belly/ Massaging one's belly	6	1.7
Healthy lifestyle/ Being neat	5	1.4
Avoiding cold drinks	4	1.1
Avoiding fatty foods or drinks	4	1.1
Cold bath	3	0.8
Avoiding self medication*	2	0.6
Prayer	2	0.6
Lying on one's back supported with a pillow	2	0.6
Studying one's menstrual cycle	2	0.6
Avoiding sex	1	0.3
Avoid smoking and Alcoholic drink	1	0.3
Use of Alcoholic drink like gin, schinapp, Mcdowel	1	0.3
Ways of preventing dysmenorrhoea (Pharmacological ways)		
Paracetamol, Felvin	124	35.0
Cure of dysmenorrhoea		
Yes	150	42.4
No	70	19.8
I don't know	134	37.8

NB * Correct responses
** Multiple Responses

Table 4.2.2: Respondents knowledge of Dysmenorrhoea (factors that could make someone experience dysmenorrhoea)

Knowledge Variable	Frequency (N=354)	Percentage
Factors that could make one experience dysmenorrhoea		
Family History		
Yes	60	16.9
No	293	82.8
No response	1	0.3
Age of Menarche		
Yes	30	5
No	323	91.2
No response	1	0.3
Intake of sugary things		
Yes	310	87.6
No	43	12.1
No response	1	0.3

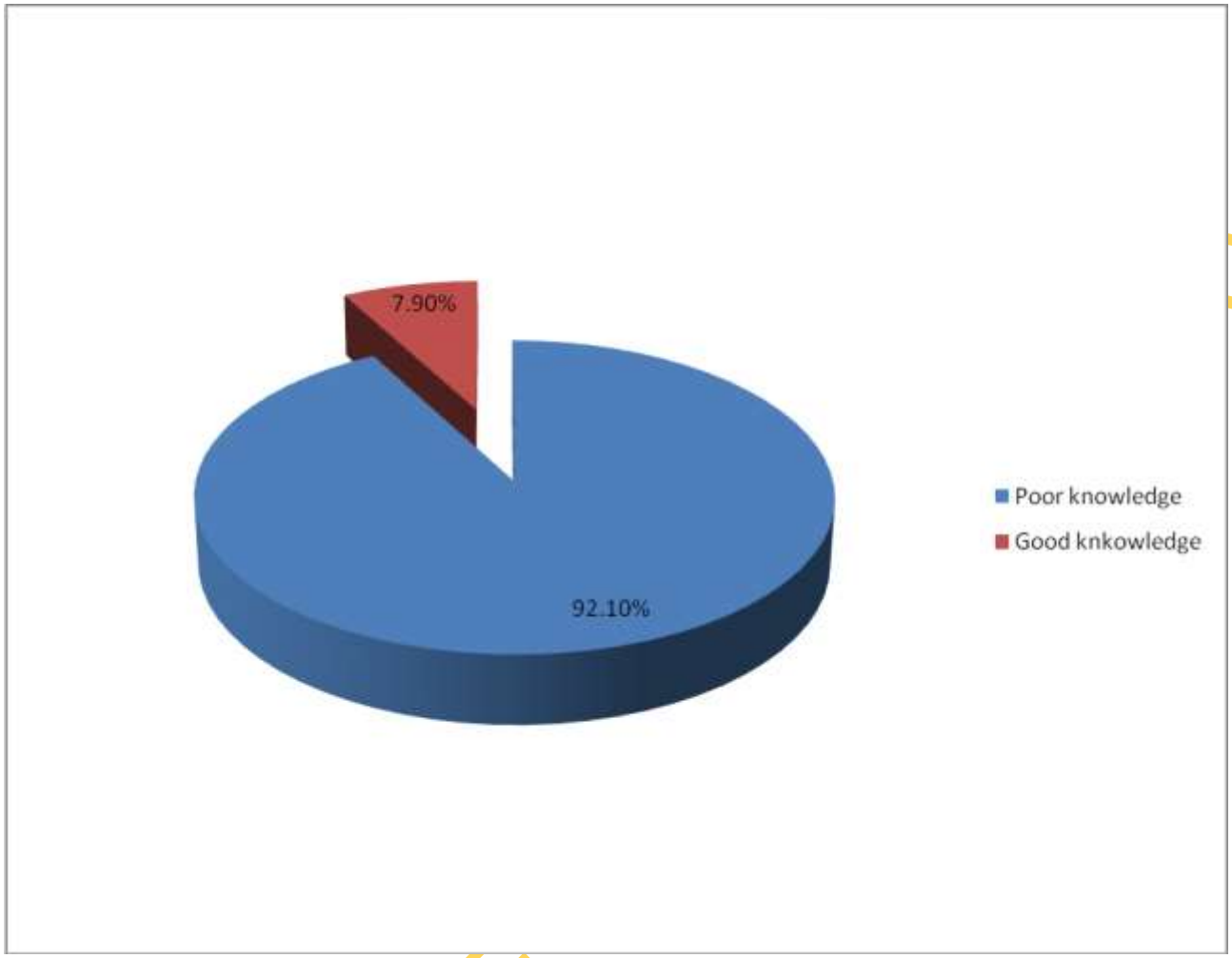

Fig 4.1: Pie chart showing respondents' knowledge of dysmenorrhoea.

4.3 Respondents perception relating to dysmenorrhoea

Table 4.3 shows the respondents perception towards dysmenorrhoea and a 3-point likert scale was used in measuring their perception which were **A**- Agree; **D**-Disagree; **U**-Undecided. Majority of the respondents (67.2%) agreed that dysmenorrhoea is normal, 17.5%disagreed to that while a minority of the respondents (15.3%) were undecided. When asked if dysmenorrhoea is a spiritual attack, a few percentage (4.2%) agreed that it is while a larger percentage (91.0%) disagreed to that and 4.8% were undecided.

As regards knowing whether the respondents perceive it to be hereditary or not, 10.2% of the respondents are of the opinion that they experience dysmenorrhoea because their mother do experience it while a majority (70.9%) disagreed to that and 18.9% were undecided. A larger percentage (79.7%) perceived sugary intake to be the cause of dysmenorrhoea while a lesser percentage (9.6%) disagreed and 10.7% were undecided.

Majority of the respondents (39.8%) agreed or perceived that dysmenorrhoea is as a result of stress, 33.1% disagreed while 27.1% were undecided about that statement. Also, a minority of the respondents (11.9%) only agreed that dysmenorrhoea is being experienced when one sits for long during menstruation while a larger percentage of them (63.8%) disagreed and 24.3% were undecided.

A greater percentage of the respondents (68.1%) perceived dysmenorrhoea to hinder their sleep as they reported that they don't sleep well when its being experienced; 24.3% disagreed that dysmenorrhoea hinder their sleep while 7.6% were undecided as to if they sleep well or not when experiencing dysmenorrhoea.

In another statement measuring perception, only a minority (12.4%) of the respondents agreed to the fact that sex reduces dysmenorrhoea while a majority of them (53.1%) disagreed that sex reduces dysmenorrhoea and 34.5% were undecided. Also, a larger percentage of the respondents (62.1%) perceived and agreed that physical exercise reduces dysmenorrhoea while a lesser percentage (13.3%) disagreed to that and 24.6% were undecided.

A majority of the respondents (66.9%) reported and agreed that hot drinks such as tea eases their flow of blood, 18.1% disagreed to that while 15.0% were undecided. Only 8.2% constituting the minority of the respondents perceive dysmenorrhoea as a major disorder that can kill while 65.8% disagreed to that and 26.0% were undecided.

Few of the respondents (6.5%) only agreed that dysmenorrhoea could hinder one from getting pregnant in the future, 73.4% disagreed to that while 20.1% were undecided. However a total of 75.1%, constituting a greater percentage of the respondents perceived dysmenorrhoea as an important health concern for young women while 11.6% (minority) did not perceive it as important and 13.3% were undecided.

Table 4.3: Respondents Perception about Dysmenorrhoea (N=354)

Statement	Frequency	Percentage
Dysmenorrhoea is normal		
Agree	238	67.2
Undecided	54	15.3
Disagree	62	17.5
Dysmenorrhoea is a spiritual attack		
Agree	15	4.2
Undecided	17	4.8
Disagree	322	91.0
I experience dysmenorrhoea because my mother do experience it		
Agree	36	10.2
Undecided	67	18.9
Disagree	251	70.9
Dysmenorrhoea occurs when one takes sugary food or drink		
Agree	282	79.7
Undecided	38	10.7
Disagree	34	9.6
Dysmenorrhoea is as a result of stress		
Agree	141	39.8
Undecided	96	27.1
Disagree	117	33.1
Having sex reduces dysmenorrhoea		
Agree	44	12.4
Undecided	122	34.5
Disagree	188	53.1
Physical exercise reduces dysmenorrhoea		
Agree	220	62.1
Undecided	87	24.6
Disagree	47	13.3
Hot drinks e.g tea, water or alcoholic drink eases my flow of blood		
Agree	237	66.9
Undecided	53	15.0
Disagree	64	18.1
Dysmenorrhoea is a major disorder that can kill		
Agree	29	8.2
Undecided	92	26.0
Disagree	233	65.8
Dysmenorrhoea hinders one from getting pregnant in the future		
Agree	23	6.5
Undecided	71	20.1
Disagree	260	73.4
Dysmenorrhoea is an important health concern for young women		
Agree	266	75.1
Undecided	47	13.3
Disagree	41	11.6

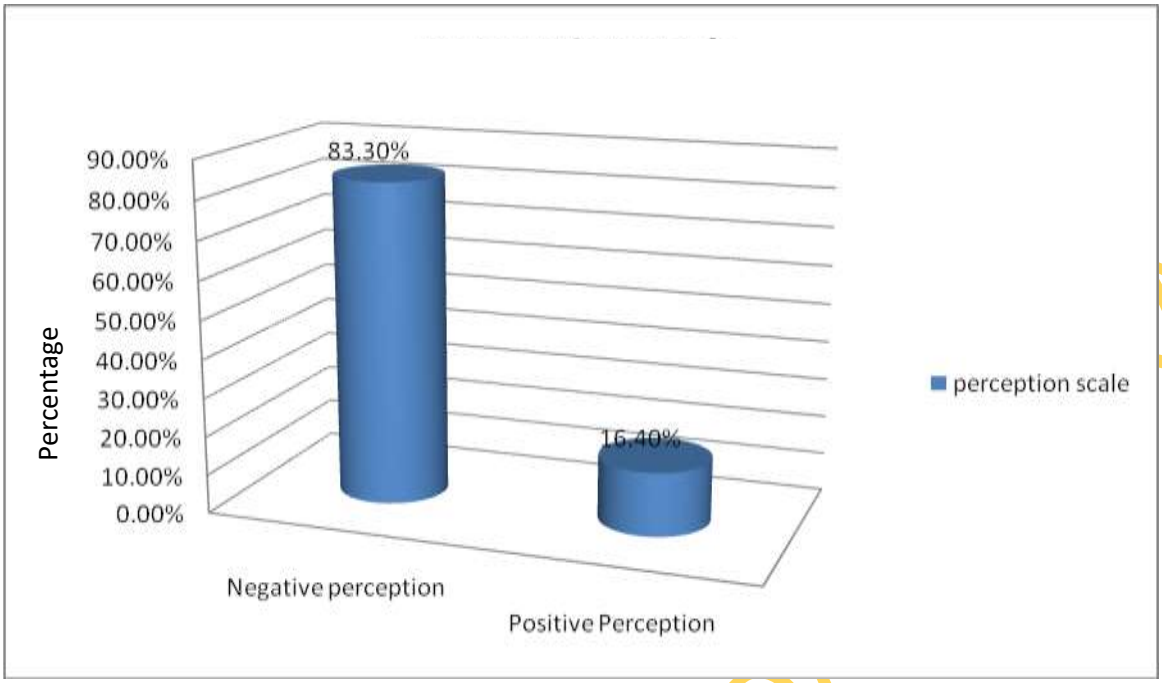

Fig 4.2: Bar chart showing the perception scale of the respondents.

4.4 Respondents experiences about dysmenorrhoea

The menarcheal age of the respondents ranges between 10-13 years with 50% of the respondents falling in that category, 46.6% reported to have their first menstruation between the ages of 14-17 years while only 3.4% reported starting their first menstruation between the ages of 18-20 years. However, their mean menarcheal age is 13.68±1.758

Out of the total number of respondents (354), majority of the respondents, 324 (91.5%) reported to be menstruating once in a month, minority (2.8%) reported to be menstruating twice in a month while 5.6% of the respondents reported that their times of menstruation is irregular.

A larger percentage (56.2%) stated that their menstruation lasts more than four days, 41.8% stated that theirs lasts for just three days while 1.7% and 0.3% of the respondents stated that their menstruation lasts for two days and a day respectively.

Of the total number of respondents (354), 10(2.8%) reported that their flow is scanty, 243 (68.6%) constituting the largest percentage of the respondents reported that their flow is moderate while 97 (27.4%) reported that their flow is heavy and only 4 (1.1%) do not know the nature of their flow.

Regarding the number of sanitary pads used in a day, 36 (10.2%) make use of a pad in a day, 215 (60.7%), the majority, make use of two sanitary pads in a day, 97 (27.4) make use of three or more pads in a day while only 6 (1.7%) could not recall the number of pads they use in a day.

When asked about the time they have been experiencing dysmenorrhoea, 8.5% admitted that they just started experiencing it less than a year ago, 17.2% admitted that theirs is between one to three years ago, 29.9% further stated that they have been experiencing dysmenorrhoea over four years ago while 44.4%, majority of the respondents could not recall since when they have been experiencing dysmenorrhoea.

A reasonable percentage (48.4%) admitted that they experience dysmenorrhoea the same day of menstruation, 23.4% admitted that they experience dysmenorrhoea before menstrual flow, 21.8% reported that they experience dysmenorrhoea everyday or during menstruation, 3% said that they only experience it after menstruation. However, 13% reported that they experience dysmenorrhoea both before the flow and during the flow as well. Few (3%) of the

total respondents wrote that they experience it same day of the flow and after the flow while 5%stated that they experience it before and the same day of flow.

Of the total number of respondents (354), 36 (10.2%) of them explained the nature of the pain experienced to be mild, 157 (44.4%) experienced moderate pain, 107 (30.2%) reported theirs to be severe while 54 (15.3%) could not explain the nature of their pain.

When asked about the part of the body in which they experience pain, most of the respondents (91.2%) reported lower abdomen as their site of pain while just a few (8.8%) did not report or indicate it as their site of pain. 13.3% only identified upper abdomen as their sites of pain while a higher percentage (86.7%) of the respondents reported that they don't experience pain in that part of the body. Also, less than half of the respondents (34.7%) acknowledged low back as their site of pain while an higher percentage (65.3%) stated that they don't experience pain in that part of the body.

Only a negligible percentage of the respondents (3.4%) reported hand joints as their site of pain while a considerable percentage (96.6%) reported that they don't experience pain in such part. 72 (20.3%) respondents out of the total identified their hip joints as their site of pain while a larger percentage (79.7%) said they don't experience pain in such joint. Few of the respondents (7.3%) identified knee joints as their site of pain while majority of them (92.7%) do not experience pain in that part of the body. A minority of the respondents (2.8%) identified Ankle joints as their site of pain while 97.2% stated that they don't experience pain in their ankle joints.

About 41.2% of the respondents reported waist as their site of pain while 58.8%do not experience pain in that part of the body. Also, 23.7%of the total respondents identified legs as their site of pain while a reasonable percentage (76.3%) never recognised it as their site of pain. A negligible percentage (1.1%) of the respondents specified anus as another site of pain while a greater percentage (98.9%) reported not to experience pain in such part of the body. Also, 0.3% of the respondents specified breast as their site of pain. Other sites of pain are stated in the table 4.5

As regards the signs and symptoms being experienced, 116 respondents (32.8%) of the total respondents experience headache while 38.1% does not experience headache. Less than half of the respondents 38.1% do experience backache while 61.9% does not experience backache. 49.7% do experience loss of appetite during the period while 50.3% does not experience it. More than half of the respondents (59.6%) do feel weak during the period

while 40.4% does not feel weak. Some of the respondents (39.0%) reported mood swing as their own sign being experienced while the majority does not experience mood swing. A larger percentage of the respondents (69.8%) do experience stomach pain or discomfort during the menstrual period while only a few does not experience it. 156 respondents (44.1%) reported pimples on the face as their own sign of menstrual period while 198 (55.9%)does not have pimples on their face.

Some of the respondents (43.8%) do experience breast pain while 56.2% of them did not experience such. Others signs and symptoms being experienced are shown in table 4.6.

Table 4.4: Dysmenorrhoea experiences

Statement	Frequency (N=354)	Percentage (%)
Time of dysmenorrhoea experience		
Less than a year	30	8.5
1-3 years	61	17.2
4 years or more	106	29.9
I can't recall	157	44.4
Period of dysmenorrhoea experience		
Same day of menstrual flow	170	48.0
Before menstrual flow	83	23.4
Everyday of menstrual flow or during menstruation	77	21.8
After menstruation	3	0.8
Before and during menstrual flow	13	3.7
Same day and After menstrual flow	3	0.8
Before and same day of menstrual flow	5	1.4
Nature of the pain		
Mild	36	10.2
Moderate	157	44.4
Severe	107	30.2
I can't explain	54	15.3

Table 4.5: Site of pain experience N=354

Sites of pain	Yes (%)	No (%)	Total
Lower Abdomen	323(91.2)	31(8.8)	354 (100)
Waist	146 (41.2)	208 (58.8)	354 (100)
Low Back	123 (34.7)	231 (65.3)	354 (100)
Legs	84 (23.7)	270 (76.3)	354 (100)
Hip Joints	72 (20.3)	282 (79.7)	354 (100)
Upper Abdomen	47 (13.3)	307 (86)	354 (100)
Knee Joints	26 (7.3)	328 (92.7)	354 (100)
Hand Joints	12 (3.4)	342 (96.6)	354 (100)
Ankle Joints	10 (2.8)	344 (97.2)	354 (100)
Anus	4 (1.1)	350 (98.9)	354 (100)
Breast	3 (0.8)	351 (99.2)	354 (100)
All over the body	3 (0.8)	351 (99.2)	354 (100)
Thigh	1 (0.3)	353 (99.7)	354 (100)

**** Multiple Responses**

Table 4.6: Signs and Symptoms of Dysmenorrhoea experienced (N=354)

VARIABLE	YES		NO	
Signs and Symptoms of Dysmenorrhoea	**FREQ**	**%**	**FREQ**	**%**
Stomach Pain	247	69.8	107	30.2
Weakness	211	59.6	143	40.4
Loss of Appetite	176	49.7	178	50.3
Pimples on the face	156	44.1	198	55.9
Breast Pain	155	43.8	199	56.2
Waist Pain	146	41.2	208	58.8
Feeling Unhappy	144	40.7	210	59.3
Mood Swing	138	39.0	216	61.0
Backache	135	38.1	219	61.9
Headache	116	32.8	238	67.2
Dizziness	86	24.3	268	75.7
Nagging	83	23.4	271	76.6
Tenderness of breast	68	19.2	286	80.8
Over eating	57	16.1	297	83.9
Big Stomach	54	15.3	300	84.7
Over Sleeping	52	14.7	302	85.3
Rashes on the body	20	5.6	334	94.4
High Temperature	4	1.1	350	98.9
Vomiting	3	0.8	351	99.2
Cold	3	0.8	351	99.2
Vaginal Pain	2	0.6	352	99.4

****Multiple Responses**

4.5 Respondents responses on effects of dysmenorrhoea on daily activities

More than half of the respondents, 179 (50.6%), reported that dysmenorrhoea affects their daily academic activities as well as their school attendance while 175 respondents (49.4%) reported that dysmenorrhoea does not affect their school attendance. A larger percentage of the respondents (63.0%) also reported that dysmenorrhoea do disturb them from reading or studying while just a few percentage (37.0%) reported that they do study well as dysmenorrhoea does not disturb them. Few of the respondents 43(12.1%) reported to have missed test or exams before as a result of dysmenorrhoea while a larger percentage of them 87.9% admitted that they will go for their test or exams no matter the severity of the pain. Thus, a few of the respondents 47 (13.3%) have experienced poor academic performance as a result of dysmenorrhoea while majority of the respondents do perform well academically.

Majority of the respondents 230 (65%) stated that the location of the pain hinders them from performing their normal daily activities while 124 (35%) stated that they go about doing their daily activities without being hindered by dysmenorrhoea. Also, more than half of the respondents, 209 (59%) do experience mood swing as a result of dysmenorrhoea while 145 (41%) does not experience mood swing. As a result of this, more than half 178 (50.3%) reported that dysmenorrhoea do affect their relationship or interaction with friends or colleagues while 176 (49.7%) only reports that they interact well with their friends or colleagues.

Table 4.7: Effect of dysmenorrhoea on activities of daily living (N=354)

VARIABLE	YES		NO	
EFFECT OF DYSMENORRHOEA	**FREQ**	**%**	**FREQ**	**%**
Location of the pain hinder performance of normal daily activities	230	65.0	124	35.0
Dysmenorrhoea disturb reading or studying	223	63.0	131	37.0
Dysmenorrhoea hinders concentration in class	218	61.6	136	38.4
Experience of mood swing as a result of dysmenorrhoea	209	59.0	145	41.0
Dysmenorrhoea affects daily academic activities or school attendance	179	50.6	175	49.4
Dysmenorrhoea affect relationship or interaction with friends or colleagues	178	50.3	176	49.7
Dysmenorrhoea result in poor academic performance due to dysmenorrhoea	47	13.3	307	86.7
Dysmenorrhoea disturb to the extent of missing test or exams	43	12.1	311	87.9

***Multiple Responses**

4.6 Management patterns employed to manage dysmenorrhoea

Of the total respondents (354), majority (87%) make use of drugs in managing dysmenorrhoea. Out of those who use drugs, 49.7% of the respondents use paracetamol to manage or reduce dysmenorrhoea, 9.3% use ibuprofen. In addition, quite a number of them 44.9% used felvin while very few (6.5%) used diclofenac. Some however used a combination of two or more drugs. Quite a few (11.6%) also prefer the use of herbal drugs and admitted that they preferred it to the non-steroids anti-inflammatory drugs or over the counter drugs which does not work for them. A large number of them (88.4%) do not take herbal drugs. However, only a few (2.3%) admitted that they prefer taking oral contraceptive pills as a way of managing dysmenorrhoea while a majority of them 346 (97.7%) do not take the drug. Other drugs taken are shown in the table 4.8.

Many reasons were however given for taking the drugs listed above by respondents. The reasons included: Low cost(5.4%), perceived effectiveness in the management of dysmenorrhoea (45.2%), recommendation from an health professional (12.1%), recommendation from friends (19.2%), to induce sleep (0.3%) and for reduction of pain (0.9%). Details are in table 4.9.

The respondents were further asked if any side effect was experienced after taking the drug and 0.6% reported indigestion, 2.5% experienced ulcer, 7.1% experienced vomiting, 15.8% reported reduction in blood flow and 1.1% reported drowsiness after taking the drug while other respondents does not experience any form of side effects. See more details in table 4.10.

When the respondents were asked about other places they seek help or care from aside the use of drugs adopted when experiencing dysmenorrhoea, some of the places mentioned include religious centres with 7.9%of them stating that as where they seek help from. Thirty four 34 (9.6%) of the total respondents admitted that they seek care from the tradomedical centres. Aside from those places, 24 (6.8%) of the respondents reported that they seek help from their family members (especially their mummy or aunty). Some 24 (6.8%) of the respondents reported that they do seek help from hospitals, health centres, as well as medical professionals due to their level of knowledge. A few percentage 9 (2.5%) of the respondents confirmed that they seek help from pharmacy. However, 40 (11.3%) of the respondents established the fact that they do not seek help from anywhere. More of this is in table 4.11.

The respondents further gave reasons why they prefer the chosen place. For those who preferred going to the religious centres, 4.5% said they believe that it is only God who is

capable of doing all things whenever the pain becomes unbearable for them. 6.5% of those who seek help from the trado-medical centre reported that it is most preferred and they do give them drugs that are effective as well as adequate treatment and care. 4.5% of those who reported to seek help from parents are of the opinion that their parents especially the mother do give advice based on the experiences already had. 5.6% prefer to seek help from the hospitals or medical professionals in that they are well knowledgeable in such area. 2.5% of those who don't go anywhere admitted doing so because they prefer to stay alone, in that they believe they know what to do. Few (0.3%) says they are shy and so keep to themselves, 2.5% acknowledged that dysmenorrhoea is normal and so they prefer to stay at home. 1.7% are of the opinion that they want to avoid self-medication or don't want to adapt themselves to drugs, hence, they visit those places mentioned. 1.1% of the respondents do visit such places because it is closer to them and less stressful. Other reasons are shown in table 4.11.

Aside the use of drugs as a means of managing dysmenorrhoea, the respondents reported employing the following management patterns: 16.9% reported adopting massage as a management pattern of dysmenorrhoea, 12.7% also adopt walking as a way of managing dysmenorrhoea, 24% take hot shower during the period, 63% admitted drinking hot water or tea in order to reduce dysmenorrhoea. However, a high percentage of the respondents (59.9%) stated that they only rest enough during the period as a way of managing the pain, 12.4% drink herbal tea or garlic drink as an adopted means of managing dysmenorrhoea, 32.2% confirmed adopting exercise as their own management pattern while 79.1% avoid sugary foods or drinks during the period. Other management patterns employed are shown in table 4.12.

Regarding the factors that influence their choice of management pattern, 55.1% of the respondents reported that severity of the pain can influence their choice of management patterns while 44.9% said that factor cannot influence their choice, 35.9% said that duration of the pain can influence their choice of management pattern while 64.1 said no to that, 35.6% reported that inability to work is a major factor that can influence their choice of management pattern while majority (64.4%) of them also said no to that. To some (34.5%) loss of appetite is a factor that could influence their choice of management pattern while 65.5% disagreed to that. A few percentage (11.9%) of them says money as well could influence their management pattern while a larger percentage (88.1%) says money isn't a factor. Other factors that are capable of influencing their management pattern are shown in table 4.13.

The respondents were asked about the sources of information that can influence their management pattern, 238 (67.2%) responded by stating that health professional is a major source that can do that while 32.8% said that it cannot influence their choice of management pattern. A larger percentage 61% admitted that parents are another major source of information that can influence their management patterns while 39% disagreed to that. Some agreed that their friend is a factor that can influence their choice of management pattern while 62.7% disagreed to that. Quite a number of the respondents (92; 26%) reported that mass media can influence their management pattern while 262 (74%) reported that they can't. Other sources of information that can influence their choice of management pattern are shown in the table 4.14.

Some of the respondents shared some comments as well as suggestions about managing dysmenorrhoea, they include: Avoidance or reduction of sugar intake which was suggested by 16.9% of the respondents. 8.7% of them advised that dysmenorrhic women should go for medical check up and should also consult gynaecologists, 8.2% of them also advised that self medication by ladies should be avoided, 5.7% are of the opinion that regular exercise should be done as a way of managing dysmenorrhoea and that health education or enlightenment should be provided by health workers, teachers and mass media on how best this could be managed respectively, 4.2% of the respondents suggested that enough rest should be taken during the period and 3.7% advised that hot drinks should be taken in order to ease the flow of blood. Other suggestions given are shown in table 4.15.

Table 4.8 Drugs taken by respondents to manage dysmenorrhoea (N=354)

VARIABLE (TYPES OF DRUGS)	RESPONSES	FREQ	PERCENT
Paracetamol	Yes	176	49.7
Felvin	Yes	159	44.9
Boscopan	Yes	84	23.7
Herbal drug	Yes	41	11.6
Ibuprofen	Yes	33	9.3
Diclofenac	Yes	23	6.5
Aspirin	Yes	8	2.3
Oral Contraceptive Pills	Yes	8	2.3
Sleeping Drug	Yes	2	0.6
Flagin	Yes	1	0.3
Tranadol	Yes	1	0.3
Mixmag/ Magsil	Yes	1	0.3

****Multiple Responses**

Table 4.9: Respondents reasons for taking the chosen drugs (N=354)

VARIABLE (REASONS FOR TAKING DRUGS)	FREQUENCY	PERCENTAGE
It is effective	160	45.2
A friend introduced the drug to me	68	19.2
An health professional recommended it for me	43	12.1
It is cheap	19	5.4
To reduce the pain	9	2.5
To make me sleep	1	0.3

**** Multiple Responses**

Table 4.10 Respondents reported side effects of the drugs taken (N=354)

VARIABLE (SIDE EFFECTS OF DRUGS)	RESPONSES	FREQ	PERCENT
Drastic reduction in the flow of blood	Yes	56	15.8
Vomiting	Yes	25	7.1
Ulcer	Yes	9	2.5
Drowsiness	Yes	4	1.1
Indigestion	Yes	2	0.6

****Multiple Responses**

Table 4.11: Respondents reported places visited for care or help (N=354)

Variable	Frequency	Percentage
Places visited for care or help		
Tradomedicalcentres	34	9.6
Religious centres	28	7.9
Parents/ Family members	24	6.8
Hospitals/ Health Centres/ Medical Professional	24	6.8
Pharmacy	9	2.5
Nowhere/ None	40	11.3
Reasons for visiting those places		
Tradomedical centre is the preferable for me because their drugs are effective, they take care of me better and they give adequate treatment	23	6.5
Medical professionals are well knowledgeable and so I prefer to visit the hospital or health centres and also to avoid self-medication	20	5.6
Parents (especially mothers) are experienced and thus give advice based on their personal experiences	16	4.5
I visit religious centres because I believe God is capable of doing all things and I know they will pray for me	16	4.5
I prefer to stay alone because I know what to do or take some rest because I will feel relieved after some time	9	2.5
Dysmenorrhoea is natural, and sometimes hereditary, thus, I don't need help and also prefer to endure the pain	9	2.5
I don't love seeking help from any place because am being careful, I don't want to be addicted to drugs.	6	1.7
I seek help from pharmacy stores because it is closer to my house and it is less stressful	4	1.1
Visiting the patent medicine vendors for care is less expensive and its comfortable for me	1	0.3
They are always available	1	0.3
I don't seek help from anywhere because I feel shy and don't like talking about it to someone else	1	0.3

****Multiple Responses**

Table 4.12: Management patterns employed by the respondents (N=354)

VARIABLE (MANAGEMENT PATTERNS)	RESPONSES	FREQ	PERCENT
Avoidance of sugary foods or drinks	Yes	280	79.1
Hot drinks	Yes	223	63.0
Rest	Yes	212	59.9
Exercise	Yes	114	32.2
Hot shower	Yes	85	24.0
Taking of low fat food	Yes	63	17.8
Massage	Yes	60	16.9
Walk	Yes	45	12.7
Herbal tea or garlic drink	Yes	44	12.4
Diet Modification	Yes	42	11.9
Vitamins	Yes	39	11.0
Consulting a physician or gynaecologist	Yes	30	8.5
Heating pads	Yes	13	3.7
Caffeine	Yes	13	3.7
Eating bitter kola	Yes	11	3.1
Alcohol/ Gin	Yes	3	0.8
Dancing	Yes	3	0.8

****Multiple Responses**

Table 4.13: Factors influencing the respondents choice of pattern (N=354)

VARIABLE	YES		NO	
FACTORS INFLUENCING CHOICE OF MANAGEMENT PATTERN	**FREQ**	**%**	**FREQ**	**%**
Severity of pain	195	55.1	159	44.9
Duration of the pain	127	35.9	227	64.1
Inability to work	126	35.6	228	64.4
Loss of appetite	122	34.5	232	65.5
Inability to sleep	111	31.4	243	68.6
Location of the pain	75	21.2	279	78.8
Money	42	11.9	312	88.1
Others	6	1.7	348	98.3

****Multiple Responses**

Table 4.14: Sources of information influencing the choice of management pattern (N=354)

VARIABLE	YES		NO	
SOURCES OF INFORMATION INFLUENCING CHOICE OF MANAGENT PATTERN	**FREQ**	**%**	**FREQ**	**%**
Health professionals	238	67.2	116	32.8
Parents	216	61.0	138	39.0
Friends	132	37.3	222	62.7
Mass media	92	26.0	262	74.0
Teachers	38	10.7	316	89.3
Religious leaders	34	9.6	320	90.4
Traditional healers	11	3.1	343	96.9
Others	1	0.3	353	99.7

****Multiple Responses**

Table 4.15: Respondents comments or suggestions about managing dysmenorrhoea (N=354)

COMMENTS/ SUGGESTIONS	FREQUENCY	PERCENTAGE
Avoidance or reduction of sugar intake	60	16.9
Consulting physicians or gynaecologist	31	8.7
Avoiding self-medication	29	8.2
Exercise / Long walk	20	5.7
Health education/ enlightenment by health workers	20	5.7
Rest	15	4.2
Hot drinks	13	3.7
It is normal for ladies to experience it, so ladies should not pamper themselves	13	3.7
Understanding one's body pattern	10	2.9
Use of drug (herbal, blood tonic)	7	1.9
Maintaining good/ healthy diet	6	1.7
Taking prescribed drugs	6	1.7
Society and health professionals should help Solve this problem	5	1.4
Prayer	4	1.2
Massaging one's belly	4	1.2
Healthy lifestyle/ taking care of oneself	4	1.1
Avoiding pre-marital sex	4	1.1
Marriage	2	0.6
Hot bath/ shower	2	0.6
Avoid being under the sun during the period	1	0.3
Taking pawpaw leaf	1	0.3
Use of Alcoholic drink e.g gin, schinapp, Mcdowel	1	0.3
Be happy	1	0.3

**** Multiple Responses**

4.7 Test of hypothesis

Hypothesis 1

The null hypothesis states that there is no association between the days of Dysmenorrhoea experience and School attendance. Effects of dysmenorrhoea on School attendance was categorized into Yes, (for those who reported that it affects their school attendance) and No, (for those who reported that it does not affect their school attendance). Chi square was used to test for the association and the result is stated below:

Table 4.16: Association between the days of dysmenorrhoea experience and School Attendance

Variable	Influence on School attendance		X2	Df	P-value
	Yes	No			
Same day of menstrual flow	81	89	12.302	6	0.056
Before menstrual flow	36	47			
Everyday of menstrual flow or during menstruation	46	31			
After menstruation	1	2			
Before and during menstruation	9	4			
Same day and after menstrual flow	1	2			
Before and same day	5	0			

P-value is 0.056 and is greater than 0.05. Therefore, there is no association between dysmenorrhoea experiences and school attendance. Hence, we fail to reject the null hypothesis.

Hypothesis 2

The null hypothesis states that there is no association between the days of Dysmenorrhoea experiences and relationship or interaction with friends or colleagues. Effect of dysmenorrhoea on relationship with friends or colleagues was categorized into Yes (for those who reported that it affects their relationship or interaction with friends or colleagues) and No (for those who reported that it does not affect their relationship or interaction with friends or colleagues). Chi square was also used to test for the association and the result is stated below:

Table 4.17: Association between the days of dysmenorrhoea experience and Relationship with friends or colleagues

Variable	Relationship with friends		X2	Df	P-value
	Yes	No			
Same day of menstrual flow	75	95	25.068	6	0.000
Before menstrual flow	34	49			
Everyday of menstrual flow or during menstruation	51	26			
After menstruation	1	2			
Before and during menstruation	11	2			
Same day and after menstrual flow	1	2			
Before and same day	5	0			

P-Value is 0.000 and is lesser than 0.05. Therefore, there is an association between dysmenorrhoea experiences and relationship with friends or colleagues. Hence, we reject the null hypothesis.

Hypothesis 3

The null hypothesis states that there is no association between Nature of pain and Poor Academic Performance. Nature of pain was categorized into Mild, Moderate, Severe and I can't explain while Poor Academic Performance is categorized as Yes (those who experienced poor academic performance as a result of dysmenorrhoea) and No (those who do not experience poor academic performance due to dysmenorrhoea). The result for the association is shown below:

Table 4.18: Association between Nature of pain and Poor Academic Performance

Variable	Poor Academic Performance		X2	Df	P-value
	Yes	No			
Mild	4	32	7.125	3	0.068
Moderate	14	143			
Severe	17	90			
I can't explain	12	42			

P-Value is 0.068 and is greater than 0.05. Thus, there is no association between the Nature of pain and Poor Academic Performance. Hence, we fail to reject the null hypothesis.

Hypothesis 4

The null hypothesis states that there is no association between Nature of pain and Self-management patterns. Nature of pain was categorized into Mild, Moderate, Severe and I can't explain while self-management patterns are categorized into Drug Users (those who use drugs) and Non Drug Users (those who do not use drugs). The result for the association is shown below:

Table 4.19: Association between Nature of pain and self-management Pattern

Variable	**Self-Management Pattern**		**X2**	**Df**	**P-value**
	Drug Users	**Non-Users**			
Mild	30	6	10.311	3	0.016
Moderate	133	24			
Severe	102	5			
I can't explain	43	11			

P-value is 0.016 and is lesser than 0.05. Therefore, there is an association between the Nature of pain and self-management patterns. Hence, we reject the null hypothesis.

CHAPTER FIVE

5.1 DISCUSSION, CONCLUSION AND RECOMMENDATION

Dysmenorrhoea is the most common gynecologic complaint among adolescents and young adult females, thus, an important health problem that has a negative impact on the lives of women during their menstrual periods. Dysmenorrhoea in adolescents and young adults is usually primary (functional), and is associated with normal ovulatory cycles and with no pelvic pathology. Its prevalence reaches its peak during the adolescent years and, as the greatest single cause of lost working hours and school days among young women which represents a significant problem from an individual and public health perspective. This study was therefore conducted to investigate the dysmenorrhoea experiences and self- management pattern among the female students of the polytechnic, Ibadan.

5.1 Respondents' socio-demographic characteristics

Majority of the respondents (53.7%) were in the 20-24 age bracket, 38.4% were in the 15-19 age bracket, while 7.9% were in the 25-29 age group. This falls within the age bracket expected in a tertiary institution. The mean age of the respondents was 20.44±2.396. These age brackets show that respondents are in their young adulthood which is characterised by agility and independence. Most of the respondents were in ND 1 and ND 2 levels of study. Some of the respondents (24.6%) belong to Faculty of Financial Management Study which include departments like Banking and Finance, Purchasing and Supply, Accountancy, Insurance; but, majority (31.1%) belong to Business and Communication Study which include departments such as Business Administration, Office Technology Management, Marketing; Faculty of Environmental Study involving departments like Surveying and Geo-informatics, Estate Management, Architecture and lastly Faculty of Engineering which also include departments such as Computer Engineering, Mechanical Engineering, Electrical Engineering. Most of the respondents were singles and this is not surprising, as most students in higher institutions in Nigeria are singles. Majority of the respondents (85.9%) were also Yoruba which is also expected because the institution is situated in a Yoruba territory. Although few of them (9.6%) were Igbo, while 1.1% were Hausa. Most respondents (74.9%) were Christians while 25.1% are muslims.

5.2 Knowledge on dysmenorrhoea

Mohammad, et al (2012) in a study carried out in Nigeria reported that the knowledge of adolescents about dysmenorrhoea was insufficient and low. This study corroborates this study as it was found out that respondents have low knowledge of what dysmenorrhoea actually is. The result showed that although female adolescents experience dysmenorrhoea, many of them do not know the types of dysmenorrhoea as only 22.2% of them could correctly list the types of dysmenorrhoea while 59.6% admitted not knowing the types of dysmenorrhoea.

Scientifically, prostaglandin is the hormone implicated as the cause of pain that is associated the pain experienced during menstruation. The hormone plays an active role in the rupture of follicle during menstruation and also in myometrial contraction and also control the process of menstruation, which involves the shedding of the lining in the absence of fertilization. Studies, both recent and old, have documented dysmenorrhoea in women who have significantly higher than normal concentrations of prostaglandins in their endometria, endometrial jet washing and endometrial fluids. Ingrid, (2008) further confirmed that women with dysmenorrhoea, compared to eumenorrhoeic women, have twice the amount of Prostagladins in their menstrual fluid. This was however evident in that 1.2% of the respondents identified excess level of prostaglandin as the cause of dysmenorrhoea.

Although researches have also linked sugar intake to frequency of dysmenorrhoea especially the study conducted by Tinatin et al (2012) in Georgia which revealed a significant difference between high and low intakes of sugar products and frequency of dysmenorrhoea where women who reported an increased intake of sugar reported a marked increase of dysmenorrhoea compared to women who reported no daily sugar intake. The study also revealed that sugar consumption was associated with dysmenorrhoea by interfering with the absorption and metabolism of some vitamins and minerals, thus causing nutritional imbalances, which in turn can cause difficulty in muscle functioning and lead to muscle spasms. Although all this claims has not been medically and scientifically proven yet, therefore further research is necessary to prove this hypothesis. In the same vein, in another study conducted by Umeora (2008), where many of the respondents were reported to have avoided sweetened foods, because they believed it increased both menstrual cramps and the menstrual flow.

Interestingly in this study, about 69.2% of the respondents identified high sugar intake as a major cause of dysmenorrhoea while 25.1% said stress or fatigue could cause it too. Other causes mentioned by the respondents were excess fat and oil, hormonal changes, family

history, endometriosis, tilting back of the uterus etc. In another statement measuring the respondents knowledge on factors that can make someone experience dysmenorrhoea, some of the respondents (16.9%) believed that people with family history of dysmenorrhoea are more likely to have severe episodes of dysmenorrhoea. 8.5% identified age of menarche as a factor. The studies conducted by Mario et al, 2009; Zeev, 2006 and Gulsen, 2010 corroborate with it by stating that the condition (dysmenorrhoea) positively correlates with early menarche, increased duration and amount of flow as well as positive family history.
This was complemented by a study carried out in Georgia by Tinatin et al (2012) on Primary dysmenorrhoea prevalence and risk factors in adolescent population of Tbilisi, Georgia which found out that the risk of dysmenorrhoea in students who had a family history of dysmenorrhoea was approximately six (6) times higher than in students with no prior history.

Participants reported numerous ways of preventing dysmenorrhoea, such as pharmacological methods (most especially the non-steroids anti inflammatory drugs) and non-pharmacological methods were both stated as a way of preventing dysmenorrhoea. However, more than half of the respondents (56.7%) admitted that avoidance of sugary substances is a way of preventing it. Similarly,(35.1%) reported that another way in which it could be prevented is by using drugs. This is in correlation with a study conducted by O'Connell et al, 2006 which reported that nearly all the participants of the study used at least one medication especially the over the counter drugs to prevent as well as manage dysmenorrhoea. Also, exercise was also stated as a way of preventing dysmenorrhoea. This is also in agreement with Brown and Brown, (2010) who suggested physical exercise as a non-medical approach to the management of dysmenorrhea. Other non-pharmacological methods suggested are avoidance of stress, drinking of hot tea or water, rest, massage and use of herbs. This is in agreement with a study reported by Zeev, 2006, that majority (98%) of adolescents used non pharmacologic methods such as heat, rest, or to treat or manage dysmenorrhea but with perceived effectiveness of 40% or less. Zeev further buttressed this by stating that interventions such as herbal preparations, transcutaneous nerve stimulation, acupuncture, exercise, and topical heat therapy have been reported to improve dysmenorrhea in some studies. Healthy diet was also suggested by 6.8%of the respondents. This is also in agreement with what Zeev, 2006 reported that dietary supplementation with omega-3 fatty acids had a beneficial effect on dysmenorrhea symptoms in adolescents in one study. Increasing dietary omega-3 fatty acids intake leads to production of less potent prostaglandins and less potent leukotrienes, which may have accounted for the reduction in menstrual symptoms observed in adolescent girls in that study. A low-fat vegetarian diet was associated with a decrease in dysmenorrhea duration

and intensity in young adult women.Consumption of fruits, vegetables has also been identified by some studies in managing dysmenorrhoea.

5.3 Perception towards dysmenorrhoea

The respondents have a higher negative perception about dysmenorrhoea in that some believed that dysmenorrhoea is a spiritual attack or a sign of evil. This is compatible with a study conducted by Umeora, (2008) who stated that for some women, it represent an unhygienic ennui and connotes moral and spiritual uncleanliness, a sign of disease or a curse for evil. Similarly, some respondents perceived dysmenorrhoea to be hereditary in that they believe that they are experiencing it because their mother had already experienced it before. This was complemented by a study carried out in Georgia by Tinatin et al (2012) on Primary dysmenorrhoea: prevalence in adolescent population of Tbilisi, Georgia and risk factors which found out that the risk of dysmenorrhoea in students who had a family history of dysmenorrhoea was approximately six (6) times higher than in students with no prior history.

In another statement measuring perception, a high percentage of the respondents opined that dysmenorrhoea is as a result of sugary intake. This however is in agreement with the results gotten from the study carried out also by Tinatin et al, (2012) in Georgia which revealed a significant difference between high and low intakes of sugar products and frequency of dysmenorrhoea where those women who reported an increased intake of sugar reported a marked increase of dysmenorrhoea compared to women who reported no daily sugar intake. The study also revealed that sugar consumption was associated with the prevalence of dysmenorrhoea because it interferes with the absorption and metabolism of some vitamins and minerals, thus causing nutritional imbalances, which in turn can cause difficulty in muscle functioning and lead to muscle spasms. In the same vein, in another study conducted by Umeora (2008), it was reported that many of the respondents avoided sweetened foods, which were understood to increase both menstrual cramps and the menstrual flow.

Some of the respondents believed that dysmenorrhoea is as a result of stress or its being experienced when one sits for long during menstruation. Also, few of the respondents, 12.4% agreed that having sex helps in reducing dysmenorrhoea while 8.2% of the respondents also opined that dysmenorrhoea is a major disorder that can kill. However, these could be termed as wrong or negative perception about dysmenorrhoea as it has not been scientifically proven that stress causes dysmenorrhoea or sex helps in reducing it neither can it kill.

A larger percentage of the respondents (75.1%) has however agreed that dysmenorrhoea is a major health concern for young women. This however corroborates the fact that there is high prevalence of dysmenorrhoea among adolescents and young women especially in the first years of their reproductive life, influencing their daily activities which in turn leads to high rates of school abseentism and is thus, a major public health problem.

Parker, (2006) also complemented this by reporting that the burden of dysmenorrhoea is greater than any gynaecological complaints thereby making it a major health concern for young women.

5.4 Dysmenorrhoea experiences

The menarcheal mean age of the respondents who participated in this study is 13.7 years and this is similar to mean menarche age of 13.26 years gotten from the study conducted by Gulsen et al, (2010). Majority (91.5%) of the respondents menstruate only once which is termed being regular and it's in agreement with the previous findings carried out by Ana, (2013). Few of them (2.8%) menstruate twice a month although about (5.6%) of them admitted to have irregular menstrual flow.

About 68.6% of the respondents experience moderate flow and similar percentage of the respondents (60.7%) use two sanitary pads in a day. On the other hand 2.8% of the respondents experience scanty flow while 27.4s% experience heavy flow. Correspondingly 27.4% of the respondents use three or more sanitary pads in a day. This may be an indication to the fact that the number of sanitary pad used may be a function of the nature of flow since it was observed that the percentage of respondents who experience moderate flow is almost equal to those using two pads. The same thing can be said of those experiencing heavy flow and those that use three or more sanitary pads per day.

Some of the respondents (48.0%) experienced dysmenorrhoea at the onset of menstrual flow while few of them (21.8%) experience it throughout the menstrual period. Although 23.4% of the respondents starts experiencing dysmenorrhoea before their menstrual flow. This is consistent with the findings gotten from the work of Gusen et al, (2010) but in contrast to the findings of the study carried out by Ezeukwu, (2013) which revealed that the highest duration (46.3%) among females with dysmenorrhoea was "one day".

Majority of the female adolescents (29.9%) had experienced dysmenorrhoea during the last four or more years. Only 17.2% of girls have been experiencing dysmenorrhoea for the past

one to three years with very few (8.5%) starting their dysmenorrhoea experience less than a year ago.

The degree of pain severity was variable and pain location was also multi-dimensional and highly variable. The pain location was mostly in the lower abdomen (91.2%) followed by waist (41.2%), lumbar region (34.7%), and thigh (hip joints) (20.3%) regions and few response(2.8%) for the ankle joint, 7.3%for knee joints and23.7%for legs. This seems to be in agreement with Harlow and Park (1996) as reported by Ezeukwu et al, (2013) who stated that dysmenorrhoea among young women is usually of the primary type with the highest site of occurrence of dysmenorrhoea reported to be very high for lower abdomen.

Dysmenorrhoea manifesting either as stomach pain or discomfort, stomach pain or discomfort headache, backache, dizziness, appetite loss, weakness, mood swing, breast pain, tenderness of breast, pimples on the face, nausea/ vomiting, diarrhoea, and fainting were the most reported among participants of this study. This however is consistent with Ezeukwu et al, (2013) and Zeev, (2006) that reported that while lower abdominal cramping is the most common dysmenorrhoea symptom, many adolescents suffer from other menstruation-associated symptoms, such as headaches and vomiting. Also, Melissa, (2006); Gulsen et al, (2010) and Ana et al, (2013) seconded this by reporting that pain occurs mostly in the lower abdominal region and back and is accompanied by nausea, vomiting, fatigue, nervousness, diarrhoea, headache, anxiety, mood lability, depression and syncope.

5.5 Effect of dysmenorrhoea on activities of daily living

In the United States, dysmenorrhoea has been found to be the single most important cause of lost working hours and school absenteeism among young women. School attendance and ability to concentrate on studies in Grades 11 and 12 are vital, as achievement in these high school years has significant long-term consequences for an individual. There is considerable cost to both the individual and society associated with this loss of productive time. Thirza, (1999) and O'connell (2006) also corroborates this by stating that morbidity due to dysmenorrhoea represents a substantial public health burden;

In academic life, students tend to be absent from school, unable to focus on their courses, and distracted from lectures due to dysmenorrhoea symptoms. Absenteeism was common due to excessive pain and other discomforting symptoms. Mohammad et al, (2012) reports that the results of a research in Turkey which showed that the cause of 25.6% of absence of girls from

school was dysmenorrhoea. He further stated that dysmenorrhoea may have negative effects on daily activities and function of women in and out of the home and may deteriorate their living. In some of the countries, more than half of the employed subjects are women and their absence from work is an important problem in that country. In an older study, dysmenorrhoea accounted for 600 million lost work hours and $2 billion in lost productivity annually.

This is true as the result shows that some (50.6%) of the participants had dysmenorrhoea affect their school attendance in that they always miss school at one time or the other during menstruation. A larger percentage of the respondents were unable to read, study or focus on their courses whenever the pain is being experienced. Also, majority (61.6%) could not concentrate well enough in class due to the excessive pain. However, only few (12.1%) had missed test or exams before in that they said they would still manage by going for the exams while the few who missed test or exams expressed inability to answer the questions despite having the knowledge as a result of excess pain experienced. Similarly, two third of the respondents (65.0%) acted irresponsibly in their daily chores due to the fact the location of the pain hindered them from performing their normal daily chores or activities.

There is no association between dysmenorrhoea experiences and school attendance. Although more than have of them said that it affected their school attendance sometimes but the result is not statistically significant. This may be due to the fact that many of them may have to endure the pain in order not to miss their classes. This can be as a result of the fact that there are no systems in place in our universities to make up for any missed class.

In addition, there is no association between nature of pain and poor academic performance. Although, the intensity of the pain may affect their concentration in class or may disturb them from reading or studying but many of them stated that they will still manage to sit for the exams in order to make an average pass rather than miss an exam and re-sit for such exams.

More than half (59.0%) experience mood swing because they become irritable and 50.3% had problematic relationships or interaction with their friends or colleagues as well as their families due to dysmenorrhoea as they tend to isolate themselves and became uncomfortable around their friends or family members. Therefore, female adolescents who experienced dysmenorrhoea had negative relationships with their families and friends. This also indicated that dysmenorrhoea significantly affected socialization with peers and relationships with friends. This result however corresponds with the findings of Gulsen et al, (2010) who stated that the duration and intensity of pain adversely affected school and social attitudes towards their families and friends. Davis, (2001) also complemented this finding by stating that

dysmenorrhoea is highly prevalent among adolescent girls and has been identified as a leading cause of morbidity in this population, leading to school absence and activity non-participation. Anandha et al, (2010) in alignment with the result gotten from this study reported that in United States, dysmenorrhoea is the leading cause of recurrent short-term school absenteeism and other several studies have shown that adolescents with dysmenorrhoea report that, it affects their academic performance, social and sports activities.

There is an association between dysmenorrhoea experiences and relationship or interaction with friends or colleagues. This is as a result of the majority of the respondents experiencing mood swing which makes them nag and in turn affect their relationship with friends or colleagues.

5.6 Self-management patterns

The results of this study revealed there is a high rate of pharmacological methods of pain relief among the female residents of the female halls of the polytechnic, Ibadan. Nearly all the participants reported using non-steroids anti-inflammatory drugs as well as the over the counter drugs which were not prescribed in order to manage or reduce dysmenorrhoea. Paracetamol was mostly used followed by felvin. Although, majority of the students reported that perceived efficacy influenced their choice of the methods used for pain relief, while others gave reasons like prescription by a medical professional, it is cheap or that a friend introduced the drug to them. It can be inferred that a reasonable part of this population self-medicate, considering the fact that the proportion of adolescents who sought medical care is considerably low. This result is similar to the result gotten by O'Connell et al, (2006) who reported that nearly all participants of his study (71/76, or 93%) usually used at least one medication to treat dysmenorrhoea and ninety-one percent of participants reported using OTC medications, and 21% reported obtaining medication with a prescription (this included medications such as non-steroidal anti-inflammatory drugs. The same is of the study carried out on female undergraduates students of University of Nigeria, Enugu Campus by Ezeukwu, (2013) which also stated that there is a high rate of pharmacological and rest methods of pain-relief and a low rate of use of non-pharmacological methods among the participants of the study. However, few of the respondents perceived drastic reduction in blood flow, vomiting, ulcer, drowsiness and indigestion as adverse effects of the drugs taken. This however contradicts the report of Ezeukwu et al, (2013) who stated ulcer to be the highest reported side effect followed by indigestion. However, there was a low rate of non-pharmacological methods employed by the respondents. Out of those that used non-pharmacological methods,

majority still preferred avoidance of sugary food or drink**,** relaxation/rest, taking hot drinks and taking warm bath, exercise and low fat food consumption. This is however consistent with other non-pharmacological methods employed by female undergraduates in Nigeria as stated by Emmanuel et al, (2013).

Similarly, the data of a study showed that avoidance of the foods containing arachidonic acid such as dairy products, animal fat and decreasing the consumption of salt in the period of menstruation can reduce the pain of dysmenorrhoea. In another study in Shahriar, Tehran as reported by Mohammed et al, (2012) revealed that there was a significant difference between the status of food and physical activity of girls and primary dysmenorrhoea. He further reported that that there was a significant difference between physical activity and primary dysmenorrhoea. The results of the studies showed that such healthy behaviours such as bathing with warm water in the first days of menstruation, physical activity, consumption of fruits, vegetables and grains, and avoidance of salt and sugar can also help to decrease the pain of dysmenorrhoea.

Female undergraduates do not often engage in any harmful practice in managing dysmenorrhoea but a significant number among those that use drugs practice self medication which could be harmful if not regulated and controlled while only few (8.5%) of the respondents consult physicians or gynaecologists. Other places visited are tradomedical centres and religious centres.

5.7 Factors that can influence choice of management pattern

Respondents' degree of pain severity varied and there were also multiple pain locations. Severity of the pain was implicated as a major factor that can influence the choice of their management pattern.

This is evident as more than half of the respondents opined that severity of pain determines their choice of management pattern. Other factors identified by the respondents as influential to their choice of management pattern are duration of the pain and inability to work. Other factors reported by the respondents that could also influence their choice of management pattern are location of the pain, inability to sleep, inability to work, loss of appetite and money.

There is an association between nature of pain and self-management patterns. From this result, it is evident that the nature of pain in terms of its intensity or severity is a function of

the management pattern being employed. The more severe the pain, the more the tendency to adopt a management pattern being employed and vice-versa.

5.8 Sources of information that can influence the choice of management pattern

Majority of the respondents believed that health professionals can provide information that can influence the choice of their management pattern. This shows the importance of health workers as valuable point of contact in disseminating health information. Parents too can play valuable roles and can also influence the choice of management patterns as a little above average (61%) of the respondents believed parents can influence their management choice. This may be as a result of the facts that some adolescents still trust their parents with issues pertaining to the sexual and reproductive life and that they will give them advice based on the experiences once had most especially their mothers.

Few (37.3%) of them actually felt friends too can be of influence since the respondents are at a stage of their life where peer influence cannot be overemphasized. Some of them may actually trust their friends more than the health workers or their parents. Other sources of information that can like influence their management pattern as mentioned by the respondents are traditional healers, mass media, and religious leaders.

5.9 Implications for health promotion and education

Dysmenorrhoea experiences in terms of the severity of pain experienced have been adequately linked to management patterns by this study. The major management patterns for dysmenorrhoea that were identified in this research include: pharmacological methods (use of drugs) and the non-pharmacological methods such as massage, rest, exercise and hot baths. Most respondents reported using drugs to manage dysmenorrhoea and more often than not, most of the drugs used were over-the-counter drugs. This has implications for health education such that awareness programmes on the dangers of self-prescription and medication should be organized. Females should also be health educated on the best management practices for preventing and managing dysmenorrhoea.

5.10 Conclusion

A good number of participants do not know the type of dysmenorrhoea they were suffering from which could be due to poor physician consultation in our environment. Also, most of the respondents of this study reported that they manage dysmenorrhoea using drugs such as felvin, paracetamol, ibuprofen, and diclofenac. Most of these drugs used however, are not

obtained on a doctor's prescription and are gotten over-the-counter at patent medicine stores. Most of these drugs, when used inappropriately, have adverse side-effects, such as ulcer and indigestion problems. This has therefore indicated that the health seeking patterns of the respondents as concerning the management of dysmenorrhoea is not good enough.

There is therefore need for health education programmes on effective management patterns of dysmenorrhoea. Self-medication of primary dysmenorrhoea should be discouraged while multidisciplinary management approach should be encouraged.

5.11 Recommendations

1. Menstrual disorders among female students are common and a major problem representing the leading cause of college/class absenteeism. Thus, routine screening services for menstrual problems could be developed and implemented by healthcare providers, as this will help improve young women's activities of daily living and their quality of life as a whole.

2 It is imperative that self medication as an option for the treatment of primary dysmenorrhoea should be discouraged and female self-care behaviour towards dysmenorrhoea should be improved through enhanced health education programmes. There is however, a demonstrated need by females for information regarding not only effective medications, but also appropriate dosing and its frequency.

3 The introduction of a reproductive health component into tertiary health education programme could help in providing information, education and support to students regarding reproduction in general and menstrual problems in particular.

4 Polytechnic management should adopt health education and promotion strategies and also engage health care professionals including pharmacists in the health education and promotion and screening programmes on dysmenorrhoea since in our culture young women are not provided with enough information about dysmenorrhoea. This could improve students' treatment-seeking behaviour. Thus, healthcare staff should provide information to females on both the causes of and treatment options for menstrual problems.

REFERENCES

Afoi B.B and Ifere, I.O. (2013). Dysmenorrhoea: Pain relief strategies among a cohort of undergraduates in Nigeria. *International Journal of Medical Biomedical Research*; 2(2):142-146

Al-Sahab, Ardern C., Hamadeh, M., and Tamim, H. (2010). Age At menarche in Canada: Results from the National Longitudinal Survey Of Children& Youth. *BMC Public Health.* 10:736. Accessed from: http://www.biomedcentral.com/1471-2458/10/736

Ana C.R., Pitangui, Mayra, R.A., Gomes, P.T., AlainеP.T., Paulo A.S., Ana, P.S. and Albuquerque, R.C.(2013). Menstruation Disturbances: Prevalence, Characteristics and Effects on the Activities of Daily Living among Adolescent Girls from Brazil.*North American Society for Pediatric and Adolescent Gynecology*26:148-152

Anandha L.S., Priy, M., Saraswathi, I., Saravanan, A. and Ramamchandran, C. (2011). *International Journal Biological and Medical Research*. 2(4): 1011 -1016

Avidon, I. (2008). Non-steroidal anti-inflammatory drugs in the alleviation of primary dysmenorrhoeic pain. A project submitted to the Faculty of Science, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the award of degree of Doctor of Philosophy. Pg 1 -180

Berkley, K.J. (2013).Primary Dysmenorrhea, an urgent mandate. International Association for the study of pain. *Pain Clinical Update.* 21(3):1-8.

Brown, J. and Brown, S. (2010). Exercise for dysmenorrhoea. *The Cochrane Collaboration*, Issue2. Art.No.: CD004142.

Chia L, Cheung K, Lau L, Leung and Wong, (2013). *Hong Kong Med Journal*. 19(3).

Davis, A.R. and Westhoff, C.L. (2001). Primary Dysmenorrhea in Adolescent Girls and Treatment with Oral Contraceptives. *Journal of Pediatrics Adolescent Gynecology*.14:3-8

Dawood, M.Y. (2006). Primary Dysmenorrhea: Advances in Pathogenesis and Management. *Clinical Expert Series.*108(2): 428-441

Durain, D. (2004) Primary Dysmenorrhea: Assessment and Management Update. *Journal of Midwifery & Women's Health*.49(6):520-528

Emmanuel, A., Achema, G., Gimba, S.M., Mafuyai, M.J., Afoi, B.B. and Ifere, I.O. (2013) Dysmenorrhoea: Pain relief strategies among a cohort of undergraduates in Nigeria. *International Journal of Medical Biomedical Research*. 2(2):142-146

Ezeukwu, A.O., Elochukwu, P.U., Ojukwu, C.P., Emmanuel, A., Achema, G., Gimba, S.M. and Mafuyai, (2014). Self-reported pain relief strategies for primary dysmenorrhea used

by Nigerian female undergraduates. *International Journal of Recent Scientific Research.*5(1): 261-265

Gulsen, E., Funda O. and Turkan, P. (2010).Dysmenorrhea Prevalence among Adolescents in Eastern Turkey: Its Effects on School Performance and Relationships with Family and Friends. *Journal of Pediatric Adolescent Gynecology*.23:267-272

Harel, Z. (2006). Dysmenorrhea in Adolescents and Young Adults: Etiology and Management: *Journal of Pediatrics Adolescent Gynecology*. 19:363-371

Hugo, A., Sofía, V., Patricia, B., Guillermo, O. and Macarena, L. (2012). Socioeconomic Status and age at Menarche In Indigenous And Non-Indigenous Chilean Adolescents. *Cad.SaúdePública, Rio de Janeiro*.28(5):977-983.

Jarrah, S.S. and Kamel, A.A., (2012).Attitudes and practices of school-aged girls towards menstruation. *International Journal of Nursing Practice*.18: 308–315.

Johnson, J. (1988). Level of Knowledge Among Adolescent Girls Regarding Effective Treatment for Dysmenorrhoea. *Journal of adolescent health care*.9:398-402.

Kirk, J. and Sommer, M. (2006) Menstruation and body awareness: linking girls' health with girls' education.Mailman School of Public Health, Columbia University.Pg 1-22

Memnun, S., Gulten, G., Aygul, A., and Fatma, E. (2013).Evaluating Dysmenorrhoea in a sample of Turkish Nursing Students. *Pain Management Nursing.*7(6): Pg 1-8

Mohammad, H., Baghiani, M., Azam, M., Hossein, F. and Mehdi, M.A. (2012).A Survey about the Prevalence of Dysmenorrhea in Female Students of Shahid Sadoughi University of Medical Sciences and their Knowledge and Practice towards it. *Journal of Community Health Research.* (2): 93-98.

O'Connell, k., Davis, A.R., and Westhoff, C. (2006).Self-treatment Patterns Among Adolescent Girls with Dysmenorrhea. *Journal of Pediatrics Adolescents Gynecology*.19:285-289

Ortiz, M.I., Rangel-Flores, E., Carrillo-Alarcón, L.C., Humberto, A., and Veras, G. (2009).Prevalence and Impact of primary dysmenorrhoea among Mexican high school students. *International Journal of Gynecology and Obstetrics.*107 (2): 240–243

Ozerdogan, N., Sayiner, D., Ayranci, U., Unsal, A., and Giray, S. (2009). Prevalence and predictors of dysmenorrhea among students at a university in Turkey.*International Journal of Gynaecology and Obstetrics*. 107(1): 39–43.

Parker, M.A. (2006). Prevalence Of Menstrual Disorder Of Teenagers; exploring typical menstruation, menstrual pain (dysmenorrhoea), symptoms, PMS And endometriosis. The University of Canberra.pg 1-179

Paula, J. and Hillard, A. (2013). Dysmenorrhea: Consultation with the specialist. Pediatrics in Review. *American Association for paediatrics*. 27(2):63-72

Potur, D.C, Bilgin N.C and Komuru, N. (2013). *Prevalence of Dysmenorrhea in University Students in Turkey: Effect on Daily Activities and Evaluation of Different Pain Management Methods Vol-,No- (--), 2013: pp 1-10*

Roberts, S.C.,Hodgkiss, C., DiBenedetto, A. and Lee, E., (2012). Managing dysmenorrhea in young women.*The Nurse Practitioner*. 37(7):47–52.

Rogol, A.D., Roemmich, J.N., and Clark, P.A. (2002).Growth at Puberty, *Journal of Adolescent Health*. 31:192–200

Schwingel, P.A, Paula, A. Albuquerque S. and Cappato de Ara, R. (2013). Menstruation Disturbances: Prevalence, Characteristics, and Effects on the Activities of Daily Living Among Adolescent Girls from Brazil.

Tanner JM. (1965). The relationship of puberty to other maturity indicators and body composition in man. *SympSoc Stud Hum Biol;6:211*.

The Practice Committee of the American Society for Reproductive Medicine (2006).Current Evaluation of Amenorrhea. *Fertil Steril*;86 (4):S148–55.

Thirza, I. J., Hillen, S.L., Philippa, J. J., Judith, A.Y., Straton, M.D., and John, M. F. (1999).Primary Dysmenorrhea in Young Western Australian Women: Prevalence, Impact, and Knowledge of Treatment. *Journal of Adolescent Health.*25:40–45

Tinatin, G., Besarion, T. and Gagua, D. (2012) Primary dysmenorrhea: prevalence in adolescent population of Tbilisi, Georgia and risk factors. Journal of Turkish-German Gynecological Association.13: 162-8

Titilayo, A., Agunbiade, O.M., Banjo, O. and Lawani, A. (2009). Menstrual Discomfort and its Influence on Daily Academic Activities and Psychosocial Relationship Among Undergraduate Female Students in Nigeria. *Tanzania Journal of Health Research*. 11(4): 181-188.

Tfayli, H. and Arslanian, S. (2007). The challenge of adolescence: hormonal changes and sensitivity to insulin. Diabetes Voice.52.28-30

Umeora, O.U. and Egwuatu, V.E. (2008). Menstruation in Rural Igbo Women of South East Nigeria: Attitudes, Beliefs and Practices. *African Journal of Reproductive Health*.12(1): 109-115.

Wijesiri, H.S. and Suresh, T.S., (2012). Knowledge and attitudes towards dysmenorrhea among adolescent girls in an urban school in Sri Lanka. *Nursing and Health Sciences*. 15(1):58–64.

QUESTIONNAIRE

DYSMENORRHOEA EXPERIENCES AND SELF MANAGEMENT PATTERNS AMONG THE FEMALE STUDENTS OF THE POLYTECHNIC, IBADAN

My name is Adeoye Tobi Esther, a Postgraduate student of Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The purpose of this study is to investigate the nature of dysmenorrhoea experiences as well as document the various management patterns employed by the female students of the Polytechnic, Ibadan.

This study will communicate the intensity of Dysmenorrhoea experienced by female students of the polytechnic and thus help improve awareness among health care providers by allowing them to be more sensitive to issues relating to the management of dysmenorrhoea. Hence, improving the adolescents 'quality of life.

The findings from this study will help in providing evidence on which further interventions can be built in order to prevent unnecessary suffering and interruption in the adolescents' education, thereby, improving school success and improving their productivity.

Your identity, responses and opinions will be kept strictly confidential and will be used for the purpose of research only.

Please note that you do not have to write your name on this questionnaire, your kind assistance is sought, for you to answer the questions below honestly and accurately as possible to make the research a success. However, your participation is voluntary and you may request to withdraw at any point in time.

Kindly indicate your willingness to participate by ticking [√] in the appropriate box below.

1. Yes [ ] 2. No [ ]

Thanks for your co-operation.

Serial No ----------

SECTION A: SOCIO DEMOGRAPHIC CHARACTERISTICS

INSTRUCTION: This is a self administered questionnaire and is to be completed by the respondent. Please mark (√) in boxes provided as appropriate

1. Age as at last birthday (in years) ----------
2. Level **(1)** ND 1**[ ](2)** ND 2 **[ ] (3)** HND 1 **[ ] (4)** HND 2 **[ ]**
3. Course of study ----------
4. Faculty ----------
5. Hall of Residence **(1)** Ramat**[ ] (2)**Olori**[ ]**
6. Marital Status **(1)** Single **[ ] (2)** Married **[ ] (3)** Divorced **[ ] (4)** Widowed **[ ] (5)** Others ***(please specify)*** ----------
7. Ethnicity **(1)** Igbo **[ ] (2)** Yoruba **[ ] (3)** Hausa **[ ] (4)** Others ***(specify)***----------
8. Religion **(1)** Christianity **[ ] (2)** Islam **[ ] (3)** Traditional **[ ] (4)** Others ***(specify)***----------

SECTION B: KNOWLEDGE ON DYSMENNORHOEA ***(Dysmenorrhea is defined as difficult menstrual flow or painful menstruation.)***

9. What are the types of dysmenorrhoea you know?

(1) Primary **[ ] (2)** Secondary **[ ] (3)**Primary and Secondary **[ ] (4)** I don't know **[ ]**

10. What are the causes of dysmenorrhoea you know?

(1) ---------- **(2)** ---------- **(3)** ----------

11. Which of the following options can make someone experience dysmenorrhoea?

(1) Family history **[ ] (2)** Age of Menarche **[ ] (3)** Taking of sugary things **[ ]**

12. What are the ways in which dysmenorrhoea can be prevented? (***List three)***

(1) ---------- **(2)** ----------

(3) ----------

13. Is there any cure for dysmenorrhoea?

(1) Yes **[ ] (2)** No **[ ] (3)** I don't know **[ ]**

SECTION C: PERCEPTION TOWARDS DYSMENORRHOEA

(The following are statements about Dysmenorrhoea; please choose the appropriate answer as it appeals to you. A= Agree; U= Undecided; D= Disagree).

S/n	Statements	A	U	D
14.	Dysmenorrhoea is normal.			
15.	Dysmenorrhoea is a spiritual attack.			
16.	I experience dysmenorrhoea because my mother do experience it.			
17.	Dysmenorrhoea occurs when one takes sugary foods or drink			
18.	Dysmenorrhoea is as a result of stress.			
19.	Dysmenorrhoea is being experienced when one sits for long during menstruation.			
20.	I don't sleep well when I experience dysmenorrhoea.			
21.	Having sex reduces dysmenorrhoea.			
22.	Physical exercise reduces dysmenorrhoea.			
23.	Hot drinks e.g tea or water or alcoholic drink eases my flow of blood.			
24.	Dysmenorrhoea is a major disorder that can kill.			
25.	Dysmenorrhoea hinder one from getting pregnant in the future.			
26.	Dysmenorrhoea is an important health concern for young women.			

SECTION D: DYSMENORRHEA EXPERIENCES

27. At what age did you have your first menstruation (in years)? ……..

28. How many times do you menstruate in a month?

(1) Once **[ ] (2)** Twice **[ ] (3)** Irregular **[ ] (4)** Others (***please specify***)…….

29. How many days does your menstruation last?

(1) 1 day **[ ] (2)** 2 days **[ ] (3)** 3days **[ ] (4)** More than 4days **[ ]**

30. What is the nature of your flow?

(1) Scanty **[ ] (2)** Moderate **[ ](3)** Heavy **[ ] (4)** I don't know **[ ]**

31. How many sanitary pads do you use in a day?

(1) 1 **[ ] (2)** 2 **[ ] (3)** 3 and more **[ ] (4)** I can't recall **[ ]**

32. Since when have you been experiencing dysmenorrhoea?

(1) Less than 1 year **[ ] (2)** 1-3 years **[ ] (3)** 4 years or more **[ ] (4)** I can't recall **[ ]**

33. When exactly do you experience dysmenorrhoea?

(1) Same day of menstrual flow **[ ]** **(2)** Before menstrual flow **[ ]**

(3) Everyday of menstrual flow or during menstruation **[ ]**

(4) After menstruation **[ ]** **(5)** Others ***(please specify)*** ----------

34. What is the nature of the pain?

(1) Mild **[ ]** **(2)** Moderate **[ ]** **(3)** Severe **[ ]** **(4)** I can't explain **[ ]**

35. In what part of the body do you experience pain, ***(tick as many that applies to you)***

S/N	SITES OF PAIN	√
(a)	Lower Abdomen	
(b)	Upper Abdomen	
(c)	Low Back	
(d)	Hand Joints	
(e)	Hip Joints	
(f)	Knee Joints	
(g)	Ankle Joints	
(h)	Waist	
(i)	Legs	
(j)	Others ***{please specify}***	

36. What are the signs and symptoms you do experience, ***(tick as many that applies to you)***

S/N	SIGNS AND SYMPTOMS OF DYSMENORRHOEA.	√
(a)	Headache	
(b)	Backache	
(c)	Dizziness	
(d)	Loss of appetite	
(e)	Weakness	
(f)	Feeling unhappy	
(g)	Mood swing	
(h)	Nagging	
(i)	Big/heavy stomach	
(j)	Stomach pain or discomfort	

(k)	Waist pain	
(l)	Over sleeping	
(m)	Eating too much	
(n)	Pimples on the face	
(o)	Rashes on the body	
(p)	Breast pain	
(q)	Tenderness of breast	
(r)	Others ***(please specify)***	

SECTION E: EFFECTS OF DYSMENORRHEA ON DAILY ACTIVITIES

Please mark *(√)* in boxes provided as appropriate

37. Does dysmenorrhoea affect your daily academic activities or school attendance?

    (1) Yes **[ ]** **(2)** No **[ ]**

38. Does dysmenorrhoea disturb you from reading or studying?

    (1) Yes **[ ]** **(2)** No **[ ]**

39. Does dysmenorrhoea hinder you from concentrating in class?

    (1) Yes **[ ]** **(2)** No **[ ]**

40. Does dysmenorrhoea disturb you to the extent of missing test or exams?

    (1) Yes **[ ]** **(2)** No **[ ]**

41. Do you experience poor academic performance due to dysmenorrhoea?

    (1) Yes **[ ]** **(2)** No **[ ]**

42. Does the location of the pain hinder you from performing your normal daily activities?

    (1) Yes **[ ]** **(2)** No **[ ]**

43. Do you nag or experience mood swing as a result of dysmenorrhoea?

    (1) Yes **[ ]** **(2)** No **[ ]**

44. Does dysmenorrhoea affect your relationship or interaction with friends or colleagues?

    (1) Yes **[ ]** **(2)** No **[ ]**

SECTION F: MANAGEMENT PATTERNS EMPLOYED TO MANAGE DYSMENORRHEA

45. Do you take drugs to reduce or manage dysmenorrhoea? ***if YES, tick the ones you do take and continue, if NO, go to question 48.***

S/N	TYPES OF DRUGS	√
(a)	Paracetamol	
(b)	Ibuprofen	
(c)	Felvin	
(d)	Aspirin	
(e)	Boscopon	
(f)	Diclofenac	
(g)	Herbal drug	
(h)	Oral Contraceptive Pills	
(i)	Others ***(please specify)***	

46. What is the reason for taking the drugs ticked?

(1) It is cheap **[ ]** **(2)** It is effective**[ ]** **(3)** An health professional recommended it for me **[ ]** **(4)** A friend introduced the drug to me **[ ]** **(5)** Others***(please specify)*** ----------

47. Do you experience any of the following side effects after taking any of the above listed drugs? If yes, please tick as it applies to you.

S/N	Indigestion	√
(a)	Ulcer	
(b)	Vomiting	
(c)	Drastic reduction in the flow of blood	
(d)	Others ***(Please specify)***	

48. Where else do you seek help or care from when you experience dysmenorrhoea?

(1) Religious Centres **[ ]** **(2)** Tradomedical Centres **[ ]**

(3) Others ***(Please specify)*** ----------

49. Why do you prefer the option chosen?

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50. Which of the following management patterns do you make use of, (***tick as many that applies to you)***

S/N	MANAGEMENT PATTERNS	√
(a)	Massage	
(b)	Heating pads	
(c)	Walk	
(d)	Hot shower	
(e)	Hot drinks e.g tea, water	
(f)	Rest	
(g)	Drinking herbal tea or garlic drink	
(h)	Caffeine	
(i)	Vitamins	
(j)	Consult a physician or gynaecologist	
(k)	Diet modification	
(l)	Exercise	
(m)	Eating bitter kola	
(n)	Avoidance of sugary foods or drinks	
(o)	Taking low fat food	
(p)	Others ***(Please specify)***	

51. Which of the following factors can influence your choice of management patterns?, (***tick as many that applies)***

S/N	FACTORS	√
(a)	Severity of the pain	
(b)	Location of the pain	
(c)	Duration of the pain	
(d)	Inability to sleep	
(e)	Inability to work	
(f)	Loss of appetite	
(g)	Money	
(h)	Others ***(please specify)***	

52. Which of the following sources of information can influence your choice of management patterns? (***tick as many that applies)***

S/N	**SOURCES OF INFORMATION**	√
(a)	Health Professionals	
(b)	Parents	
(c)	Friends	
(d)	Teachers	
(e)	Traditional healers	
(f)	Mass media	
(g)	Religious Leaders	
(h)	Others ***(please specify)***	

53. Do you have any comments or suggestions about managing dysmenorrhoea you can share with dysmenorrhic women, family members, teachers, health professionals? -------

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Thanks for your co-operation.