PREVALENCE OF MENSTRUAL DISORDERS AND HEALTH SEEKING BEHAVIOUR AMONG FEMALE UNDERGRADUATES OF UNIVERSITY OF IBADAN, NIGERIA

BY

Udoka Carol IGBOKWE
B.Tech Public Health Technology (FUTO)
MATRIC. NO.: 209965

A Project in the Department of Health Promotion and Education, Faculty of Public Health

In partial fulfilment of the requirements for the degree of

MASTERS OF PUBLIC HEALTH

Of the

UNIVERSITY OF IBADAN

FEBRUARY, 2021

CERTIFICATION

I certify that I supervised the conduct, analysis and write up of final report of the study on Prevalence of Menstrual Disorders and Health Seeking Behaviour (behaviour towards getting relief) among Female Undergraduate Students of University of Ibadan, Ibadan by Igbokwe Udoka Carol MPH student of Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan.

.....

Supervisor:

Dr. Yetunde O. John-Akinola, ***B.Sc, MPH, Ph.D***

Department of Health Promotion and Education

Faculty of Public Health

University of Ibadan

DEDICATION

I dedicate this work to God almighty for his infinite goodness & mercies, His grace, favour, love, sustainenance, provisions and protection which has kept me all the way. And to my mum whose prayers and unending love has been by backbone, may God reward you richly and I pray that you live to reap the fruits of your labours. Amen

ACKNOWLEDGEMENT

Behind every success there are persons who contributed to it, my sincere gratitude goes to my supervisor, Dr. Yetunde John-Akinola who has been of great assistance to me and a source of encouragement throughout the course of this work.

I sincerely appreciate my HOD M.A Titiloye, my distinguished lecturers Prof. O. Oladepo, Prof. A.J. Ajuwon, Prof Oyedunni S. Arulogun, Drs O.E Oyewole, F. O. Oshiname, I.O. Dipeolu, Moji M. Oluwasaanu, and Adeyimka T. Desmennu who has made a great impact in me throughout the course of this programme. Also I would not forget to mention Mr John Imaledo and other non-academic staff of the department, may God bless you all greatly.

And to my respondents and research assistants who made my data collection possible, I'm very much grateful.

To my family and friends, Engr. O. C Unigwe, Mrs C.O Igbokwe, my siblings, my beloved cousins (the Enyioha's), Dr. And Mrs B.U Enyioha, Mr. J.N Chilaka, Mrs. Adaora Ekekwe, Mr & Mrs Austin Egbeadokhair, and so many others who I might not have mentioned, thank you all for your support and prayers I remain grateful to you all.

ABSTRACT

Menstrual Disorders (MSD) are physical or emotional problem which affects the normal menstrual cycle resulting in pain, unusually heavy or light bleeding and lack of menstruation. They are one of the most occurring gynaecologic issues that affect women of child bearing age with a global prevalence of 30-70% among young females and it is one of the frequent reasons women consult physician all over the world. Menstrual disorders are common cause of morbidity among females and often bring about anxiety for the individual and their families. Therefore this study investigated the prevalence of menstrual disorders and health seeking behavior among female undergraduate students of University of Ibadan.

A descriptive cross sectional study was employed in this study and three hundred and eighty one (381) female undergraduate students who are registered residents of the school female hostels were selected through a three stage sampling technique. A pre-tested semi-structured self administered questionnaire was used to obtain socio-demographic information, knowledge of menstrual disorders, prevalence, associated risk factors and health seeking behaviour of the respondents. Also the knowledge questions was analyzed using a 31 point scale categorized as poor knowledge which is a score of ≤10, fair knowledge >10-20 and good knowledge 21-31. The data collected were analysed using SPSS version 20; also statistical significant tests were conducted using descriptive analysis at $P<0.05$.

The mean age of the respondents is 20.5±2.7 and the mean age at menarche is 12.9±1.8. Majority (79.3%) of the respondents had good knowledge of menstrual disorders and the overall prevalence of menstrual disorders among the respondents was 90.4%. Polymenorrhea was reported by 28% and days of menstrual flow was abnormal in 15.7% with 15.2% of the respondents having irregular cycle length. Prevalence of menorrhagia was reported by 20.7% and about 39% of the respondents reported ever missing their period in a cycle (amenorrhea). Pre-menstrual syndrome (72.2%) and dysmenorrhea (70.8%) were the most prevalent menstrual disorders among the respondents. Some of the respondents reported having the associated risk factors of menstrual disorders. Only a few (28.3%) have sought help for menstrual disorders and this help was sought from different sources with self help being the highest source of help. There was a significant relationship between level of study and knowledge of MSD ($P=0.016$), knowledge of MSD and health seeking behaviour ($P=0.001$).

Menstrual disorders are highly prevalent among younger females of child bearing age in our environment; the role of mass media (internet) in health education is very acknowledgeable but

should not be used to substitute medical care in delicate health matters, thus appropriate medical help should be sought when the need arises.

Key words: Prevalence, Menstrual disorder, Health-seeking behaviour, Female undergraduates

Word count: 447

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Menstrual disorders are one of the most occurring gynaecologic issues. Some women get through their monthly periods without worries and minor discomfort while others experience huge physical and emotional symptoms, before and during menstruation. From heavy flow to missed periods, mood swings and painful menstruation which interferes with the quality of life of a woman (William and Parker, 2019). A woman's monthly cycle is linked with her fertility hence the regularity or irregularity of the menstrual cycle provides an insight to her overall reproductive health (Ajayi, 2019).

A menstrual disorder is a physical or emotional problem which affects the normal menstrual cycle, it brings about pain, unusually heavy or light bleeding, delayed menarche, or missed period (Youngson, 2018). Once a woman has begun menarche, a lot of menstrual problems can occur. Menstrual abnormalities include but not limited to; amenorrhea, abnormal uterine bleeding (menorrhagia, oligomenorrhea, polymenorrhea, metrorrhagia, hypomenorrhea), dysmenorrhea, premenstrual syndrome and lots more but the most common are abnormal uterine bleeding, amenorrhea, dysmenorrheal and premenstrual syndrome (Esimai & Esan, 2010). Irregular menstruation, absence of menstruation and non-menstrual vaginal bleeding has many causes, but in women of reproductive age, pregnancy should always be suspected (American College of Obstetrics and Gynaecologists ACOG, 2012). Abnormal vaginal bleeding in non-pregnant women is evaluated differently from vaginal bleeding in pregnant women. Also, polycystic ovarian syndrome can cause some of the same symptoms as menstrual abnormalities. Pelvic congestion syndrome is a common cause of chronic pelvic pain and it is often accompanied by abnormal menstrual bleeding (JoAnn & Pinkerton, 2017).

Amenorrhea can either be primary (absence of onset of menstruation by the age of 15) or secondary (lack of menses for three months or more) (Kirsten, 2017). It is normal before puberty, during pregnancy and after menopause after which it becomes a cause for concern. Primary amenorrhea is sometimes caused by low body weight associated with eating disorders, excessive exercise or medications. It can also be linked with problems with the ovaries or genetic abnormalities. Secondary amenorrhea can result from issues affecting oestrogen levels, including weight loss or gain, stress, illness or exercise.

Abnormal uterine bleeding which includes; heavy menstrual bleeding or bleeding in between periods have been described by the International Federation of Gynaecology and Obstetrics (FIGO) and classified according to PALM-COLEIN system. PALM represents structural causes: polyps, adenomyosis/eiomyomas, malignancy and hyperplasia. COLEIN represent non structural causes: coagulopathy, ovulatory dysfunction, endometrial, iatrogenic and not yet classified (Munro, Critchley, Broder and Fraser, 2011). Dysmenorhea can be explained as severe menstrual cramp during period. It is normal to feel cramps at the lower pelvis as the uterus contracts to squeeze blood vessels in order to shed the uterine lining but severe or excess cramping is a signal to hormone, ovaries or uterine problems which can interfere with fertility if not treated (Ajayi, 2019). Pre-menstrual syndrome (PMS) can be described as a various physical and psychological symptoms associated with menstrual cycle for instance headache, fatigue, nausea, abdominal cramps constipation anxiety, depression e.t.c. There are about 150 recorded PMS but the most common is depression (William & Parker, 2019).

Menstrual patterns are affected by a series of factors which can be responsible for menstrual disorders, they include very significant weight gain or loss, poor nutrient intake strenuous or over exercise, drug use, excessive alcohol consumption which interferes with metabolism of oestrogen and progesterone in the liver, hormonal imbalance, recent child birth or miscarriage and so on (Kavitha, 2013).

1.2 Statement of the problem

Menstrual disorders are one of the major challenges encountered by women globally and they account for most of the morbidity that occurs in women of child bearing age as it is one of the regular reasons for consulting a physician (mostly menorrhagia) (Warner et al., 2001). In both developing and developed countries seventy five percent (75%) of young females have menstrual problems. (Hajaratu *et al.,* 2013).

In developing countries its prevalence is seen to be high as reported by Harlow and Campbell (2003), dysmenorrheal was the most common reported complaint while abnormal uterine bleeding was the third most common reported disorder at clinics and the fourth most commonly diagnosed in Turkey, in Lebanon menstrual disorders were the second most common reason for seeing a physician, studies in Parkistan and Brazil have reported lack of knowledge among care givers and difficulty in accessing care for menstrual complaints, in Chile prevalence of amenorrhea was reported to be 4%, oligomenorrhea was 1.1% in Nigeria and in Philippine menstrual disorders were the most reported gynaecological morbidity.

Its prevalence is highest among age group 20-24. These disorders have a high prevalence of 30-70% among women of reproductive age (Gordey, Lemaster, Sippson and Yiin, 2000). Menstrual disorders constantly affect the quality of life of young females of reproductive age, especially those who experience dysmenorrheal and heavy menstrual flow (Cakir & Okten, 2007). Previous studies have shown a high prevalence of dysmenorrheal and menstrual irregularity among female students: these disorder affected their social life and school attendance (Kadir, Edlund and Von Mackensen, 2010).

Research works done in different cultures have identified menstrual disorder as contributory cause of regular absenteeism among young female in schools, work places and other public functions (El-Gilany, Badawi and El-Fedawy, 2005). Not less than ten percent (10%) of young females are incapacitated for three days because of menstrual issues, sometimes they can be so serious to restrict a woman's movement and confine her to a bed. Studies have shown that women's performance is affected by their patterns of the menstrual cycle. Poor performance is generally common during menstruation and days before its onset. Menstrual disorders have a high social, academic, occupational and physiological effect on student's life and their families.

The burden of disease arising from menstrual disorder include headache, vomiting, diarrhea, depression, back pain, dizziness anxiety, mood swing, lack of concentration to mention but a few (Adebimpe, Farinloy and Adeleke, 2016). These disorders do not only affect the women but the family, society and economy as well.

Menstrual problems are relatively common, yet unclear who people suffering from it go to and the information that is provided to them (Hickey & Balen, 2003). Problems related to menstruation are perceived as normal among women and are regarded as a condition that does not require medical attention. The few that sought medical help are compelled to do so when the situation becomes unbearable (Kullima et al, 2017). Though many reasons have been given for inadequate attention to menstrual issues, some see it as a 'taboo' and not a subject for public discussion while others assume it's a personal affair.

Even in the health sector, less attention is paid to understanding and ameliorating menstrual complaints of women. Although reproductive health programs are expanding their focus to reduce gynecological morbidity, proffering solution to menstrual problems is not generally considered (Harlow & Campbell, 2003).

A study carried out by Chia et al (2013) revealed that common impacts of menstrual disorders were reduction in concentration ability, academic disturbance and changes in normal physical activity. It leads to restriction of activities and absenteeism and only few sought medical help where majority resorted to self medication which could be dangerous (Houston, Abraham, Haung and D'Angelo, 2006). Irregular menstruation accounts for 30% - 40% cases of infertility (peer reviewed Web MD, 2018).

1.3 Justification of the study

Several researches carried out on menstrual disorders and their effect on women's health, quality of life and social integration from developing countries implies that menstrual disorders make up an important aspect of reproductive health. They are common cause of morbidity among females and often bring about anxiety for the individual and their families. It is a problem for females and their families that need to be addressed (Kissling, 2002).

Menstrual disorder is more prevalent among young women of about 20-24years (Karout, Hawai and Altuwajiri, 2012). This can be attributed to their exposure to mental stress as a result of academics, emotional stress either from families or establishing relationships with the opposite sex and abuse of contraceptive pills. These attributes can be seen among undergraduate students thus a rationale for this study among this population.

Though a lot of studies have been carried out on menstrual disorders but most of them did not take cognizance of the health seeking behavior (actions) of the affected population neglecting the fact that most of these females use over the counter (OTC) drugs which could be detrimental to their health. This gap is seen in a study among undergraduate students of University of Uyo (Ekpeyong, Davis, Akpan and Daniel, 2011) and also a study carried out on nursing students of Saudi Arabia (Karout, 2015). Hence this study seeks to assess the health seeking behavior of the females that experience menstrual disorder in the study population.

This study will also create an increased awareness among study population leading to informed decision which improves sense of well being and quality of life thereby reducing risks of future ill health (Smitha, 2010). Also policy makers will be informed to make policies that will positively influence accessibility of health facilities for menstrual complaints and also create a healthy environment for reproductive health.

1.4 Research Questions

1. What is the level of knowledge of menstrual disorders among undergraduates of University of Ibadan?
2. What is the prevalence of menstrual disorders among undergraduates of University of Ibadan?
3. What are the associated factors of menstrual disorders among undergraduates of University of Ibadan?
4. What is the health seeking behavior of undergraduates of University of Ibadan who experience menstrual disorders?

1.5 Broad Objective

The broad objective of this study is to investigate the prevalence of menstrual disorders, associated risk factors and health seeking behavior among female undergraduates of University of Ibadan.

1.6 Research Objectives

1. To assess the respondents knowledge of menstrual disorders
2. To determine the prevalence of menstrual disorders among the respondents
3. To identify the associated risk factors of menstrual disorders among the respondents
4. To assess the health seeking behavior among the respondents who experience menstrual disorders

1.7 Research Hypotheses

1. There is no significant association between the age of respondents' and the prevalence of menstrual disorders.
2. There is no significant association between respondents' level of study and knowledge of menstrual disorders.
3. There is no significant association between respondents' associated risk factors of menstrual disorders and prevalence of menstrual disorders.
4. There is no significant association between knowledge of menstrual disorders and health seeking behavior among the respondents who experience menstrual disorders.

1.8 Definition of terms

Adenomyosis: a condition in which the inner lining of the uterus breaks through the muscle wall of the uterus

Amenorrhea: a condition in which there is absence of menstruation during the female reproductive years, it could be a sign of another health problem rather than a disease itself and could be primary or secondary

Coagulopathy: a state in which blood does not clot quickly as it should, this condition can cause prolonged or excessive bleeding which can occur spontaneously or aggravated by an injury

Ectopic pregnancy: a pregnancy in which growth of fetus occurs outside the womb or in the fallopian tubes which can be a life threatening situation

Endometrial: patterning to the endometrium (uterus)

Endothelins: chemical substance used to dilate blood vessels; they are implicated in vascular diseases of several organ systems including heart, lungs, kidneys and brain

Hyperplasia: increase in amount of organic tissue that result from cell proliferation often as an initial stage in the development of cancer

Iatrogenic: relating to illness caused by medical examination, diagnostic procedures or treatment e.g. iatrogenic rash

Malignancy: a term for a disease in which abnormal cells divide without control and can invade nearby tissues, this condition can become progressively worse

Menarche: occurrence of the first menstrual bleeding in a female or onset of menstruation in adolescents

Menorrhagia: menstrual periods which are abnormally heavy and prolonged periods which interferes with a woman's normal activities

Ovulatory dysfunction: a group of disorders in which ovulation fails to occur or ovulation that occurs irregularly

Polyps: Abnormal benign tissue growths projecting from a mucous membrane, some are flat while others have stalk

Prostaglandins: group of lipids produced at the site of tissue damage or infection which deal with injuries and illnesses, they are also chemical substances used to control muscle contractions

CHAPTER TWO

LITERATURE REVIEW

2.1 Concept of Menstruation and Menstrual Disorder

Menstrual disorders are interruptive physical or emotional symptoms that come just before or during menstruation (Parker, 2019). Menstruation is a natural phenomenon which involves blood discharge from the uterus through the vagina which occurs at regular monthly (though could be more or less) intervals throughout the reproductive life of females. The menstrual cycle indicates cycle of changes the female body undergoes to achieve pregnancy. In a normal menstrual cycle, the hypothalamus stimulates the pituitary gland to produce follicle stimulating hormone (FSH) which in turn stimulates the ovaries to produce egg and also manufacture oestrogen. Through the aid of a luteinizing hormone (LH) the egg matures and is ready for fertilization. At this point progesterone is manufactured to prepare the uterus for implantation and pregnancy process. If pregnancy fails to occur, the egg is reabsorbed in the body as levels of oestrogen and progesterone fall and the uterine lining is shed in form of menstruation.

Ideally, the menstrual cycle is made up of three phases (Ajayi, 2019). The first phase is the follicular phase that starts on the first day of the period when menstruation occurs. The development of follicles is the main event of this phase which last for 13-14 days. The follicle stimulating hormone stimulates the growth of follicle which contains eggs. Only one follicle becomes dominant while others break down. The ovulatory phase which is the second phase begins with a rise in level of luteinizing hormone which triggers the release of the dominant follicle within 12-14 hours. The egg is ready for fertilization at this stage known as ovulation. The luteal phase begins after ovulation and ends before menstruation. The walls of the uterus begin to build up in preparation for implantation. If after 14days fertilization does not occur a new menstrual cycle begins.

A normal menstruation in adolescents begins around 11-14 years of age, having a period length of 3-7days and a cycle length of 24-38 days with average blood loss of 20-80ml (Hertweck, 2010). The onset of menstruation (menarche) in puberty, rhythm and length of menstrual cycles during reproductive years and the end of menstruation (menopause) is controlled by complex interaction of hormones (Pinkerton, 2018). The female sex hormones implicated in menstruation are the oestrogen and progesterone which are controlled by the hypothalamus, gonadotropin-releasing hormone, luteinizing and follicle stimulating hormone. However the thyroid hormone and adrenal hormone can also have effect on the functioning of the ovaries and menstruation.

When there is an imbalance in any of these hormones, the menstrual cycle or pattern is affected thus menstrual disorder arises.

The menstrual cycle is a major tool for assessing normal development and exclusion of pathological problems. Menstrual cycles often bring about variations in undesirable symptoms in the lifetime of women of reproductive age (Galan, 2018). A normal menstrual cycle varies among women, nevertheless any vaginal bleeding occurring before puberty, in between periods and after menopause is abnormal.

Menstrual disorders can be defined when

- Period occurs less than 24 days or 38 days apart
- Menstrual cycle fluctuates (Irregular period)
- There is absence of menstrual periods (amenorrhea)
- Menstrual cramps (dysmenorrhea)
- Bleeding in between periods (Abnormal uterine bleeding)
- Heavy and prolonged period (Menorrhagia)
- Several signs and symptoms before period (Premenstrual syndrome)

Amenorrhea

Amenorrhea is considered normal before puberty. It can be defined as the absence of menstruation and further classified into primary amenorrhea and secondary amenorrhea

- Primary amenorrhea is the lack of menstruation at the age of 16 years even in the presence of normal secondary sexual development. It could result from congenital abnormalities (60%) in the development of ovaries or endocrine disorders which accounts for 40% cause of amenorrhea (Hickey and Balen, 2003).

Primary amenorrhea is commonly caused by a family history of delayed menstruation, though at times there are also genetic factors that can interfere with the proper functioning of the ovaries e.g Turner syndrome, androgen insensitivity syndrome leading to high levels of testosterone, Mullerian defects(malformation of reproductive organs like uterus and fallopian tubes).

- Secondary amenorrhea is the caesation of menstruation in a non-pregnant female who was previously menstruating for three cycles or six months. It may be temporary or permanent due to a physical cause of later onset. In the US, secondary amenorrhea affects about 4% of women during their lifetime (Nordqvist, 2018).

It could be caused by pregnancy, changes in weight and exercise, certain medications (antipsychotics, antidepressants, progesterone only contraceptives), stress, long term illness (premature ovarian failure, polycystic ovarian syndrome, thalamic pituitary problems).

Signs and symptoms of amenorrhea according to Nordqvist (2018) include: lack of breast development (for primary amenorrhea) hair loss, milky nipple discharge, changes in vision, headache, increased facial hair.

Certain hormone tests are carried out in addition to physical examination to know the level of some reproductive hormones like follicle stimulating hormone, lutenizing hormone and thyroid stimulating hormone. Pregnancy tests and ultrasound scan is also done to diagnose the cause of amenorrhea.

Dysmenorrhea

Dysmenorrhea is one of the frequent gynaecologic complaints of young females at the health facility (Symonds, 2004). It can be defined as a painful flow of menstruation or severe menstrual cramps and pain. Though it is said to decrease with increasing age it is a contributing factor to restriction of daily activities and often ignored because it is considered a physiological pain. Few females consult physicians for this course while many others practice self-medication (Omiddvar & Begum, 2011). Dymenorrhea can be due to primary cause or secondary cause, primary dysmenorrhea is abnormal uterine contraction as a result of chemical imbalance in the body while secondary dysmenorrhea is caused by medical conditions like endometriosis, pelvic inflammatory disease, ectopic pregnancy, uterine fibroids, infection, polyps in the pelvis.

Most common experienced symptoms of dysmenorrhea are: pain or cramping in the lower abdomen, diarrhea, dizziness, nausea, weakness, vomiting, low back pain and so on.

Abnormal Uterine Bleeding (Dysfunctional Uterine Bleeding)

According to American College of Obstetrics and Gynaecology (ACOG, 2017), bleeding is considered abnormal if:

- It occurs after sex
- Bleeding or spotting between periods (metrorrhagia)
- Menstrual cycles shorter than 24 days (polymenorrhea) and longer than 38 days (oligomenorrhea)
- Heavy bleeding during period (menorrhagia)
- Bleeding after menopause
- Very light bleeding (hypomenorrhea)

Abnormal uterine bleeding can occur at any age and its cause can be linked to use of birth control pills, problems with ovulation, ectopic pregnancy, miscarriage, cancer of the uterus and so on. For example, menorrhagia is a type of abnormal uterine bleeding and one of the common reasons for referral in gynaecologic health facilities. One in five women experience heavy bleeding which makes them put their lives on hold till after the flow (William & Parker, 2019). It is a heavy and prolonged menstrual bleeding, blood loss exceeding 80ml per period. Bleeding is assumed to be heavy if it interferes with normal daily activities. Menorrhagia could result from hormonal imbalance, structural uterine abnormalities such as fibroid and other medical conditions (thyroid problem, blood clotting disorders, leukemia), certain birth control implants, high levels of endothelins, high levels of prostaglandins. When a woman needs to change pad frequently or menstrual period lasts more than seven days, it is a typical symptom of menorrhagia. Procedures like blood tests, ultrasound scan, pap test, laparoscopy, dilation and curettage is done to diagnose menorrhagia.

Premenstrual Syndrome

This is can be explained as a multi-factorial syndrome that is highly prevalent in women of child bearing age (mostly younger women). PMS is a collection of symptoms both physical and physiological that women experience at the time of ovulation and prior to menstruation. It has a variety of symptoms according to Mayo Clinic: fatigue, headache, mood swings, tender breasts, pelvic cramp, depression, constipation or diarrhoea, bloating, irritability which may temporarily affect function. These symptoms can last from few hours to several days. For some women, this signs and symptoms are so severe to interfere with daily activities and it varies from person to person. Premenstrual syndrome is brought about by changes in hormones, the most common symptoms according to SummaHealth 2019 are:

- Psychological symptoms which includes anxiety, depression, irritability
- Headache
- Fluid retention (swelling of feet)
- Infections
- Allergies
- Bloating
- Heart palpitations
- Changes in appetite
- Nausea

In any way menstrual disorder occurs, it has an impact on women's health status, quality of life, the family, social integration and the society at large.

2.2 Prevalence of Menstrual Disorders

Menstrual disorder has not been included in the global burden of disease estimates despite the fact that reproductive health is an issue of concern for population health; this aspect of reproductive health is always not given proper attention. Researches that have been carried out on menstrual disorders and their effect on health of women, quality of life and social integration from developing countries implies that menstrual disorders make up an important aspect of reproductive health. Seventy five percent of female adolescents in both developing and developed country have menstrual problems. (Hajaratu *et al,* 2013).

According to a research carried out by Nazish and Mona in January 2018, a cross sectional study done on the prevalence of menstrual problems and their association with psychological stress in young female students studying health sciences at Immam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia; ninety one percent (91%) of students were suffering from some kind of menstrual problems. The incidence of the different reported menstrual problems are irregular menstruation (27%), abnormal vaginal bleeding (9.3%), amenorrhea (9.2%), menorrhagia (3.4%), dysmenorrhea (89.7%), and premenstrual symptoms (46.7%).

Also a 95% prevalence of menstrual disorder was recorded in a study carried out by Abdelmoty *et al,* 2016 on menstrual patterns and disorders among secondary school adolescents in Egypt. A prevalence of 93% was attributed to dysmenorrhea, 65% for PMS and 43% for abnormal cycle length.

A research done by Nooh, Abdul-Hady and El-Attar on Nature and Prevalence of Menstrual Disorders among Teenage Female Students at Zagazig, Egypt shows that oligomenorrhea was reported by 6.3% while 5% reported having polymenorrhea. Also hypomenorrhea, identified by 8.8% and hypermenorrhea was noted in 4.2%. Dysmenorrhea was reported by 66%, premenstrual syndrome noted by 56.1%. and irregular periods was reported by 8.4%.

Out of 352 students that completed a written questionnaire on the investigation carried out by Karout *et al,* (2012) on the prevalence and pattern of menstrual disorder among Lebanese nursing students, the most common menstrual disorders were irregular frequency of menstruation (80.7%), premenstrual syndrome (54.0%), irregular duration of menstruation (43.8%), dysmenorrhoea (38.1%), polymenorrhoea (37.5%) and oligomenorrhoea (19.3%). On logistic regression analysis, there were significant associations between irregular cycles and

marital status (OR 2.18) and menarcheal age (OR 4.76); oligomenorrhoea and residency (OR 2.06) and menarcheal age (OR 3.17); abnormal blood loss and menarcheal age (OR 6.92); dysmenorrhoea and marital status (OR 8.93) and residency (OR 2.04); and premenstrual syndrome and marital status (OR 2.10).

Rafique (2018), in a research on prevalence of menstrual problems and their association with psychological stress in young female students studying health sciences in Saudi Arabia reported that 91% of the students suffered from some kind of menstrual disorder. The different menstrual problems reported, and their incidences included irregular menstruation (27%), abnormal vaginal bleeding (9.3%), amenorrhea (9.2%), menorrhagia (3.4%), dysmenorrhea (89.7%), and premenstrual symptoms (46.7%).

A study carried out on age at menarche and prevalence of menstrual problems among adolescent girls in Zaria, Northen Nigeria by Sulayman *et al,* in 2013 revealed 137 out of 550 school girls surveyed had menstrual disorders. Dysmenorrhea was the most prevalent type of menstrual disorder experienced with a prevalence of 64% and it was higher lower than the 89.7% in the study by Nazish and Mona.

De Sanctis *et al,* 2015 reviewed an article on Primary Dysmenorrhea in Adolescents: Prevalence, Impact and Recent Knowledge, and revealed that in adolescents' primary dysmenorrhea ranges between 16% and 93% with severe pain in 2% to 29% of the respondents. According to Nooh *et al,* study dysmenorrhea was also seen to be more prevalent (66%) than other menstrual diorder.

Again another study by Amu and Bamidele, on prevalence of menstrual disorder among adolescent girls in Osogbo, South Western Nigeria reported that the three most important MSD experienced by the respondents were dysmenorrhea (77.8%), menoharrgia (57.4%) and metrohrragia (18.6%). Menstrual bleeding lasted between 2-7 days in 81.1% and cycle length lasted for 21-35 days in 81.6% of the respondents. The prevalence of menstrual disorders among adolescents in the Osogbo LGA is high.

The majority of respondents in a study conducted by Fawole, Babarinsa , Fawole, Obisesan and Ojengbede on menstrual characteristics of secondary school girls in Ibadan shows that 72.7% experienced dysmenorrhoea; severe dysmenorrhoea was reported by 12.7%. Cycle length was not associated with presence of dysmenorrhoea ($p > 0.05$); 57.3% had symptoms of pre-menstrual syndrome. The most prevalent menstrual problem in this study is dysmenorrhea and premenstrual symptoms were strongly associated with stress.

2.3 Associated Risk Factors of Menstrual Disorders

Certain factors have been implicated in the occurrence of menstrual disorders. They include:

- Stress and lifestyle factors: gaining or loosing significant weight, poor nutrition, strenuous exercise, illness, travel, any disruption in daily routine.
- Birth control pills
- Uterine fibroid
- Pelvic inflammatory disease
- Polycystic Ovarian Syndrome
- Certain medications such as steroids (prednisone, progesterone) or anticoagulant (warfarin), antidepressants, NSAIDs (Ibuprofen) chemotherapy, epilepsy medications, thyroid medication (levothyroxine)
- Medical conditions such as over-active thyroid gland or pituitary disorders that cause hormonal imbalance
- Pregnancy associated complications

Also

- Excessive alcohol use that interferes with metabolism of oestrogen and progesterone in the liver
- Too much exercise
- Recent childbirth and miscarriage
- Family history of menstrual disorders
- Female circumcision

Shriver (2017) included

- Uncontrolled diabetes
- Cushing's syndrome
- Late onset adrenal congenital hyperplasia (problem with adrenal gland)
- Asherman's syndrome

Family history of dysmenorrhea was linked with the presence of dysmenorrhea, in a study carried out by Muluken, Mamo and Desalegn 2014 found out that respondents who have family history of dysmenorrhea were four times (4) more likely to develop dysmenorrhea (AOR = 3.80) compared to those who have no family history of dysmenorrhea. This was also supported by a study in Malaysia by Liliwati, Verna and Khairani 2007 among secondary school students. This simply implies that dysmenorrhea has a link with genetics.

Also menstrual cycle length had a direct effect on dysmenorrhea. In the same study by Muluken et al, respondents who had menstrual cycle length of 21-35days showed 84% reduced presence of dysmenorrhea compared to those whose normal cycle length was greater than 35days (AOR=0.16). This finding agreed with the study in UK by Latthe, Mignini, Gray and Hills 2006 where respondents with longer cycles experienced dysmenorrhea more than those with shorter cycles.

Several studies have been conducted and several factors and variables that are associated with menstrual disorder were evaluated and have reported its relationship with eating disorders, exercise, family history, stress, chronic diseases and body mass index (BMI). (Ibanez, Lopez-bermejo, Diaz, Marcos and Zegher 2011).

Also another study on Comparism of Disorders, Menstrual Frequency between Athlete and Non-Athlete University Students conducted by Fekr, Zadeh, Moghadam and Salehian, (2012) found out that exercise can be an associated factor of menstrual disorder. Though they found out that the prevalence of menstrual disorder was higher in non-athletes than athletes, the difference was not statistically significant.

Mohite and Mohite (2013) investigated rural college students of Satara District and his study gave insight to the fact that poor environmental stimulants, poor diet, nutritional anaemia, low socioeconomic status, geographical distribution, psychological issues are often associated with menstrual disorders. From his study, 57% of girls were anaemic and it had a positive association with their experience of menstrual disorder. This implies that majority of the factors are preventable.

High perceived stress (HPS) was identified in 39% of the students in the study conducted by Rafique *et al,* (2018. A significant positive correlation was found between high perceived stress (HPS) and menstrual problems. Students with HPS had 4 times, 2 times, and 2.8 times increased odds ratio for experiencing amenorrhea, dysmenorrhea, and premenstrual syndrome (p less than 0.05). Again, high perceived stress was also recorded in 39% of the students in the research carried out by Nazish and Mona (2018).

In Muluken's study, circumcision had a positive impact on the presence of dysmenorrhea. The result found in this study after controlling other many variables showed that those respondents who had been circumcised were 2 times more likely to have dysmenorrhea compared to those who had not been circumcised (AOR=1.84). This implies that circumcision may cause multidimensional effect on female's health.

Also educational status of mothers, regularity of menstruation, and family history of premenstrual syndrome were factor associated with premenstrual syndrome. This was found out in the investigation carried out by Muluken *et al,* (2014) on Menstrual Problems and Associated Factors among Students of Bahir Dar University, Amhara National Regional State, Ethiopia.

These studies have a common observation of eating disorder being and stress being associated with menstrual disorders.

2.4 Health Seeking Behaviour (behaviour towards getting relief) of Females that Experience Menstrual Disorders

Health seeking behaviour is being defined as an action or no action taken by persons who see themselves as having a health problem for the purpose of finding solution to it (Olenja, 2004). It can also be referred as illness or sick-term behaviour. Health seeking behaviour has a wider concept of health behaviour which circumscribes activities carried out to maintain good health, prevent ill health and also dealing with deviations from good health (MacKian, 2003).

There are several studies which have tried to describe factors that significantly affect health seeking behaviour and these studies are involved in development of models that describe the series of steps taken towards healthcare and reasons why these steps were taken (Latunji & Akinyemi, 2018).

Several studies were conducted to determine the prevalence and the pattern of menstrual disorders among students in various countries and also to understand the knowledge and awareness toward menstrual disorders among the students, few taking cognizance of their health seeking behaviour.

A study conducted by Chi *et al,* (2013) evaluated the prevalence of dysmenorrhea, its impact and management approaches in Hong Kong students and he found out that only 6% of the respondents affected by menstrual disorder seek medical advice while 70% practiced self medication. About 67% use warm beverage, 57% use paracetamol, and 45% sleeping. The most effective strategy (100%) was use of non-steroidal anti-inflammatory drug. Some others used Chinese medicine 93% and dietary supplement 92%. From this study Chi *et al,* concluded that dysmenorrhea was a very significant menstrual disorder that interferes with students' activities.

In the study conducted by Nooh *et al,* on Nature and Prevalence of Menstrual Disorders among Teenage Female Students at Zagazig, Egypt only 12.6% (36) respondents who experience menstrual disorder seek help from others. Only 8.9% of female affected by MSD seek help from others according to the research carried out by Abdelmoty *et al,* in 2016.

However, according to a study conducted by Olowokere, Ogini, Olajubu, William A and Irinoye (2014) on the Implications on health and academic activities of female undergraduates in a Federal University in Nigeria, the most common form of management adopted by the respondents was self medication, the use of drugs (analgesics, contraceptives and iron supplement. About 53% respondents adjusted their diet as a management strategy, while 48% exercised, 28% applied heating pads on the stomach and 5% took herbal remedies.

From the same study by Olowokere *et al*, (2014) it was discovered that none of the respondents consulted health professionals for prescription of drugs for managing menstrual disorders. This finding was similar to the submission of Nwakwo, Aniebue, and Aniebue (2010) who reported that only 16.3% of the female studied consulted medical doctors before taking analgesics. The same finding was reported by Houston *et al,* (2006) where only 2% of the teens report receiving information about menstruation from health care practitioners.

Though majority of the respondents confirmed that self medication could be dangerous in management of menstrual disorders; this however did not affect their practice. The implication of this is that there could be abuse of drugs and the associated complications. For instance, misuse of NSAIDS such as ibuprofen could result in gastrointestinal bleeding or worsen existing case of peptic ulcer.

2.5 Prevention and Management of Menstrual Disorders

It is very necessary that medical help is sought in order to treat the underlying conditions, prevent reoccurrence and proper management done throughout lifetime. So that quality of life is guaranteed and reproductive health is secured.

Preventive practices for menstrual disorders is key to avoid all the effects that accompanies it, according to Cleveland Clinic the following are necessary to prevent menstrual disorders:

- Maintaining a healthy lifestyle by eating low fat foods and moderate exercise; for those trying to lose weight, do it step by step at a gradual process rather than involving in drastic exercise and limiting food and calorie intake.
- Athletes should reduce prolonged or intense exercise routine
- Getting adequate sleep and rest is very vital
- Develop a good stress management technique
- Sanitary pads and tampons should be changed regularly (4-6 hours) to avoid infection and toxic shock syndrome.
- Use contraceptive pills as prescribed by the doctor
- Avoid female circumcision

Summa Health Issues 2018 suggests that **Management** of menstrual disorder depends on the nature of the disorder, age, current symptoms and cause of the disorder. However, discussing with your doctor will help determine which treatment can relieve your symptoms.

- For primary **amenorrhea**, treatment can start with waiting watchfully depending on the age of the person, result of ovary function test and family history of age at menarche. Primary amenorrhea caused by premature ovarian failure can be managed by hormone therapy (ACOG, 2015)
- Functional hypothalamic **amenorrhea** can be managed by gaining weight and reduction in exercise (ACOG, 2014)
- Polycystic ovarian syndrome which is mostly the cause of secondary **amenorrhea** can be treated with combined oral contraceptive pills and reduction of weight in obesed persons (ACOG, 2015).
- Counselling for both emotional and mental stress resulting to **amenorrhea**
- Treatment with thyroxine for underactive thyroid
- Regular but not drastic exercise is recommended for managing **dysmenorrhea** and also amenorrhea
- Dietary modification is also important: intake of adequate calories, fruits and vegetables, reduction of sugary foods
- Vitamin or mineral supplements

Menstrual disorders are common and are being managed by family and medical practitioners; in many cases reassurance is needed. Referral to tertiary institutions is necessary for more serious endocrine or structural abnormalities for proper treatment (Hickey & Lester, 2003).

2.6 Theoretical framework

There are a lot of commonly used theoretical models in health promotion. They include but not limited to; ecological model, explanatory model, force field analysis, health belief model, trans-theoretical model, social cognitive theory, theory of reasoned actions, theory of planned behaviour and the precede-proceede model (Glanz, Rimer and Lewis, 2002). Each of these models identifies behavioural influences and factors relevant to issue targeted by health promotion programme.

The PRECEDE model was developed by Dr Lawrence Green and colleagues in the 1970's to address the lack of direction and adequacy of public health promotion to sufficiently plan before implementing an intervention. (Glanz et al, 2002).

Application of the model

PRECEDE is an acronym that stands for predisposing, reinforcing and enabling constructs in educational environmental diagnosis and evaluation. This theory helps to understand the causal factors of any given public health behaviour. The three key concepts of this model are explained below:

The Predisposing factors: They are factors which bring about or provide an environment for occurrence of health challenges; they include family history, culture, knowledge, stress and lifestyle. In the context of this study, the respondents family history of menstrual disorders, their age, their knowledge of menstrual disorders, stressors (e.g. emotional, academic stress) and their individual lifestyle (e.g. use of oral contraceptive, unhealthy eating) are factors which exposes the respondents to menstrual disorders. These factors were considered in section 2 and 4 of the data collection instrument.

The Enabling factors: These are factors that enable persons to take action on their predispositions; these factors include knowledge, perception, available resources, accessibility, ability to take action, willingness, time, supportive policies and services. In this study, the respondents' knowledge of menstrual disorders, their individual attitude towards health related issues, their ability to take action to get relief from these disorders and their willingness to be free from menstrual discomfort are factors which empower them to take action. These factors were used to design section 2 and 5 of the data collection instrument.

Reinforcing factors: These are factors which come into play after behaviour has been initiated; they encourage repetition or persistence of behaviours by providing continuing rewards or incentives. They include support (family, peers), health care workers, law enforcement, and the media. The reinforcing factors in this study are encouragement from family or peers for actions taken, accessibility to health services and information gotten from the media.

All these factors affect outcome of health and quality of life.

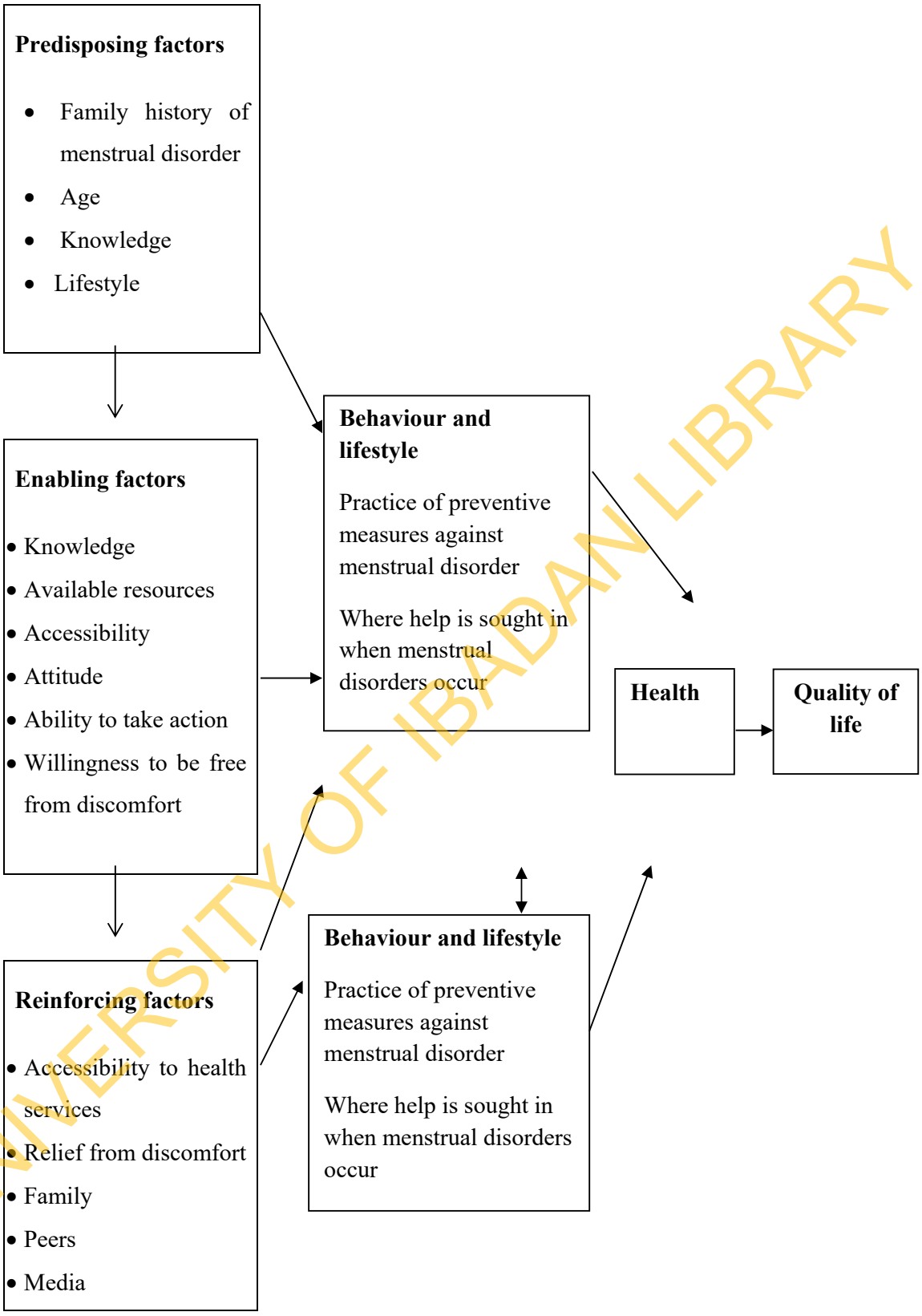

Figure 2.1 Precede Model by Glanz et al., 2002

CHAPTER THREE

METHODOLOGY

3.1 Study design

A descriptive cross sectional study using semi-structured questionnaires was employed. The questionnaire measured knowledge of menstrual disorders, prevalence, associated risk factors and health seeking behaviour (behaviour towards getting relief) among the respondents.

3.2 Study area

This study was conducted among female undergraduates of University of Ibadan, Oyo State Nigeria. The University is located in the city of Ibadan and was established in 1948. This University run both graduate and post graduate programmes having thirteen (13) faculties and seventy nine departments and having about 35,000 students both male and females studying in it. The university has some facilities like the health facility located within the school premises which provides health insurance for students, residential facilities for staffs and students, school library, canteen in all hostels both male and female, sports facilities (e.g. football field), the Abadina market and so many others.

The University has three undergraduate female hostels which are all located within the school premises.

1. Obafemi Awolowo hall
2. Queen Elizabeth hall
3. Queen Idia hall

3.3 Study population

The study population consists of registered female undergraduate students of University of Ibadan who are hostel residents.

3.4 Inclusion criteria

All registered female undergraduate students of University of Ibadan that are hostel residents who willingly give their consent were included in this study.

3.5 Exclusion criteria

Any registered female undergraduate student of University of Ibadan that reside in the hostel and does not willingly give their consent will not be included in this study; also female students who do not reside in the school hostels will not be included.

3.6 Sample size

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

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

N= Minimum sample size

Z= Standard normal deviation set at 1.96 normal interval

p= Proportion estimated to be obtained in the target population (prevalence of menstrual disorder among Students in University of Uyo in Southern Nigeria is 34.6% by Ekpeyong et al in 2016)

q= Proportions that does not have the characteristics being investigated

(q=1-p) q= 1 – 0.346= 0.654

d= Degree of accuracy set at 0.05 (precision set at 5% significant)

Therefore, the sample size $N = \frac{(1.96)^2 \times 0.346 \times 0.654}{0.05^2}$

$$N = \frac{0.8692}{0.0025}$$

N= 347.

A non-response rate of 10% of 347 = 34.7

Therefore, 34 was added to the sample size calculated to make the sample size 381 in order to address issues of incomplete response.

3.7 Sampling technique

The eligible participants were selected through a three stage sampling technique using the number of female undergraduate students who are registered residents of the school female hostels.

All female halls within the school residence was selected, the total number of students in all the halls was 3154.

S/N	HALLS	No of residents	No of respondents
1	Obafemi Awolowo(OA)	1618	124
2	Queen Elizabeth(QE)	580	105
3	Queen Idia(QI)	956	134
Total		**3154**	**363**

Stage one: The number of registered students in each hall was ascertained, excluding the number of postgraduate students in the hall and proportion allocated to each hall with respect to the sample size. That is number of registered students in each hall divided by total number of students in all the halls multiplied by sample size

Stage two: The number of rooms in each hall was ascertained and number of rooms to recruit respondents from was decided with respect to the proportion allocated to each hall and systematic sampling was used to select the rooms. For instance, if 20 rooms were to be selected from Queen Elizabeth's hall having a total of 77 rooms then the sampling interval K is 77/20 which is 3.8. Thus, 3 numbers were picked from and the number picked say 2 is added to 3 which is 5, hence the fifth room was selected after which 3 again is added and the eight room is selected, 3 again is added and the 11th room was selected and so on.

Stage three: Random sampling was employed to select respondents in each of the selected rooms with respect to the expected number of persons to be selected from each room until the desired sample size (381) was achieved.

3.8 Instrument for data collection

The data was collected using quantitative method with the use of self-administered semi-structured questionnaires. The questionnaires was developed in line with the study objectives using information obtained from reviewing relevant literatures on prevalence of menstrual disorders, associated factors and behaviour (actions) towards getting relief. The questionnaire contains five (5) sections: section one was designed to gather socio-demographic information of the respondents, section two was used to assess the respondents knowledge of menstrual disorders, section three was used to generate information on the prevalence of menstrual disorders, section four was used to generate information on associated risk factors of menstrual disorders among the respondents and section five was used to generate information on health seeking behavior among the respondents who experience menstrual disorders.

3.9 Validation of instrument

Validity of the study instrument was ensured through review of relevant literature; also the instrument was structured in line with the study objectives and was scrutinized by my supervisor to ensure its appropriateness before it was administered.

3.1.0 Reliability of instrument

Reliability of the instrument for data collection was ensured through Pre-test. The pre-test of this study was carried out among female undergraduate students of University of Lagos, Lagos State. A CronbachAlpha measurement and reliability co-efficient measure was obtained from the pre-tested questionnaire which gave a result of 0.951 and the instrument was adjusted a little before it was further used for data collection.

3.1.1 Data collection procedure

Pre-tested self-administered semi-structured questionnaire was used to gather information from the respondents by the researcher with the aid of three (3) research assistants who were trained prior to the time of data collection. The informed consent forms (attached to the questionnaires) were given to the participants after they had been given adequate information about the study. After collection of the filled questionnaires, it was checked for error before leaving the field.

3.1.2 Data management and analysis

After collection of data, the content was extracted, coded and keyed into SPSS for analysis. Percentages were calculated; Chi-square test and Fisher exact test was used to test for associations between dependent and independent variables of interest, then the results obtained from the Statistical Package for Social Science (SPSS version 20) analysis were summarized and presented using figures, tables and chart where necessary.

Also the knowledge questions were analyzed using a 31 point scale categorized as poor, fair and good, knowledge scale is graded thus (i). ≤ 10 poor knowledge (ii). 11-20 fair knowledge (iii). 21-31 good knowledge since there are 31 knowledge questions. Hence any respondent who scores ≤ 10 is considered as having poor knowledge of menstrual disorders, any respondent who score 11-20 is considered as having a fair knowledge of menstrual disorders and any respondent who scores 21-31 is considered as having a good knowledge of menstrual disorders.

3.1.3 Ethical approval

Ethical approval was obtained from UCH/UI research ethics committee before collection of data. Also, written informed consent was attached to the questionnaires distributed for data collection. To ensure confidentiality of the respondents, identifiers such as names, address and other information that could reveal the identity of respondents was not included in the research instruments. The nature of the study, benefits and objectives was explained to the respondents and they were assured that the information given would be treated with utmost confidentiality. Respondents were also informed that they can withdraw at any point during the study. Confidentiality of each participant was maximally maintained during and after the collection of their information.

3.1.4 Study limitation

This study would have been more appropriate if the female students who reside outside of the school hostels was reached, but for time and financial constraints. Also the quality of life of students who experience any form of menstrual disorder was not measured.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics

Three hundred and eighty one questionnaires (381) were distributed but only three hundred and sixty three (363) complete response was retrieved. Therefore the response rate was 95.2%. The age of the respondents ranged from 15-32 years with a mean of 20.5±2.7. The age at menarche ranged from 9-25 years with a mean of 12.9±1.8. Nearly all (97.5%) respondents were single and majority (83.2%) were Yoruba. Majority (76.6%) were Christians. More (27.8%) of the students were in faculty of Agriculture. (Table 4.1)

Table 4.1a: Socio-demographic characteristics of the respondents (N=363)

Socio-demographic variables	Frequency (N)	Percent (%)
Age at last birthday		
15-20	200	55.1
21-26	154	42.4
27-32	9	2.5
Age at menarche		
9-16	355	97.8
17-25	8	2.2
Ethnicity		
Yoruba	302	83.2
Igbo	32	8.8
Hausa	6	1.7
Others	23	6.3
Religion		
Islam	85	23.4
Christianity	278	76.6
Marital status		
Single	354	97.5
Married	9	2.5
Student's hall of residence		
Obafemi Awolowo hall	124	34.2
Queen Elizabeth hall	105	28.9
Queen Idia hall	134	36.9

Table 4.1b: Socio-demographic characteristics of the respondents (N=363)

Socio-demographic variables	Frequency (N)	Percent (%)
Student's faculty of study		
Arts	52	14.3
Social sciences	22	6.1
Law	22	6.1
Sciences	37	10.2
Technology	15	4.2
Basic medical sciences	7	1.9
Clinical medicine	11	3
Pharmacy	3	0.8
Agric and Forestry	101	27.8
Veterinary medicine	2	0.6
Education	42	11.6
Renewable natural resources	43	11.8
Dentistry	1	0.3
Social sciences	5	1.3
Student's level of study		
100	62	17.1
200	83	22.9
300	55	15.2
400	74	20.4
500	89	24.5

4.1 Knowledge of respondents on menstrual disorders

The awareness of menstrual disorders was observed to be 98.9%, indicating that majority of the respondents has heard about menstrual disorders. The highest sources of information on menstrual disorders was observed to be the interpersonal sources (34.7%), many of the respondents got to know about menstrual disorder from their mother followed by the media source (31.4%). Majority (79.3%) of the respondents had good knowledge of menstrual disorders and very few (0.8%) had poor knowledge. Majority of the respondents were able to identify the various types of menstrual disorders.

More than half (63.4%) of the respondents stated that strenuous exercise is one of the causes of menstrual disorder, 49.9% said contraceptive use is one of the causes of menstrual disorder with a few (22.9%) stating that too much weight gain causes menstrual disorder. Majority of respondents stated that the various types of menstrual disorder can be treated except abnormal uterine bleeding.

About 64.5% of the respondents stated that taking medications is one of the ways by which menstrual disorders can be treated, some (36.4%) agreed to medical surgeries as a method of treating menstrual disorders. More than half of respondents stated that lack of concentration and absenteeism from school are some of the side effects of menstrual disorder. Other responses are presented in Table 4.2. The overall knowledge score obtained from the respondents was 42.9±7.5

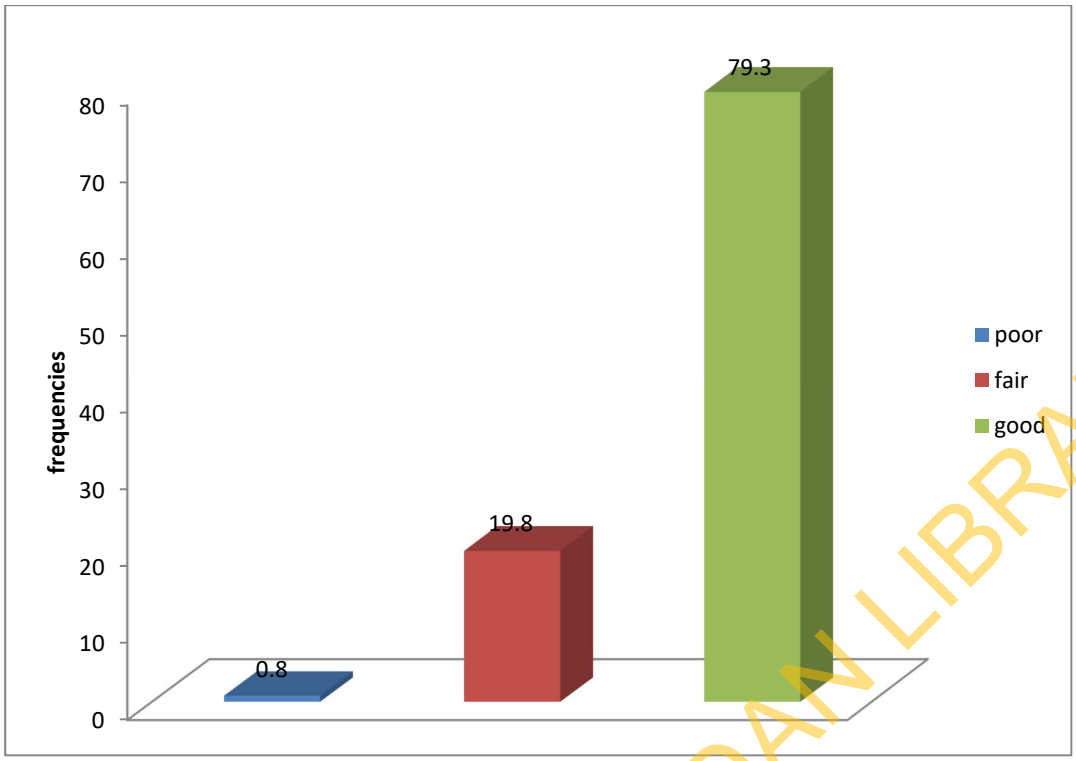

Figure 4.1: Bar chart showing the overall knowledge score among the respondents

Table 4.2a: Knowledge of Menstrual disorders (N=363)

Knowledge Variables	Frequency (N)	Percent (%)
Awareness about Menstrual disorders		
Yes	359	98.9
No	4	1.1
Sources of Information		
Media	114	31.4
School	46	12.8
Interpersonal	125	34.7
Seminar	7	1.9
Personal experience	23	6.3
Reading	9	2.5
Types of menstrual disorders		
Amenorrhea		
Yes	279	76.9
No	84	23.1
Dysmenorrhea		
Yes	314	86.5
No	49	3.5
Metrorrhagia		
Yes	235	64.7
No	128	35.3
Menorrhagia		
Yes	254	70.0
No	109	30.0
Premenstrual syndrome		
Yes	292	80.4
No	71	19.6

Table 4.2b: Knowledge of Menstrual disorders (N=363)

Knowledge Variables	Frequency (N)	Percent (%)
Causes of Menstrual disorders		
Contraceptive use		
Yes	181	49.9
No	182	50.1
Eating disorder		
Yes	165	45.5
No	198	54.5
Family history of Menstruation		
Yes	170	46.8
No	193	53.2
Too much weight gain		
Yes	83	22.9
No	280	77.1
Too much weight loss		
Yes	108	29.8
No	255	70.2
Strenuous exercise		
Yes	230	63.4
No	133	36.6
Treatment option for menstrual disorders		
Amenorrhea		
Yes	188	51.8
No	175	48.2
Dysmenorrhea		
Yes	183	50.4
No	180	49.6
Abnormal uterine bleeding		
Yes	140	38.6
No	223	61.4

Table 4.2c: Knowledge on Menstrual disorders (N=363)

Knowledge Variables	Frequency (N)	Percent (%)
Menorrhagia		
Yes	152	41.9
No	211	58.1
Premenstrual disorder		
Yes	157	43.3
No	206	56.7
Treatment Options		
Taking medications		
Yes	234	64.5
No	129	35.5
Exercise		
Yes	176	48.5
No	187	51.5
Medical surgery		
Yes	132	36.4
No	231	63.6
Taking rest		
Yes	220	60.6
No	143	39.4
Eating well		
Yes	226	62.3
No	137	37.7
Side effects of menstrual disorders		
Infertility		
Yes	202	55.6
No	161	44.4
Lack of concentration		
Yes	238	65.6
No	125	34.4

Table 4.2d: Knowledge on Menstrual disorders (N=363)

Knowledge Variables	Frequency (N)	Percent (%)
Absenteeism		
Yes	231	63.6
No	132	36.4
Low productivity		
Yes	149	41.0
No	214	59.0
Poor performance		
Yes	170	46.8
No	193	53.2
Level of knowledge		
Poor knowledge	3	0.8
Fair knowledge	72	19.8
Good knowledge	288	79.3

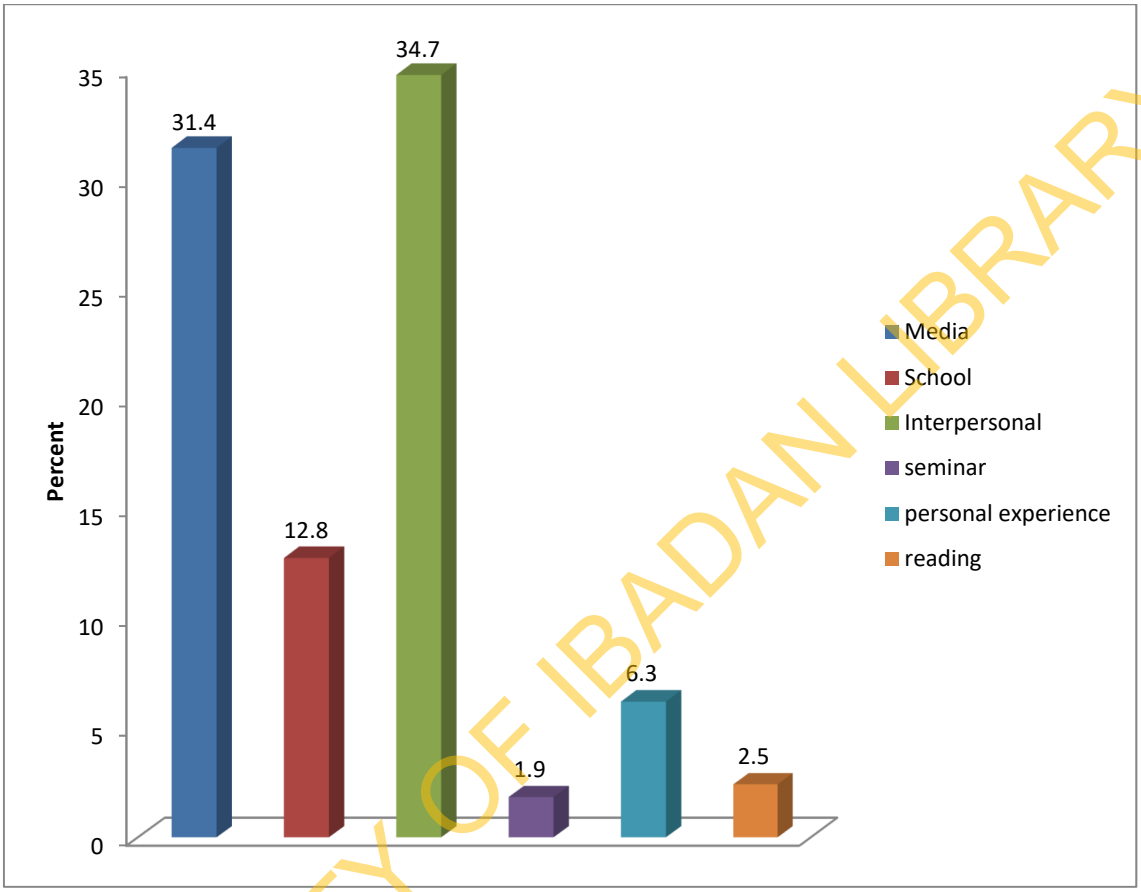

Figure 4.2: Sources of information on menstrual disorders

4.2 Prevalence of menstrual disorders among respondents

Majority (84.3%) of the respondents stated that they have normal length of monthly cycle while 28% had less than 24 days which is an indication of polymenorrhea and 15.2% experience irregular menstruation. Days of period flow was normal in 84.3% of the respondents and abnormal in 15.7% of the respondents. Prevalence of metrorrhagia was observed to be 5.0% and about 39.0% of the respondents reported ever missing their period in a cycle while 13.3% have missed their periods for over 3 months.

The prevalence of pre-menstrual syndrome was the highest (72.2 %) among the respondents (abdominal pain and mood swing being the highest reported syndrome). The overall prevalence of the menstrual disorders was 90.4%. Other responses are presented in the table 4.3 below.

Table 4.3a Prevalence of Menstrual disorders among the respondents (N=363)

Variables	Frequency (N)	Percent (%)
Days of period flow		
<2days (not good)	39	10.7
2-7days (good)	306	84.3
>7days (not good)	18	5.0
Length of monthly cycle		
<24days (not good)	102	28.1
24-38 days (good)	239	65.8
>38 days (not good)	22	6.1
Menorrhagia (Heavy period)		
Yes	75	20.7
No	288	79.3
Regularity of monthly flow		
Regular	308	84.8
Irregular	55	15.2
Metrorrhagia (Bleeding between periods)		
Yes	18	5.0
No	345	95.5
Amenorrhea (Missed period)		
Yes	143	39.0
No	220	60.0
Duration of missed period (N=143)		
<3months	124	86.7
≥3months	19	13.3
Dysmenorrhea (painful menstruation)		
Yes	257	70.8
No	106	29.2
Premenstrual syndrome (several signs and symptoms before period)		
Yes	262	72.2
No	101	27.8

Table 4.3b Distribution of Premenstrual Syndrome among the respondents (N=363)

Variables	Frequency (N)	Percent (%)
Abdominal pain	194	53.4
Mood-swing	171	47.1
Loss of appetite	111	30.6
Headache	96	26.4
Dizziness	84	23.1
Vomiting	48	13.2
Overall Prevalence of Menstrual disorders		
Yes	328	90.4
No	35	9.6

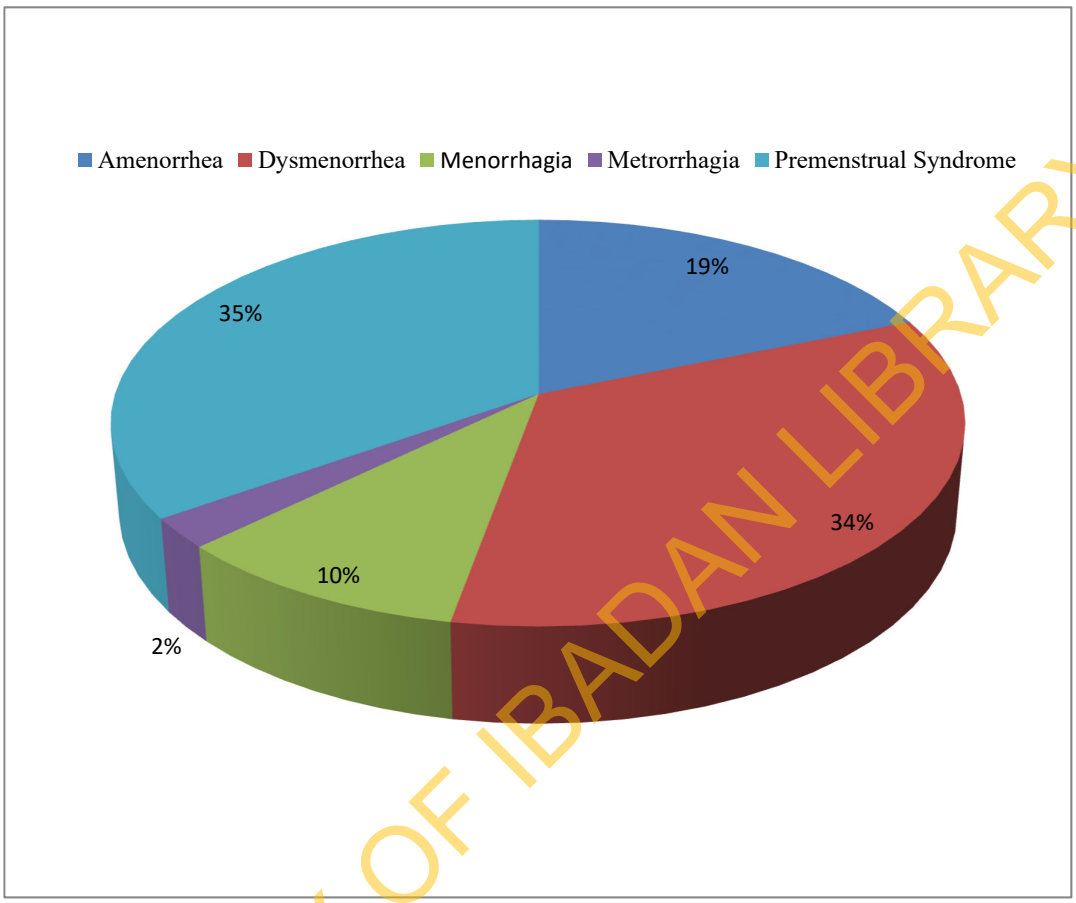

Figure 4.3: Distribution prevalence of menstrual disorders

4.3 Associated risk factors of menstrual disorders among the respondents

Some (46.3%) of the respondents stated that someone in their family experience(d) menstrual disorders and 45.1% stated that it was their sister. Data also revealed that dysmenorrhea (66%) is the most prevalent menstrual disorders in the family.

Majority (66.1%) said that they only exercise once in a while, a few (6.3%) had ever taken contraceptive pills with postinor2 having the highest frequency (3.3%) among the respondents. 1.7% of the respondents have pelvic inflammatory disease, 3% have bleeding disorder and 18% have thyroid disorder which are all contributory factors of menstrual disorder. Other responses are presented in the table 4.4 below.

Table 4.4a: Associated factors of menstrual disorders among the respondents (N=363)

Variables	Frequency (N)	Percent (%)
Family history		
Yes	168	46.3
No	195	53.7
Who (N=168)		
Mother	60	35.7
Sister	76	45.2
Aunty	15	9.0
Cousin	17	10.1
Which type (N=168)		
Amenorrhea	30	18.0
Dysmenorrhea	111	66.0
Menorrhagia	6	3.5
PMS	21	12.5
Exercise		
Once in a while	240	66.1
Daily	62	17.1
Weekly	43	11.8
Monthly	18	5.0
Significant weight loss		
Yes	165	45.5
No	198	54.5
Significant weight gain		
Yes	122	6.3
No	241	93.7
Contraceptive use		
Yes	23	6.3
No	340	93.7
Which one		
Morning pills	2	0.6
Postinor 2	12	3.3
Combination 3	9	2.5
Backup pill	1	0.3
Implanon	1	0.3

Table 4.4b: Associated risk factors of menstrual disorders among the respondents (N=363)

Variables	Frequency (N)	Percent (%)
Long standing illness		
Yes	83	23.1
No	279	76.9
Which one (N=83)		
Pelvic inflammatory diseases	6	7.2
Bleeding disorder	11	13.3
Thyroid disorder	65	78.3
Osteoarthritis	1	1.2
Circumcision		
Yes	40	11.0
No	323	89.0
Eating junks		
Once in a while (good)	81	22.3
1-2times in a week (good)	126	34.7
3-4 times in a week (not good)	66	18.2
5-6 times in a week (not good)	21	5.8
Every day (not very good)	69	19.0
Eating fibre		
Once in a while (not good)	99	27.3
1-2times in a week (not very good)	136	37.5
3-4 times in a week (good)	87	24.0
5-6 times in a week (good)	16	4.4
Every day (not very good)	25	6.9
Stressful situation		
No (good)	32	8.8
A little (not good)	199	54.8
Very much (not very good)	132	36.4

4.4 Health seeking behaviour (behaviour towards getting relief) of respondents

About 28.3% reported that they have sought help for menstrual disorders out of 90.6% of those who experience any form of menstrual disorder. Some (21.7%) seek help for amenorrhea while 26.4% practice self-help. About 26.4% have used pain relief drugs to treat their menstrual disorder while only a few (2.1%) have done surgery. Several other coping strategies were employed by the respondents in order to get relief. Other responses are presented in the table 4.5 below.

Table 4.5a: Health seeking behaviour of respondents (N=328)

Variables	Frequency (N)	Percent (%)
Do you seek help for your menstrual disorders? (N=328)		
Yes	93	28.3
No	235	71.7
Which one		
Amenorrhea (N=143)		
Yes	31	21.7
No	112	78.3
Dysmenorrhea (N=257)		
Yes	52	20.2
No	205	79.8
Metrorrhagia (N=18)		
Yes	7	38.9
No	11	61.1
Menorrhagia (N=75)		
Yes	21	28
No	54	72
Premenstrual syndrome (N=262)		
Yes	33	12.6
No	229	87.4
Source of help (N=93)		
Hospital		
Yes	11	11.8
No	82	88.2
Chemist		
Yes	11	11.8
No	82	88.2
Pharmacy		
Yes	17	18.2
No	76	81.8
Traditional		
Yes	21	22.5
No	72	77.5

Table 4.5b: Health seeking behaviour of respondents (N=328)

Variables	Frequency (N)	Percent (%)
Self-help		
Yes	38	40.8
No	55	59.2
Treatment options		
Pain relief		
Yes	38	11.5
No	290	88.5
Hormone drug		
Yes	16	17.2
No	77	82.8
Herbal medication		
Yes	9	9.6
No	84	90.4
Surgery		
Yes	3	3.2
No	90	96.8
Medication to postpone period		
Yes	2	0.6
No	326	99.4
Why		
To engage in activities	2	0.6
Not applicable	326	99.4
Coping strategies for monthly period		
Taking medications and a lot of water	3	2.1
Rest	11	7.7
Take tea	1	0.7
Eating	1	0.7
I do nothing	91	63.2
Take hot water	21	14.6
Exercise	7	4.9
Take a stroll	1	0.7
Hot baths	4	2.8
Reduce sugary foods	1	0.7
Hot pap	1	0.7
Take garlic	1	0.7
Get busy	1	0.7

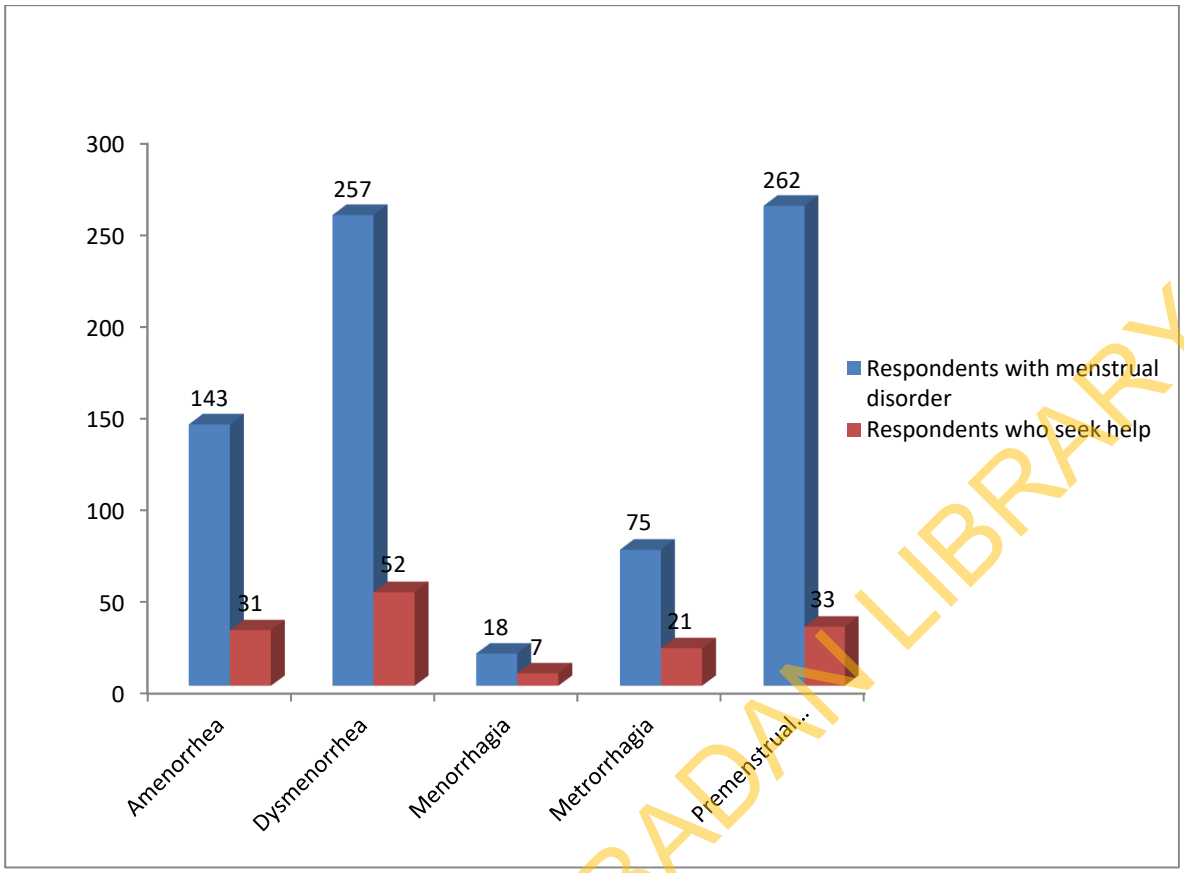

Figure 4.4: Number of respondents with menstrual disorders versus number of respondents who seek help

4.5 Test of hypotheses

4.5.1. Hypotheses 1

The null hypothesis states that there is no significant association between age (at menarche and last birthday) and prevalence of menstrual disorders. Fischer exact was used to test for association and the result is presented in Table 4.6.

Table 4.6: Association between age at menarche and prevalence of menstrual disorder (N=363)

Socio-demographic Variables	Prevalence of menstrual disorders Yes(%)	No(%)	X^2	Df	P-value
Age at menarche					
9-16	34	321	0.077	1	0.559*
17-25	7	1			

Age is grouped based on normal menarche and delayed (late) menarche

* Fischer exact

Since the p-value is greater than 0.05, therefore there is no significant association between age at menarche and the prevalence of menstrual disorders. Hence, we fail to reject the null hypothesis.

4.5.2. Hypotheses 2

The null hypothesis states that there is no significant association between level of study and knowledge of menstrual disorders. Fischer exact was used to test for association and the result is presented in Table 4.7

Table 4.7: Association between level of study and knowledge of menstrual disorders (N=363)

Variables	Knowledge of menstrual disorders			X^2	Df	P-value
Level of Study	Poor(%)	Fair(%)	Good(%)			
100	0	16	46			
200	0	14	69			
300	0	15	40	15.461	4	0.016*
400	1	19	54			
500	2	8	79			

*Fisher exact

Since the p-value is less than 0.05, therefore there is a significant association between level of study and knowledge of menstrual disorders. The higher level of study of the respondents, the greater their level of knowledge of menstrual disorders. Hence, we reject the null hypothesis.

4.5.3. Hypotheses 3

The null hypothesis states that there is no association between associated risk factors and prevalence of menstrual disorders. Chi-square and fischer exact was used to test for association and non regression significant p-values, the result is presented in table 4.8

Table 4.8a: Association between associated risk factors and prevalence of menstrual disorders (N=363)

Associated factors	**Prevalence of menstrual disorders**		**X^2**	**Df**	**P-value**
	Yes(%)	**No(%)**			
Does anyone in your family have any menstrual disorder?					
Yes	52	111			
No	92	108	7.458	1	0.006
Contraceptive use (birth control pills					
Yes	17	6			
No	127	213	12.032	1	0.001
If yes, which one					
Morning pills	0	2			
Postinor2	8	4			
Combination3	7	2			
Backup pills	1	0			
Implanon	1	0			
Not applicable	127	211	13.134	5	0.005*
Significant weight gain					
Yes	211	30			
No	117	5	6.482	1	0.011

*Fischer exact

Since the p-value is less than 0.05, therefore there is a significant association between family history, contraceptive use, significant weight gain **a**nd the prevalence of menstrual disorders. Hence, we reject the null hypothesis.

Table 4.8b Contraceptive use and prevalence of selected menstrual disorders (N=363)

Contraceptive use	Menstrual Disorder		X2	Df	P-value
	Amenorrhea				
	Yes(%)	**No(%)**			
Yes	24	316	15.071	1	0.000
No	7	16			
	Metrrohagia				
	Yes	**No**			
Yes	7	333	17.235	1	0.000
No	4	19			
	Menorrhagia				
	Yes	**No**			
Yes	66	274	5.110	1	0.024
No	14	9			

Since the p-value is less than 0.05, therefore there is a significant association between contraceptive use and prevalence of amenorrhea, metrorrhagia and menorrhagia. Hence, we reject the null hypothesis.

4.5.4. Hypothesis 4

The null hypothesis states that there is no significant association between level of knowledge of menstrual disorders and health seeking behaviour (actions). Chi-square/Fischer exact was used to test for association and the result is presented in table 4.9

Table 4.9: Association between knowledge of menstrual disorders and health seeking behaviour (N=363)

Health Seeking Behaviour	Level of knowledge			X^2	Df	P-value
	Poor(%)	Fair(%)	Good(%)			
Seek help (Menorrhagia)						
Yes	0	5	70	12.185	2	0.001*
No	3	67	218			
Seek help (Amenorrhea)						
Yes	1	12	118	15.944	2	0.000*
No	2	60	170			
Seek help (Chemist)						
Yes	0	4	50			
No	3	68	238	6.978	2	0.021*
Seek help (self help)						
Yes	1	20	123			
No	2	52	165	5.581	2	0.042*

Since the p-value is less than 0.05, therefore there is a significant association between behaviour towards getting relief from menorrhagia and amenorrhea, self-help and seeking help from chemist and the level of knowledge of the respondents with menstrual disorders. Hence, we reject the null hypothesis.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

Menstrual disorders are one of the common and major problems women face globally; even though could it interfere with daily activities of females menstrual disorders could also be an indication of a problem in the female reproductive system hence early diagnosis and management of these problems will improve sense of well being and quality of life which will also reduce risks of future ill health (Smitha, 2010). Decision on whether to seek help, where help is sought from and when help is sought is influenced by knowledge of menstrual disorders and their resultant effect on overall well being.

5.1.1 Socio-Demographics

The mean age at menarche of 12.9 years was close to similar studies including 13.6 years in South Western States Nigeria by Adebimpe et al., 2016, 13.7 years in Kano Nigeria by Iliyasu et al., 2012, 12.3 years in Hong Kong by Chann et al 2009 but younger when compared with 14.2 years reported by Esimai and Esan 2010 and 14.0 years in the study by Ekpeyong et al., 2011. Possibly the reduced age at menarche could be attributed to improved standards of living.

In this study, there was no statistically significant association between age at menarche and prevalence of menstrual disorder, this was contrary to a study by Ekpeyong et al., 2011 where age at menarche was significantly associated with prevalence of menstrual disorder. The reason for this result could be because not majority (only 2.2%) of the respondents has late menarche (≥17years) and also some other confounding variables like family history, use of contraceptives and so many others. Age at menarche is associated with the time needed to achieve regular ovulatory cycles; a younger age at menarche is associated with 50% ovulatory cycles after a year while older year at menarche is not associated with full ovulatory cycles for 8-12 years (Vihko & Apter 1984) hence a much later age at menarche is associated with menstrual disorders (Sadrzadeh et al., 2003).

5.1.2 Knowledge of Menstrual Disorders

In this study almost all the respondents are aware of menstrual disorders which is contrary to a report from systematic review on “Epidemiology of Menstrual Disorders in Developing Countries; A call for Health Education” documented by Harlow et al., 2003 where lack of awareness was reported. Also majority of the respondents in this study have good knowledge of menstrual disorders, this could be because of the nature of the environment (academic environment) where higher learning takes place and respondents are bound to get information

easily within themselves by interaction and use of internet. This reflected in the study findings that the highest source of information about menstrual disorders was interpersonal (family, friends) and media (internet). Hence increase in knowledge is expected to bring about positive health behaviour. The finding in this study corresponds with the adequate knowledge of dysmenorrhea among students in a private university, a study by Farotimi et al., 2015.

A significance test on respondents' level of study and knowledge of menstrual disorders showed that there was a statistically significant association between respondents' level of study and knowledge of menstrual disorders thus the higher there level of study, the more knowledge they have about these disorders.

5.1.3 Prevalence of Menstrual Disorders

The overall prevalence of menstrual disorders among female undergraduate students in University of Ibadan is high (90.4%) and similar to a 91% prevalence in a study by Nazish and Mona 2018 on the prevalence of menstrual problems and their association with psychological stress in young female students studying health sciences at Immam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia and also close to a prevalence of 80.7% reported among Lebanese nursing students. On the contrary, the prevalence of these disorders was higher than that of a study conducted among female undergraduate students of University of Uyo by Ekpenyong et al., 2011 where an overall prevalence of 34.6% was recorded.

The prevalence of dysmenorrhea, menorrhagia and metrorrhagia in this study was observed to be 70.8%, 20.7% and 5% this is less than that of a study conducted by Amu and Bamidele (2014) among adolescent girls in Osogbo where prevalence of dysmenorrhea was 77.8%, menorrhagia 57.4% and metrorrhagia 18.6%, this difference could be due to the fact that menstrual disorders are more common among younger females. Despite the high prevalence of menstrual disorders in this study, two-third of the respondents reported that they have their monthly period regularly. Abnormal cycle length occurred in 34.2% of the respondents contrary to 43% reported by Abdeltomy et al., (2015), 13.2% by Houston et al., (2006) and 37.2% by Lee et al., (2006), this disparity could be attributed to range of determination of normal cycle length used in these studies and other environmental factors as well . Days of period flow was normal in 84.3% of the respondents and abnormal in 15.7%; anaemia, contraceptive use, thyroid disease amongst others could be a cause of shorter menstrual flow while fibroids, bleeding disorders, obesity, thyroid disease amongst others could also be a cause of longer menstrual flow (Healthline, 2019). The most prevalent menstrual problem in this study is dysmenorrhea and premenstrual syndrome and this is similar to a study conducted by Fawole et al., 2009 among secondary school girls in

Ibadan and also supported with the conclusion made by Sivadasan et al., 2014 in his overview of menstrual disorders among students.

5.1.4 Associated Risk Factors of Menstrual Disorders

Most of the respondents have the associated risk factors of menstrual disorders like family history, significant weight gain, use of contraceptives, pelvic inflammatory disease, thyroid disorder, bleeding disorder, poor diet, circumcision and stress.

A significance test of associated risk factors and prevalence of menstrual disorders results thus; Family history of menstrual disorders was associated with prevalence of menstrual disorders; dysmenorrhea was the most prevalent menstrual disorders in the family and this was also seen in a study carried out by Muluken et al 2014 where he found out that respondents who have family history of dysmenorrhea were four times (4) more likely to develop dysmenorrhea compared to those who do not have family of dysmenorrhea, also supported by a study in Malaysia by Liliwati et al 2007 among secondary school students. There was a significant association between contraceptive use and prevalence of amenorrhea, metrorrhagia and menorrhagia, this is because contraceptives contain hormones which alter the female reproductive cycle.

Also significant weight gain was associated with prevalence of menstrual disorders. However, stress factor was not significant with the prevalence of menstrual disorders in this study though it has been implicated in the occurrence of menstrual disorders (amenorrhea, metrorrhagia, irregular menstrual cycle) as indicated by Cleveland Clinic 2015 unlike in the study conducted by Fawole et al 2009, Ekpenyong et al 2011 and Rafique *et al* 2018 where stress was strongly associated with menstrual disorders. The reason for this result could be due to some confounding variables like individual differences in stress adaptation, socio-economic background, genetics (WHO, 1998) and increased knowledge about menstrual disorders which could have facilitated prompt preventive and management practices. Circumcision was not significantly associated with presence of dysmenorrhea, this could be because of the type (degree) of circumcision that the respondents have undergone.

5.1.5 Health Seeking Behaviour

Respondents in this study used variety of measures to get relief from menstrual disorders, alarmingly greater percentage of respondents practice self-help when effective treatments for menstrual disorders exist; and this is also seen in studies conducted by Olowokere et al*.,* 2014 and Abdelmoty et al., 2015 where the most common form of management adopted by the respondents was self help. Aside seeking self help, most of the respondents also sought help from chemist (patent medicine vendors); it will not be out of place to say that some of these

vendors might not have the right knowledge (skills) to address the gynaecological needs of these females which also puts them (respondents) at risk. Most of the respondents do nothing, they just try to cope with the situation probably because they see it as a normal condition that they have to live with that way. Only 4.9% of the respondents use exercise as a means of relief contrary to 48% that exercised in a study by Olowokere et al., 2014. Only 0.7% used warm beverage, 11.5% pain relieve and 0% sleeping contrary to a study by Chia et al., 2013 where 67% use warm beverage, 57% use paracetamol, and 45% sleeping. None of the respondents stated that they have adjusted their diet in a bid to cope with their menstrual condition meanwhile diet adjustment should be a means of managing menstrual disorders given that significant weight gain was significantly associated with menstrual disorders.

A chi-square analysis of respondents' knowledge of menstrual disorders and health seeking behaviour showed a significant association, this implies that the higher the respondents level of knowledge the more they sought self help and help from chemist (patent medicine vendors) this contradicts the study by Farotimi et al., 2017 where there was no significant association between level of knowledge and behaviour of the respondents towards dysmenorrhea (regardless of the fact that they had adequate knowledge of dysmenorrhea).

5.1.6 Implications for Health Promotion and Education

The findings of this study generate information for action as regards implementing health promotion and education programs in view of tackling issues relating to menstrual abnormalities. Health promotion and education focuses on behaviour, systems, environment and policies which affect health at different levels. Health promotion entails enabling people increase control over their health in all spheres while health education comprises of different learning experiences put together to assist people improve their health by providing them with adequate information (knowledge) which will influence their behaviour towards better health, thus health education is a strategy in health promotion.

To effectively address these menstrual problems, different health promotion strategies are required which include creation of healthy policies, re-orientation of health services, creating supportive environment and development of inter-personal skills. These strategies can be put into place through advocacy, training, awareness campaign and behavioural change communication.

Advocacy

Advocacy is aimed at influencing favourable policies that promote health, ensuring that menstrual related disorders are given priority at health facilities and also made accessible and affordable. School health services should also come into play by ensuring a learning

environment which is health friendly and devoid of any form of stress. School feeding programmes can be considered even in higher learning to provide students with the adequate diet that is needed even in their tight schedules rather than relying on junks. It is also possible to create time for recreational activities and break time even in between lectures.

Training

Adequate training should be provided for health workers so that they can effectively address these menstrual disorders and also provide their clients with the right information on how to effectively manage their conditions and call for help when necessary.

Awareness campaign

Awareness campaign can be done to encourage women to speak out anytime they experience challenges with their reproductive health and to also enlighten the general public on the need to create supportive environment for females around them, letting them know that issues relating to menstruation is not a taboo to be discussed so that females can get the right support they need from families and friends rather than managing these conditions on their own.

Behavioural change communication

Behavioural change communication involves use of different methods to pass health information across to people, they include production of posters which can be placed in health facilities, handbills to be distributed to people, audiovisual communication by carrying out programmes or making advertisement on television, use of jingles and adverts on radio stations. Also health related issues can be incorporated in school curriculum which focuses more on healthy lifestyle, when and where to seek medical help when the need arises.

5.2 Conclusion

Although undergraduate students of University of Ibadan have good knowledge of causes/risk factors, consequences/resultant effects and management/treatment of menstrual disorders, yet menstrual disorders are highly prevalent among this population due to diverse factors. The prevalent menstrual disorders noted in this study are polymenorrhea (menstrual cycle length less than 24 days), oligomenorrhea (menstrual cycle length greater than 38 days), irregular menstrual cycle, abnormal menstrual blood flow, dysmenorrhea (painful menstruation), amenorrhea (absence of menstrual period), menorrhagia (heavy and prolonged bleeding), metroharrgia (bleeding between periods) and premenstrual syndrome while the two most occurring disorders are dysmenorrhea and premenstrual syndrome. Most of the respondents indicated to have the various associated risk factors of menstrual disorders while majority of those that experience

menstrual disorders did not seek help at all. Although there was no significant association between age at menarche and prevalence of menstrual disorders, but there was significant association between students' level of study and knowledge of menstrual disorders. Some of the associated risk factors of menstrual disorders (significant weight gain, contraceptives, family history) were significantly associated with the prevalence of menstrual disorders. Knowledge of menstrual disorders seem to influence the health seeking behaviour of the respondents; due to increased knowledge of menstrual disorders among the respondents, majority of those who sought help resorted to seeking help from chemist and self help (taking pain relief, drinking warm beverages, exercising, taking hot bath, sleeping and so many others).

Menstrual disorders are highly prevalent among younger females of child bearing age in our environment; the role of mass media (internet) in health education is very acknowledgeable but should not be used to substitute medical care in delicate health matters, thus appropriate medical help should be sought when the need arises.

5.3 Recommendations

In view of the findings of this study, the following recommendations are made:

1. Given that most of the respondents in this study and other previous studies who experience menstrual disorders resorted to self-help, there should be an increased awareness by students' representative units on the need to seek medical help so as to get adequate medical advice and care rather than relying on self help because self help could be dangerous and might not adequately address the health need for which it is used.
2. Associated risk factors of menstrual disorders being significantly associated with its prevalence calls for adoption of health promoting lifestyle in order to reduce the tendency of occurrence of these menstrual disorders which are as a result of unhealthy lifestyle.
3. Studies have shown that in the health sector less attention is paid to ameliorating complaints of women who present with menstrual disorders, thus health facilities should be made accessible for issues relating to menstruation as this could also be a reason why self help is the common source of help and proper attention given to ameliorate menstrual complaints of women who present themselves at the facility.
4. Prospective studies can consider measuring the quality of life for people experiencing menstrual disorders which was not considered in this study.

REFERENCES

Abdelmoty, H. I., Youssef, M. A., Abdallah S., Abdel-Malak, K., Hashish, N. M., Samir, D., Abdelbar, M., Hosni, A.N., Abd-El Ghafar, M., Khamis, Y and Seleem. M. 2015. Menstrual Patterns and Disorders among Secondary School Adolescents in Egypt. *BMC Women's Health.* 15-70.

Adebimpe, W. O., Farinloye, E. O and Adeleke, N. A. 2016. Menstrual Pattern and Disorders and Impact on Quality of Life among University Students in South Western Nigeria. *Journal of Basic and Clinical Reproductive Sciences*.

American College of obstetrics and Gynaecologists (ACOG). 2012. Abnormal Uterine Bleeding. Retrieved February 2019, from "www.acog.org/Patients/FAQs/Abnormal-Uterine Bleeding".

American College of obstetrics and Gynaecologists (ACOG). 2015. Menstruation in Girls and Adolescents: Using the Menstrual Cycle as a Vital Sign. *Obstet Gynecol* 126(6): 143-6. . Retrieved June 2019, from "https://emedicine.medscape.com/article/95394-treatment".

American College of obstetrics and Gynaecologists (ACOG). 2014. Primary Ovarian Insufficiency in Adolescents and Young Women. *Obstet Gynecol* 124(1): 193-7. Retrieved June 2019, from "https://emedicine.medscape.com/article/95394-treatment".

Amu, E. O and Bamidele, J. O. 2014. Prevalence of Menstrual Disorders among Adolescent Girls in Osogbo, South Western Nigeria . *Int J Adolesc Med Health* 26(1): 101-6.

Ajayi, A. 2019. Disorders of the Menstrual System and Remedies. Retrieved February 2019, from https://punchng.com/disorders-of-the-menstrual-system-and-remedies-1/amp/.

Cakir, M and Okten, A. 2007. A Menstrual Pattern and Common Menstrual Disorders among University Students in Turkey. *Pediatrics International* 49:938-942.

Chan, S. S., Yiu, K. W., Yuen, P. M., Sahota, D. S and Chung, T. K. 2009. Menstrual Problems and Health-Seeking Behaviour in Hong Kong Chinese Girls. Hong Kong *Med J* 15:18-23.

Chia, C. F., Lai, J. H. Y., Cheung, P. K., Kwonl, L. T., Lau, F. P. M., Leung, K.H, Leung, M.T., Wong, F.C.H and Ngu, S.F. 2013. Dysmenorrhea among Hong Kong University Students: Prevalence, Impact and Management. *Hong Kong Medical Journal* 19(3): 222-28.

Cleveland Clinic. 2015. Abnormal Menstruation (Periods). The Cleveland Clinic Foundation.

De Sanctis, V., Soliman, A., Bernasconi, S., Bianchin, L., Bona, G., Bozolla, M, Buz,i F., De Sanctis, C., Tonini, G., Rigon F., and Perissinitto, E. 2015 Primary Dysmenorrhea in Adolescents: Prevalence, Impact and Recent Knowledge. *Pediatric Endocrinology Rev*. 2015 December (2): 512-20.

Ekpeyong, C. E, Davis, K. J, Akpan, U. P and Daniel, N. E. 2011. Academin Sress and Menstrual Disorders amongFemale Undergraduates in Uyo, South Eastern Nigeria- the need for health education. Niger J. Physiol. Sci 26: 193-198.

El-Gilany, A. H, Badawi, K and El-Fedawy, S. 2005. Epidemiology of Dysmenorrhea among Adolescent Students in Mansoura Egypt. *Eastern Mediterrean Health Journal* 11(1/20; 155-163.

Eyitope, O., Amu, E. O and Bamidele, J. O. 2014 Prevalence of Menstrual Disorder among Adolescent Girls in Osogbo, South Western Nigeria. International Journal of Adolescent Medicine and Health. 26(1):101-6.

Esimai, O. A. and Esan, G. O. O. 2010. Awareness of Menstrual Abnormality among College Students in Urban Area of Ile-Ife, Osun State, Nigeria. Indian Journal of Community Medicine. 35(1): 63-66.

Fawole, A. O., Babarinsa, I. A., Fawole, O. I , Obisesan, K. A., Ojengbede, O. A. 2009. Menstrual characteristics of secondary school girls in Ibadan, Nigeria. *West African Journal of Medicine.*

Farotimi, A. A., Esike, J., Nwozichi. U. C., Ojediran, D. T and Ojewole, F. O. 2015. Knowledge, Attitude and Health-Seeking Behaviour towards Dysmenorrhea among Female Students of a Private University in Ogun State, Nigeria. Journal of Clinical and Basic Reproductive Sciences 4(1): 36

Fekr, L. Z., Zadeh, T. A., Moghadam, Salehian, M. H. 2012. Comparism of Disorders, Menstrual Frequency between Athlete and Non-Athlete University Students. *European Journal of Experimental Biology* 2(4):944-47.

Glanz, K., Rimer, B. K and Lewis, F. M . 2002. Health Behavior and Health Education: Theory, Research and Practice 3. Jossey-Bass, San Francisco, CA.

Gordey, L. B., Lemaster, G., Sippson, S. R and Yiin, J. H. 2000. Mesnstrual Disorders and Occupational Stress and Racial Factors among Millitary Personnel. Journal of Occupational and Environmental Medicine 42: 871-81.

Hajaratu, U. S, Ameh N, Adesiyun A. G, Ozed-Williams, I. C, Ojabo, A. O, Avidime S, Enobun N. E., Yusuf, A and Muazu, A. 2013. Age at Menarche and Prevalence of Menstrual Abnormalities among Adolescents in Zaria. *Ann Nigerian Med, Zaria*.Vol 7: 66-70.

Harlow, S. D and Campbell O. M. R. 2003. Epidemiology of menstrual Disorders in Developing Countries: a Systematic Review. International Journal of Obstetrics and Gynaecology 111:1.

Hertwerck, P and Yoost, J. 2010. Common problems in Pediatric and Adolescent Gynaecology. Expert Review of Obstrectics and Gynaecology.

Hickey, M and Balen, A. 2003. Menstrual Disorders in Adolescents: Investigation and Management. Department of Obstetrics and Gynaecology, School of Women and Infants Health University of Western Australia. Human Reproduction Update Vol 9.

Hickey, M and Lester, S. 2003. The Management of Menstrual Disorders in Early Reproductive Life. Review of Obstrectics and Gynaecology 5:136-41.

Houston, A. M., Abraham, A., Haung, Z and D'Angelo, I. J. 2006. Knowledge, Attitude and Consequences of Menstrual Health in UrbanAdolescent Females. *Journal of Pediatric Adolecents, Gynecology* 19(4):271-5.

Ibanez, L., Lopez-bermejo, A., Diaz, M., Marcos, M. V and Zegher, F. 2011. Early Metformin Therapy in Girls (age 8-12years) with Precocious Pubarche to reduce Hirsutism, Androgen Excess and Oligomenorrhea in Adolescence. *Journal of Clinical Endocrinology and Metabolism.* 96:E1262-27.

Iliyasu, Z., Galadanci, H. S, Abubakar I. S., Ismail, A. O and Aliyu M. H. 2012. Menstrual Patterns and Gynecologic Morbidity among University Students in Kano, Nigeria. *J Pediatr Adolesc Gynecol* 25:401-6

JoAnn V. and Pinkerton. 2017. *Overview of Menstrual Disorders*; MSD (Merck Sharp & Dohme Corp.,) Manuals. A subsidiary of Merck & Co.,Inc Kenilworth, N J, USA.

Karout, N., Hawai, S.M and Altuwajiri, S. 2012. Prevalence and Pattern of Menstrual Disorder among Lebanese Nursing Students. *Eastern Mediterranean Health Journal*. Vol 18:4

Karout, N. 2015. Knowledge and Beliefs regarding Menstruation among Saudi Nursing Students. *Journal of Nursing Education and Practice.* Vol 6:1

Kadir, R. A, Edlund, M. and Von-Mackensen, S. 2010. The Impact of Menstrual Disorders on Quality of Life in Women with Inherited Bleeding Disorders. Haemophilia 6:832-839.

Karout, N., Hawai, S.M and Altuwajiri, S. 2012. Prevalence and Pattern of Menstrual Disorder among Lebanese Nursing Students. *Eastern Mediterranean Health Journal.* Vol 18:4

Kavitha, C and Jamuna, B. I. 2013. A Study of Menstrual Distress Questionnaire in First Year Medical Students. *International Journal of Biological and Medical Research* 4(2):3192-95.

Kirsten, J. S. 2017. Menstruation Disorders in Adolescents: Background, Pathophysiology and Etiology. Medscape.

Kissling, E. A. 2002. On the Rag on Screen: Menarche in Film and Television. Sex Roles, Vol 46(1):5-12.

Kullima, A. A, Ibrahim, S. M, Isa, B., Usman, A., Mairiga, A. G and Kawuwa, M. B. 2017. Prevalence and Associated Risk Factors for Menstrual Disorders among Undergraduate Students in Borno State Nigeria. *Journal of Advances in Medicine and Medical Research* 22(6):1-7.

Latthe, P., Mignini, L., Gray, R and Hills, R. 2006. *Factors Predisposing Women to Chronic Pelvic Pain*: Systematic Review. BMJ 332(7544):749-55.

Lee, L.K., Chen, P.C., Le, K.K and Kaur, J. 2006. Menstruation among Adolescent Girls in Malaysia: A Cross Sectional Survey. *Singapore Med J*. 47(10): 869-74

Liliwati, I., Verna, L.M and Khairani, O. 2007. *Dysmenorrhea and its Effects on Social Activities among Adolescent Girls in a Rural School in Selangor, Malaysia*. Med & Health 2(1): 42-7.

MacKian, S. 2003. A Review of Health Seeking Behaviour: Problems and Prospects. Health System Development Programme.

Mohite, R. V and Mohite, V. R. 2013. Correlates of Menstrual Problem among Rural College Students of Satara District. *Al Ameen Journal of Medicine Science*. 6(3):213-18.

Muluken, T. S., Mamo, W and Desalegn, T. 2014. Menstrual Problems and Associated Factors among Students of Bahir Dar University, Amhara National Regional State, Ethiopia. *The Pan African Medical Journal* - ISSN 1937-8688.

Munro, M. G., Critchley, H. O., Broder M. S., Fraser, I. S. 2011. FIGO Classification System (PALM-COEIN) for causes of Abnormal Uterine Bleeding in Non-Gravid Women of Reproductive Age. *International Journal Gynaecololgy Obstetrics* 113(1):3-13.

Nazish, R and Mona, H. A. 2018. Prevalence of Menstrual Problems and their Association with Psychological Stress in Young Female Students Studying Health Sciences at Immam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia. *Saudi Medical Journal* 39 (1): 67-73.

Nooh, A. M., Abdul-Hady, A and El-Attar, N. 2016. Nature and Prevalence of Menstrual Disorders among Teenage Female Students at Zagazig, Egypt. *Pediatric Adolescent Gynecology* 29 (20:137-42.

Nordqvist, C. 2018. What is Amenorrhea? Retrieved July 2019 from www.medicalnewstoday.co/articles/215776.php.

Nwakwo, T. O, Aniebue., U. U and Aniebue, P. N. 2010. Menstrual Disorders in Adolescent School Girls in Enugu, Nigeria. *Journal of Pediatric Adolescent Gynecology*, 23(6):358-63.

Olenja, J. 2004. Editorial: Health Seeking Behaviour in Context. East African Journal 61-62. www.ajol.info>download.

Olowokere, A. E., Ogini, M. O., Olajubu, A., William A. E and Irinoye, O. 2014. Menstrual Disorders: Implications on health and academic activities of female undergraduates in a Federal University in Nigeria. *Journal of Nursing Education and Practice.* 4:5.

Omidvar, S. H and Begum, K. H. 2011. Menstrual Pattern among Unmarried Women from South India. *J Nat Sci Bio Med* 2(2):174-179.

Rafique, 2018. Prevalence of Menstrual Problems and their Association with Psychological Stress in Young Female Students studying Health Sciences in Saudi Arabia. *Saudi Medical Journal* 1:214-38.

Sadrzadeh, S., Klip, W. A., Broekmans, F. J, Schats, R., Willemsen, W. N, Burger, C. W, Van-Leeuwen, F. E and Lambalk, C. B. 2003. Birth Weight and Age at Menarche in Patients with Polycystic Ovary Syndrome or Diminished Ovararian Reservein a Retrospective Cohort. *Hum Reprod* 18(10):2225-30.

Sivasdasan, S., Ali, A. N., Marimuthu, K., Nazer, Z. A., Chigurupati, S. and Veerasamy, R. 2014. Menstrual Disorders among Students: An Overview. *Research J. Pharm. And Tech* 7(6):704-711.

Smitha, M. 2010. Contributing factors to Irregular Menstruation. Rajiv Gandhi University of Health Sciences Karnataka, Bengalaru. Annexure-II.

Summa Health Issues. 2018. Women's Health/ OB-GYN: Menstrual Disorders. www.summahealth.org/medicalservices/womens/aboutourservices/gynaecological-services/menstrualdisorders.

Symonds, E. M. and Symonds L. M. 2004. Essential Obstetrics and Gynaecology. UK Churchill Livingstone.

Vihko, R. and Apter, D. 1984. Endocrine Characteristics of Adolescent Menstrual Cycles: Impact of Early Menarche. *J Steroid Biochem* 20(1):231-6

Warner, P., Critchley, H. O. D, Lumsden, M. A, Campbell-Brown, M., Douglas, A. and Murray, G. 2001. Referral for Menstrual Problems: Cross Sectional Survey of Symptoms, Reasons for Referral and Management. *BMJ* 323 (7303): 24-28.

William, H. and Parker, M.D. 2019. Menstrual Disorders. Retrieved Feb 2019, from "www.healthywomen.org/condition/menstrual-disorders?amp"

World Health Organization. 1998. Meeting on Stress and Adaptation: from Seleye's Concept to Application of Modern Formulations, held in Montreal, Canada, 21-23.

Youngson, R. M. 2018. Collins Dictionary of Medicine. Menstrual Disorders

Appendices

Appendix 1

Informed consent form

Title of Research: Prevalence of Menstrual Disorders and Health Seeking Behaviour among Female Undergraduate Students of University of Ibadan, Ibadan.

Name and affiliation of researcher of applicants: This study is being conducted by Igbokwe Udoka Carol of the Department of Health Promotion and Education Faculty of Public Health, College of Medicine, University of Ibadan.

Purpose of Research: The purpose of this study is to Investigate the Prevalence of Menstrual Disorders and Health Seeking Behaviour among Female Undergraduate Students of University of Ibadan, Ibadan

Procedure of the research, what shall be required of each participant and approximate total number of participants that would be involved in the research: A total of 381 female undergraduate students from University of Ibadan will be recruited for this study using a three stage sampling technique. This study will employ quantitative method of data collection using self administered semi structured questionnaire. Information will be elicited from the respondents using interviewer questionnaire. You will be required to supply the necessary information that will be used for the purpose of this study by filling the questionnaire.

Risk(s): The research does not require collection of invasive materials, therefore safety of participants is guaranteed.

Costs to participants: Your participation in this research will not cost you anything.

Benefit(s): The goal of this research is to know the frequently experienced menstrual disorders among female undergraduate students and how they manage it. Although there are no direct and immediate benefits to participants, the information gathered from this study can be used to make necessary recommendations to improve quality of life of females who experience any kind of menstrual disorder.

Confidentiality: Information collected from this study will have no name or any kind of identifier thus cannot be linked to you in any way. Neither will your name reflect in the publication. The information gotten would be stored properly with limited access to unauthorized personnel.

Voluntariness: Your participation in this research is entirely voluntary; however, a student who feels uncomfortable with any of the questions asked may leave such questions unanswered.

Statement of person obtaining informed consent:

I have fully explained this research to ……..…… and have given sufficient information, including about risks and benefits, to make an informed decision.

DATE……..SIGNATURE……..

NAME……

Statement of person giving consent

I have read the description of the research and I understand that my participation is voluntary. I know enough about the purpose, methods, risks and benefits of the research to agree that I want to partake in it. I understand that I may freely stop being part of this study at any time. I have received a copy of this consent form and additional information sheet to keep for myself.

DATE……..SIGNATURE……..

NAME…….

RESEARCH QUESTIONNAIRE

I am a Masters student in the department of Health Promotion and Education, Faculty of Public Health, College of Medicine University of Ibadan carrying out a research on PREVALENCE OF MENSTRUAL DISORDERS AND BEHAVIOUR (ACTIONS) TOWARDS GETTING RELIEF AMONG FEMALE UNDERGRADUATE STUDENTS OF UNIVERSITY OF IBADAN, OYO STATE NIGERIA. Please, kindly comply with me and give the information needed in this questionnaire, as it does not require your name or address and the information given is confidential and will not be used against you in any form, it is solely for research purpose. Thank you for your cooperation.

SECTION 1 (RESPONDENTS INFORMATION/DATA)

1. Age at last birthday ☐
2. Age at menarche (beginning of menstruation) ☐
3. Marital status Single ☐ Married ☐
4. Religion Christian ☐ Muslim ☐ Others (specify) _____
5. Ethnicity Ibo ☐ Yoruba ☐ Hausa ☐ Others (specify) _____
6. Students hall of residence Obafemi Awolowo ☐ Queen Elizabeth ☐ Queen Idia ☐
7. Students department of study _____
8. Students faculty of study _____
9. Students level of study _____

SECTION 2 (RESPONDENTS KNOWLEDGE OF MENSTRUAL DISORDERS)

Instruction: Tick either Yes, No or I don't know and also fill the spaces provided where necessary

S/N	Questions (Multiple choice is allowed)	Yes	No	I don't know
10.	Have you heard about menstrual disorders?			
	If yes, where or from who?			
11.	What are the types of menstrual disorder you know? (Tick yes for the ones you know)			
	i. Amenorrhea (absence of period)			
	ii. Dysmenorrhea (painful menstruation)			
	iii. Metrorrhagia (bleeding between period)			
	iv. Menorrhagia (heavy and prolonged bleeding)			

	v. Premenstrual syndrome (several signs and symptoms before monthly period comes e.g headache, dizziness, loss of appetite, painful/heavy breast e.tc)			
S/N	**Questions (Multiple choice is allowed)**	**Yes**	**No**	**I don't know**
12.	What is the cause (s) of menstrual disorder?			
	i. Contraceptive use			
	ii. Eating disorder			
	iii. Family history of Menstrual disorder			
	iv. Too much weight gain			
	v. Too much weight loss			
	vi. Stress			
	vii. Strenuous exercise			
13.	Do you think menstrual disorder can be treated?			
14.	If yes, which of them?			
	i. Amenorrhea (absence of period)			
	ii. Dysmenorrhea (painful menstruation)			
	iii. Metrorrhagia (bleeding between period)			
	iv. Menorrhagia (heavy and prolonged bleeding)			
	v. Pre-menstrual syndrome (several signs and symptoms before monthly period comes e.g headache, dizziness, loss of appetite, painful/heavy breast e.tc)			
15.	How do you think it can be treated?			
	i. Taking medication			
	ii. Doing exercise			
	iii. Medical Surgery			
	iv. Taking rest			
	v. Eating well (good nutrition)			
16.	What is (are) the effects of menstrual disorders?			
	i. Infertility			
	ii. Lack of concentration			
	iii. Absenteeism from school			
	iv. Low productivity			
	v. Poor academic performance			

SECTION 3 (RESPONDENTS MENSTRUAL HISTORY I.E (PREVALENCE OF MSD)

17. Which of the menstrual disorders do you experience? Amenorrhea (absence of period) ☐ Dysmenorrhea (painful period) ☐ Metrorrhagia (bleeding between period) ☐ Menorrhagia (heavy and prolonged bleeding) ☐ Premenstrual syndrome (several signs and symptoms before monthly period e.g headache, loss of appetite, nausea, vomiting, painful breast e.tc) ☐
18. How many days does your monthly period flow? <2 days 2-7days ☐ >7days ☐
19. What is the length of your monthly cycle? < 24 days ☐ 24- 38 days ☐ >38days ☐
20. How heavy is your period? Light ☐ Moderate ☐ Heavy ☐ Very heavy ☐
21. How often do have your monthly period? Regularly ☐ Irregularly ☐
22. Do you have bleeding between periods (Metrorrhagia)? Yes ☐ No ☐
23. Have you ever missed your monthly period in a cycle (Amenorrhea)? Yes ☐ No ☐
24. If yes, how long did it take it to return? E.g few days, 1week, 2months e.tc _____
25. Do you have abdominal cramps (pain) during your period (Dysmenorrhea)? Yes ☐ No ☐
26. Underline the premenstrual syndrome(s) you experience before your monthly period. Abdominal pains, mood swing, loss of appetite, headache, dizziness, vomiting, none of them

SECTION 4 (RESPONDENTS INFORMATION ON ASSOCIATED RISK FACTORS)

27. Who in your family experiences or experienced any type of menstrual disorder? Mother ☐ Sister ☐ Aunty ☐ Cousin ☐ None ☐ I don't know ☐
28. Which type? Amenorrhea (absence of period) ☐ Dysmenorrhea (painful period) ☐ Metrorrhagia (bleeding between period) ☐ Menorrhagia (heavy and prolonged bleeding) ☐ Premenstrual syndrome (several signs and symptoms before monthly period e.g headache, loss of appetite, nausea, vomiting, painful breast e.tc) ☐
29. How regularly do you do physical exercise e.g running, jogging, skipping e.t.c? Once in a while ☐ Daily ☐ Weekly ☐ Monthly ☐
30. Have you experienced very significant weight loss? Yes ☐ No ☐ Not sure ☐
31. Have you experienced very significant weight gain? Yes ☐ No ☐ Not sure ☐
32. Have you ever used any form of contraceptive (birth control pill)? Yes ☐ No ☐
33. If yes, which one _____
34. Have you been on any kind of medication for a long time? Yes ☐ No ☐

35. If yes, specify medication _____ ailment _____
36. Which of these illness(s) do you experience or have ever experienced? Pelvic Inflammatory Disease ☐ Bleeding disorder ☐ Thyroid disorder ☐ None of the above ☐ Others, specify _____
37. Have you ever been circumcised? Yes ☐ No ☐
38. How regularly do you eat doughnuts, eggrolls, meat pie, puff puff, ice cream, fries, soft drinks? Once in a while ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ Everyday ☐
39. How regularly do you eat dietary fibre e.g vegetables, fruits? Once in a while ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ Everyday ☐
40. Have you undergone or undergoing a very stressful situation e.g emotional stress, academic stress, financial stress, lack of sleep (you can underline if you wish)? No ☐ A little ☐ Very much ☐

SECTION 5 (BEHAVIOUR TOWARDS GETTING RELIEF FOR MENSTRUAL DISORDERS)

Instruction: Tick either Yes or No and also fill the spaces provided where necessary

S/N	Question (Multiple choice is allowed)	Yes	No
42.	Which of the menstrual disorder(s) have you sought help for?		
.	i. Amenorrhea (absence of period)		
	ii. Dysmenorrhea (painful menstruation)		
	iii. Metrorrhagia (bleeding between period)		
	iv. Menorrhagia (heavy and prolonged bleeding)		
	v. Premenstrual syndrome (several signs and symptoms before monthly period comes e.g headache, dizziness, loss of appetite, painful/heavy breast e.tc)		
43.	Where?		
	i. Hospital		
	ii. Chemist		
	iii. Pharmacy		
	iv. Traditional		
	v. Self help		

44.	What type of treatment have you taken?		
	i. Pain killer e.g paracetamol, felvin, ibuprofen		
	ii. Hormone drug e.g progestin, menstrogen		
	iii. Herbal medication		
	iv. Surgery		
	v. Others, specify		
45.	Have you taken medications to post pone period?		
	If yes, why		
46.	Please state what else you do to cope during your monthly period outside seeking medical help e.g drinking hot water, exercise, hot bath e.t.c.		

Appendix II

Ethical Approval Letter

INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
College of Medicine, University of Ibadan, Ibadan, Nigeria.
Director: **Prof. Catherine O. Falade,** MBBS (Ib), M.Sc., FMCP, FWACP
Tel: 0803 326 4593, 0802 360 9151
e-mail: cfalade@comui.edu.ng lillyfunke@yahoo.com

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Prevalence of Menstrual Disorders and Behaviour (Actions) towards Getting Relief among Female Undergraduate Students of University of Ibadan, Oyo State, Nigeria

UI/UCH Ethics Committee assigned number: UI/EC/19/0256
Name of Principal Investigator: **Udoka C. Igbokwe**
Address of Principal Investigator: Department of Health Promotion & Education
College of Medicine
University of Ibadan, Ibadan

Date of receipt of valid application: 08/07/2019
Date of meeting when final determination on ethical approval was made: **19/09/2019**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **19/09/2019 to 18/09/2020.** If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the* UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC at least four weeks before the expiration of this approval in order to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

UI/UCH EC
19 SEP 2019
APPROVED
COLLEGE OF MEDICINE, U.I.

Professor Catherine O. Falade
Director, IAMRAT
Chairperson, UI/UCH Ethics Committee
E-mail: uiuchec@gmail.com