

**A SURVEY ON KNOWLEDGE AND AWARENESS OF DYSMENORRHEA  
AMONG THE FEMALE STUDENTS OF EAST WEST UNIVERSITY**

*A dissertation submitted to the Department of Pharmacy, East West University, in partial fulfillment of the requirements for the degree of Bachelor of Pharmacy.*

**Submitted By**

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## **DECLARATION BY THE CANDIDATE**

I, Fariha Ahmed Chandrima, hereby declare that this dissertation, entitled “A SURVEY ON KNOWLEDGE AND AWARENESS OF DYSMENORRHEA AMONG THE FEMALE STUDENTS OF EAST WEST UNIVERSITY” submitted to the Department of Pharmacy, East West University, in the partial fulfillment of the requirement for the degree of Bachelor of Pharmacy (Honors) is a genuine & authentic research work carried out by me. The contents of this dissertation, in full or in parts, have not been submitted to any other institute or University for the award of any degree or Diploma of Fellowship.

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## **CERTIFICATION BY THE SUPERVISOR**

This is to certify that the dissertation, entitled “A SURVEY ON KNOWLEDGE AND AWARENESS OF DYSMENORRHEA AMONG THE FEMALE STUDENTS OF EAST WEST UNIVERSITY” is a bonafide research work done by Fariha Ahmed Chandrima (ID: 2013-3-70-006), in partial fulfillment of the requirement for the degree of Bachelor of Pharmacy.

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## **ACKNOWLEDGEMENTS**

All praise is for Almighty for all the bounties granted to me and only with his guidance and help this achievement has become possible.

It is my pleasure and proud privilege to express my heartiest regards and gratitude to my respected teacher and supervisor **Nafisa Tanjia**, Senior Lecturer, Department of Pharmacy, East West University, for her expert supervision, constructive criticism, valuable advice, optimistic counseling, constant support & continuous backup and encouragement throughout every phase of the project as well as to prepare this dissertation.

I would also like to put forward my most sincere regards and profound gratitude to **Dr. Chowdhury Faiz Hossain**, Professor & Chairperson, Department of Pharmacy, East West University, for giving me the opportunity to conduct such an interesting project and for facilitating a smooth conduction of my study.

I owe special thanks to my friends for their immense support.

Last but not the least, I would like to thanks my family for their care and encouragement during my research work.

*This Research paper is  
Dedicated To my Beloved Parents*

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## **Abstract**

Dysmenorrhea is the most common gynecological disorder in women of reproductive age. It is the occurrence of painful cramps during menstruation. The study aims to examine the level of awareness among the educated portion of female population and to investigate knowledge among female students of different study background about signs & symptoms, risk factors, lifestyle modification, and treatment of Dysmenorrhea, to evaluate their perception towards Dysmenorrhea, to assess potential risk factors among the subjects and to determine the level of health concern and attitude to doctor consultation of the subjects. The study was carried out on 300 students of East West University studying in different departments. University Female students aged between 18-26 years old, studying in any department. Male students are excluded from the survey. The duration of the study was about five months that started from June, 2017 up to November, 2017. Among of all the participants 40% of participant said that they had knowledge about dysmenorrhea and 60% of them reported that they didn't have knowledge about dysmenorrhea. Around 87% of the population thought that it's manageable, 9% of them thought that it's not curable and 4% of them thought that that it's a fatal disease.

Among all of the participants 10% had emotional disturbances, 4% had leg cramps, 4% had irritability, 10% had stress, 10% had restlessness, 2% faced fatigue, 7% of them faced sleep problem, 6% had headache, 14% had physical discomfort, 9% had bloating in the belly, 1% had constipation, 1% had diarrhea, 3% had vomiting, 5% had nausea, 4% had dizziness and 12% faced abdominal cramps. From this study we see that, the level of knowledge about Dysmenorrhea is not enough. We consider it is necessary to improve knowledge about Dysmenorrhea and upgrading the current health care curricula.

Key words- Dysmenorrhea, menstruation, risk factors, gynecological disorder.

# **Chapter-1**

## **Introduction**

# 1.Introduction

## 1.1. Overview

Dysmenorrhea is the most common gynecologic complaint among adolescent and young adult females. It may begin soon after the menarche, after which it often improves with age; or it may originate later in life, after the onset of an underlying causative condition. Dysmenorrhea is common, and in up to 20% of women it may be severe enough to interfere with daily activities (Jones et al. 2014).

It is the most common gynecological disorder in women of reproductive age. It means that women have cyclical abdominal pain, which is experienced before, during or after the menstruation. Menstrual pain will take the form of cramping, lower abdominal pain, lower back pain or a pulling sensation in the inner thighs. Pain is often accompanied by headaches, dizziness, vomiting, nausea, diarrhea or constipation (Sciencedirect, 2015).

Dysmenorrhea is the medical term for pain with menstruation. There are two types of dysmenorrhea: "primary" and "secondary" (Cleveland Clinic, 2017).

A range of risk factors for dysmenorrhea have been identified, in general, increased severity of dysmenorrhea has been suggested to relate to age, smoking, higher body mass index, earlier age at menarche, longer and heavier menstrual flow, and family history of dysmenorrhea. (Mishra et al, 2013).

Dysmenorrhea causes extensive personal and public health problems and severe economic loss. Dysmenorrhea is the most common cause of missed school and work time by females, estimated at more than 140 million lost hours per year. Dysmenorrhea of varying severity accompanies 20–90% of adolescent menstrual cycles. The prevalence of primary dysmenorrhea increases with adolescent gynecological age (i.e., time since menarche) due to its association with ovulatory cycles (see following discussion), peaks at age 17 years, and decreases with parity. Severe dysmenorrhea that significantly interferes with function 1–3 days per month affects 5–42% of adolescents and is more likely be primary than secondary in origin (Sciencedirect, 2017)

Nonsteroidal anti-inflammatory drugs are the initial therapy for managing dysmenorrhea. Except this, the use of topical heat; herbal remedy; thiamine, vitamin E, and fish oil supplements; a low-fat vegetarian diet; and acupuncture also help to reduce pain (Linda, 2015)

## 1.2. Menstrual Period

It is a natural phenomenon which occurs throughout the reproductive years of every woman. It is the monthly series of changes a woman's body goes through in preparation for the possibility of pregnancy. Each month, one of the ovaries releases an egg — a process called ovulation. At the same time, hormonal changes prepare the uterus for pregnancy. If ovulation takes place and the egg isn't fertilized, the lining of the uterus sheds through the vagina. This is a menstrual period. Most females experience certain degree of pain, physical discomfort, irritability, abdominal cramps and distress during their menstruation (Gebeyehu et al., 2017).

### 1.2.1. Colors of Menstrual Period

Different colors of blood appearing during period, in many cases this is quite normal:

**Bright red blood** – Bright red blood is the regular blood that will last for the majority of period. It means that this blood has been recently shed from the lining of womb.

**Dark brown blood** – Dark brown looking blood is observed nearer the end of period. This is just older blood. Sometimes if period is very light, or first thing in the morning, the blood may have been stored in uterus for longer before being shed.

**Clear** – Period may be red but flecked with a clear liquid, this is just vaginal discharge which is perfectly normal.

**Orange, yellow or green** – This might suggest fluids have leaked from elsewhere in the uterus rather than just the regular lining or have some sort of infection. It might be worth visiting the doctor if this persists.

**Pink or grey** – This could be a sign that passing some sort of tissue or having a miscarriage, again a visit to doctor is advised if this is the case (A.vogel, 2015).



Figure 1.1- Different colors of menstrual period

### 1.2.2. Textures of Menstrual Period

Different textures may also appear which is often nothing to worry about:

**Thin** – Thin blood is expected and this type usually appears with light to moderately heavy periods

**Lumpy** – Lumpy periods are often nothing to worry about as it is a common feature in slightly heavier periods. The lining of womb which is breaking down to give period is quite thick, and normally as bleed, body releases anti-coagulant chemicals to thin this material and prevent blood clots. However, in very heavy periods body struggles to keep up and end up passing these clots of blood. However, if the lumps are other colors other than red (such as pink or grey), have a solid consistency or the clumps are very frequent and associated with pain or other symptoms, be sure to pay a visit to the doctor as it could be a sign of something else such as fibroids or a miscarriage.

**Slimy** – Slippery or slimy blood usually suggest that period is simply mixed with some regular vaginal secretions and is also normal. Again, if this is accompanied by other colors other than red it might be worth getting checked (A.vogel, 2015).

### 1.2.3. Classification of Menstrual Period

Generally periods can be split into different classes as follows:

**Heavy** – Heavy periods, also called menorrhagia, is usually when a woman loses more than 60ml of blood in each period (over 3 tablespoons). Heavy periods can be normal for some women but they can be inconvenient and there may be an underlying cause – this may help better manage the symptoms.

**Painful** – Periods are often accompanied by some degree of period pains, often referred to as ‘period cramps’. However, the degree of pain experienced can vary greatly between different women.

**Irregular** – Although on average women have a period every 28 day, this can vary and many women have a shorter cycle (often means they are heavier and occur more often) or a longer cycle with lighter period.

**Missed** – Missing a period can happen for a number of reasons; it doesn’t always indicate pregnancy, although it’s often best to consider this possibility first.

**Abnormal Periods** – Possible reasons for abnormal periods can include:

- **Fibroids** – Fibroids are non-cancerous tumors made from muscle and fibrous tissue that form in the womb. In many cases fibroids are asymptomatic but often they can give rise to very heavy, painful periods.
- **Miscarriage** – A miscarriage is the loss of a pregnancy during the first 23 weeks. Especially in the early stages of pregnancy, a miscarriage can be mistaken for a particularly heavy, painful period.
- **PMS** –Premenstrual syndrome, or PMS, involves a range of physical, mental and behavioral symptoms which women often suffer in the week or two in the lead up to their periods. Women often considered to have PMS when their symptoms affect their day-to-day living and quality of life although diagnosis is not straight forward
- **Endometriosis** –It is when small sections of the womb end up outside this area, for example in the fallopian tubes, ovaries or vagina. Endometriosis often gives rise to painful, heavy periods.
- **PCOS**- Polycystic ovary syndrome is when a woman’s ovaries are enlarged and contain small, fluid-filled sacs. This can affect the release of eggs each month and can therefore affect fertility. In many cases, it also results in an imbalance of hormones and irregular periods
- **Menopause** – After having gone for a year or more without a period, it has reached menopause. However, in the lead up to the menopause periods can become irregular and many people experience very heavy and erratic periods

**Medication** – Many types of medication can affect periods. The contraceptive pill is one of the most obvious ones and depending on the type of pills, menstrual periods can become very light or even stop completely. Other medication such as antidepressants can also have an impact on your hormones and affect periods (Medbroadcast, 2016).

### **1.3. Menstrual Cycle**

The monthly cycle of changes in the ovaries and the lining of the uterus (endometrium), starting with the preparation of an egg for fertilization. When the follicle of the prepared egg in the ovary breaks, it is released for fertilization and ovulation occurs. Unless pregnancy occurs, the cycle ends with the shedding of part of the endometrium, which is menstruation. Although it is actually the end of the physical cycle, the first day of menstrual bleeding is designated as "day 1" of the menstrual cycle in medical parlance (MedicineNet, 2017).



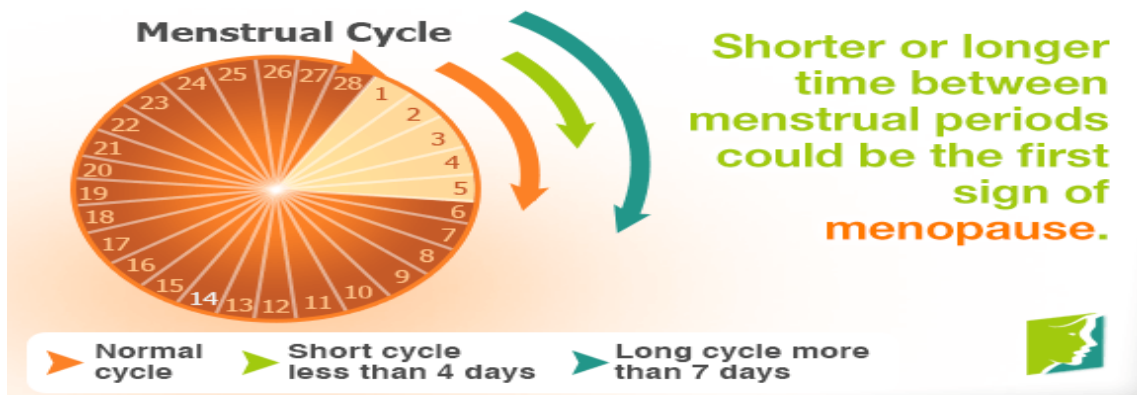


Figure 1.2- Menstrual Cycle

### 1.3.1. Phases of Menstrual cycle

The day count for menstrual cycle begins on the first day of menstruation when blood starts to come out of the vagina. In this section, the length of menstrual cycle has been assumed to be 28 days (which is the average among women). The entire duration of a Menstrual cycle can be divided into four main phases:

Menstrual phase (From day 1 to 5)

Follicular phase (From day 1 to 13)

Ovulation phase (Day 14)

Luteal phase (From day 15 to 28)

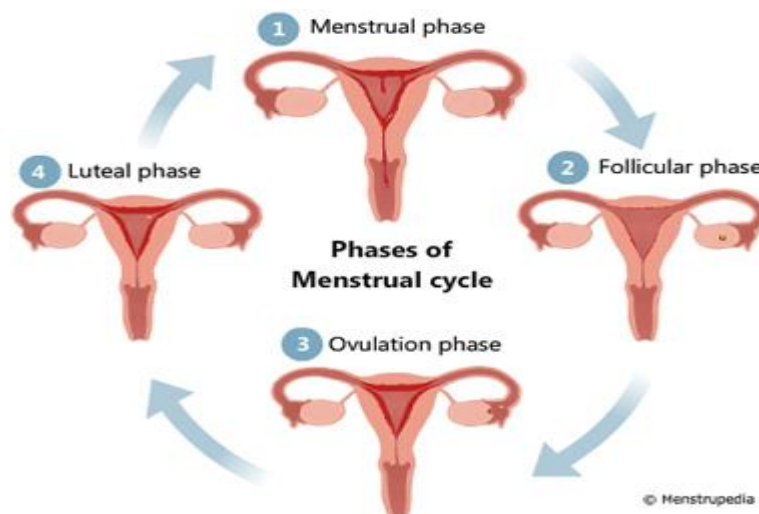


Figure 1.3- Phases of Menstrual Cycle

### **Menstrual phase (day 1-5)**

Menstrual phase begins on the first day of menstruation and lasts till the 5th day of the menstrual cycle. The following events occur during this phase:

- The uterus sheds its inner lining of soft tissue and blood vessels which exits the body from the vagina in the form of menstrual fluid.
- Blood loss of 10 ml to 80 ml is considered normal.
- Abdominal cramps can occur. These cramps are caused by the contraction of the uterine and the abdominal muscles to expel the menstrual fluid (Menstrupedia, 2017).

### **Follicular phase (day 1-13)**

This phase also begins on the first day of menstruation, but it lasts till the 13th day of the menstrual cycle. The following events occur during this phase:

- The pituitary gland secretes a hormone that stimulates the egg cells in the ovaries to grow.
- One of these egg cells begins to mature in a sac-like-structure called follicle. It takes 13 days for the egg cell to reach maturity.
- While the egg cell matures, its follicle secretes a hormone that stimulates the uterus to develop a lining of blood vessels and soft tissue called endometrium (Menstrupedia, 2017).

### **Ovulation phase (day 14)**

On the 14th day of the cycle, the pituitary gland secretes a hormone that causes the ovary to release the matured egg cell. The released egg cell is swept into the fallopian tube by the cilia of the fimbriae. Fimbriae are finger like projections located at the end of the fallopian tube close to the ovaries and cilia are slender hair like projections on each Fimbria (Menstrupedia, 2017).

### **Luteal phase (day 15-28)**

This phase begins on the 15th day and lasts till the end of the cycle. The following events occur during this phase:

- The egg cell released during the ovulation phase stays in the fallopian tube for 24 hours.
- If a sperm cell does not impregnate the egg cell within that time, the egg cell disintegrates.

- The hormone that causes the uterus to retain its endometrium gets used up by the end of the menstrual cycle. This causes the menstrual phase of the next cycle to begin  
(Menstrupedia, 2017).

### 1.3.2. What Happens During Menstrual Cycle

A woman becomes pregnant if the egg is fertilized by a man's sperm cell and attaches to the uterine wall. If the egg is not fertilized, it will break apart. Then hormone levels drop, and the thickened lining of the uterus is shed during period [Barnard, 2000]

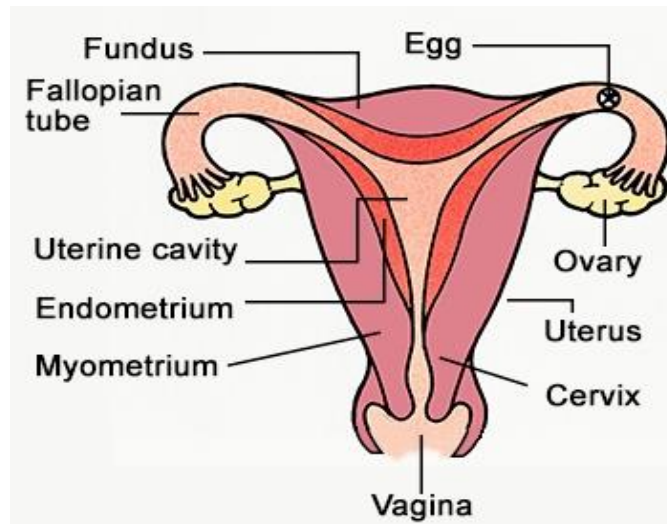


Figure 1.4- Female Reproductive System

- Day 1 starts with the first day of period. This occurs after hormone levels drop at the end of the previous cycle, signaling blood and tissues lining the uterus (womb) to break down and shed from the body. Bleeding lasts about 5 days.
- Usually by Day 7, bleeding has stopped. Leading up to this time, hormones cause fluid-filled pockets called follicles to develop on the ovaries. Each follicle contains an egg.
- Between Day 7 and 14, one follicle will continue to develop and reach maturity. The lining of the uterus starts to thicken, waiting for a fertilized egg to implant there. The lining is rich in blood and nutrients.

- Around Day 14 (in a 28-day cycle), hormones cause the mature follicle to burst and release an egg from the ovary, a process called ovulation.
- Over the next few days, the egg travels down the fallopian tube towards the uterus. If a sperm unites with the egg here, the fertilized egg will continue down the fallopian tube and attach to the lining of the uterus.
- If the egg is not fertilized, hormone levels will drop around Day 25. This signals the next menstrual cycle to begin. The egg will break apart and be shed with the next period (MedicineNet,2017).

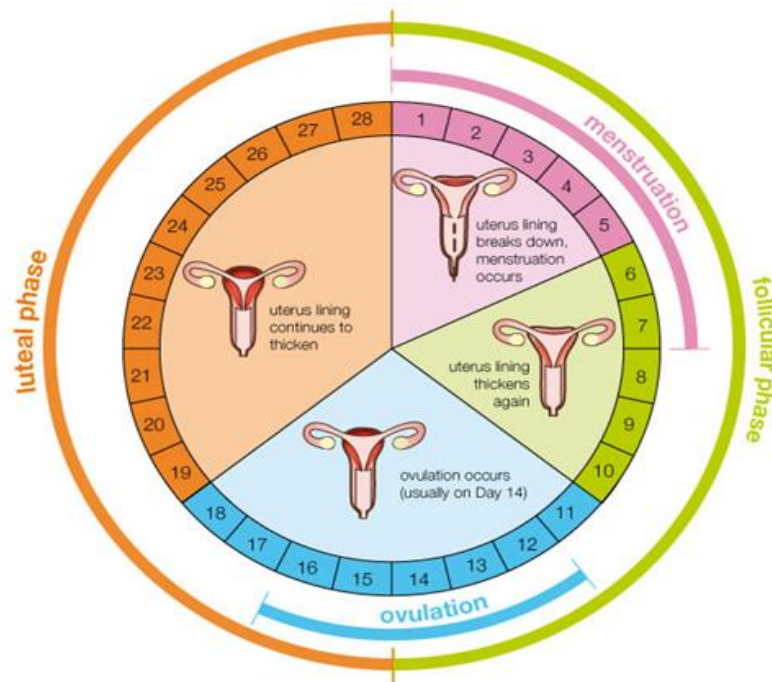


Figure 1.5- Menstrual cycle

### 1.3.3. Types of Menstrual Disorders

There are some common types of menstrual disorders are following below -

- **Heavy periods or menorrhagia** – It is a common menstrual problem that could lead to anemia. It occurs in 20% of females which makes them difficult to live their normal life due to heavy blood flow. Hormonal imbalances or uterus disorders could cause heavy periods.
- **Irregular periods or oligomenorrhea** - The normal length of a woman's menstrual cycle is 28 days, but this varies between individuals. Irregular menstruation is when the length of the cycle is more than 35 days, or if the duration varies. Irregular periods,

also called oligomenorrhea, can occur if there is a change in contraception method, a hormone imbalance, hormonal changes around the time of the menopause, and endurance exercises. A number of factors increase the chance of irregular menstruation. Most relate to hormone production. The two hormones that impact menstruation are estrogen and progesterone. These are the hormones that regulate the cycle.

- **No periods or amenorrhea** - Amenorrhea simply means “no periods”, and it’s the medical term used to describe the absence of a period in young women who haven’t started menstruating by age 15, and women and girls who haven’t had a period for 90 days or three months. It can also be a side effect of illness, stress, over exercising, or extreme weight loss.
- **Painful period or dysmenorrhea** – Some of the women experience cramps before or during their periods. If these cramps are painful then, they are suffering from dysmenorrhea. This type of pain arises from the uterine contraction provoked by the prostaglandins and production of the hormones like substances by the uterine walls. Sometimes the pain got aggravated as the prostaglandin increases the contractions in the intestine leading to diarrhea. Period cramps in teens are caused by too much of a chemical called prostaglandin. Most teens who have painful periods and cramps don’t have a serious disease, even though the cramps can really hurt. In older women, the pain is sometimes caused by a disease or condition such as uterine fibroids or endometriosis. Dysmenorrhea is highly prevalent among adolescent girls and has been identified as a leading cause of morbidity in this population, leading to school absence, nonparticipation (ladycarehealth, 2017).

#### **1.4. Dysmenorrhea**

It is the most common gynecological disorder in women of reproductive age. It is the occurrence of painful cramps during menstruation. It is a painful or cramping sensation in the lower abdomen often accompanied by other biologic symptoms, including fatigue, dizziness, sweating, headaches, backache, nausea, vomiting, diarrhea, all occurring just before or during the menses. Dysmenorrhea refers to the pain or discomfort associated with menstruation. Although not a serious medical problem, the term describes a woman adolescent girl with menstrual symptoms severe enough to keep her from functioning for a day or two each month (Jones et al. 2014)

### **1.4.1. Classification of Dysmenorrhea**

Dysmenorrhea is the medical term for pain with menstruation. There are two types of dysmenorrhea: "primary" and "secondary" (Cleveland Clinic, 2017).

#### **1.4.1.1. Primary Dysmenorrhea**

Primary dysmenorrhea is defined as pain during menses in the absence of an identifiable pathologic lesion. This menstrual pain can be associated with nausea, vomiting, diarrhea, and headache. The cause of dysmenorrhea remains unclear. Dysmenorrhea is highly prevalent among adolescent girls and has been identified as a leading cause of morbidity in this population, leading to school absence and activity nonparticipation. Combined oral contraceptives (COC) are a widely used treatment for primary dysmenorrhea in women. If effective, COC could be an ideal treatment for adolescent dysmenorrhea for the following reasons: COC are safe during adolescence, COC use is associated with several non-contraceptive health benefits important to adolescents, and adolescence is characterized by a high rate of unplanned sexual activity, pregnancy, and abortion. Primary dysmenorrhea refers to pain with no obvious pathological pelvic disease and almost always first occurs in women 20 years or younger after their ovulatory cycles become established. Primary dysmenorrhea is thought to be caused by excessive levels of prostaglandins, hormones that make your uterus contract during menstruation and childbirth. Its pain probably results from contractions of your uterus that occur when the blood supply to its lining (*endometrium*) is reduced. Other factors that may make the pain of primary dysmenorrhea even worse include a uterus that tilts backward (retroverted uterus) instead of forward, lack of exercise, psychological or social stress, smoking, drinking alcohol, being overweight, and starting menstruating before age 11. Primary dysmenorrhea is common menstrual cramps that are recurrent (come back) and are not due to other diseases. Pain usually begins 1 or 2 days before, or when menstrual bleeding starts, and is felt in the lower abdomen, back, or thighs. Pain can range from mild to severe, can typically last 12 to 72 hours, and can be accompanied by nausea-and-vomiting, fatigue, and even diarrhea. Common menstrual cramps usually become less painful as a woman ages and may stop entirely if the woman has a baby (Medbroadcast, 2017).

#### **1.4.1.2. Secondary Dysmenorrhea**

It is menstrual pain that is generally related to some kind of gynecologic disorder. Secondary dysmenorrhea is pain that is caused by a disorder in the woman's reproductive organs, such as endometriosis, adenomyosis, uterine fibroids, or infection. Pain from secondary dysmenorrhea usually begins earlier in the menstrual cycle and lasts longer than common menstrual cramps. The pain is not typically accompanied by nausea, vomiting, fatigue, or

diarrhea. Most of these disorders can be easily treated with medications or surgery. It is more likely to affect women during adulthood. Secondary dysmenorrhea usually develops in women who have previously had abnormal periods. The pain from secondary dysmenorrhea lasts longer than primary dysmenorrhea pain. This pain may start later during the period and get worse as the period progresses. It also may not decrease or diminish when a woman's period ends (Medbroadcast, 2017).

Secondary dysmenorrhea may be caused by a number of conditions, including:

- Fibroids – benign tumors that develop within the uterine wall or are attached to it
- Adenomyosis – the tissue that lines the uterus (called the endometrium) begins to grow within its muscular walls
- Sexually transmitted infection (STI)
- Endometriosis – fragments of the endometrial lining that are found on other pelvic organs
- Pelvic inflammatory disease (PID), which is primarily an infection of the fallopian tubes, but can also affect the ovaries, uterus, and cervix
- Ovarian cyst or tumor
- The use of an intrauterine device (IUD), a birth control method (Cleveland Clinic, 2017).

## **1.4.2. Pathophysiology**

### **1.4.2.1. Pathophysiology of Primary Dysmenorrhea**

The majority of dysmenorrhea in adolescents and young adults is primary (or functional), is associated with a normal ovulatory cycle and with no pelvic pathology, and has a clear physiologic etiology. After ovulation there is a buildup of fatty acids in the phospholipids of the cell membranes. The high intake of omega-6 fatty acids in the western diet results in a predominance of the omega-6 fatty acids in the cell wall phospholipids. After the onset of progesterone withdrawal before menstruation, these omega-6 fatty acids, particularly arachidonic acid, are released, and a cascade of prostaglandins (PG) and leukotrienes (LT) is initiated in the uterus. The inflammatory response, which is mediated by these PG and LT, produces both cramps and systemic symptoms such as nausea, vomiting, bloating, and headaches. In particular, the prostaglandin F<sub>2a</sub>, cyclooxygenase (COX) metabolite of arachidonic acid, causes potent vasoconstriction and myometrial contractions, leading to ischemia and pain (Gita, 2017).

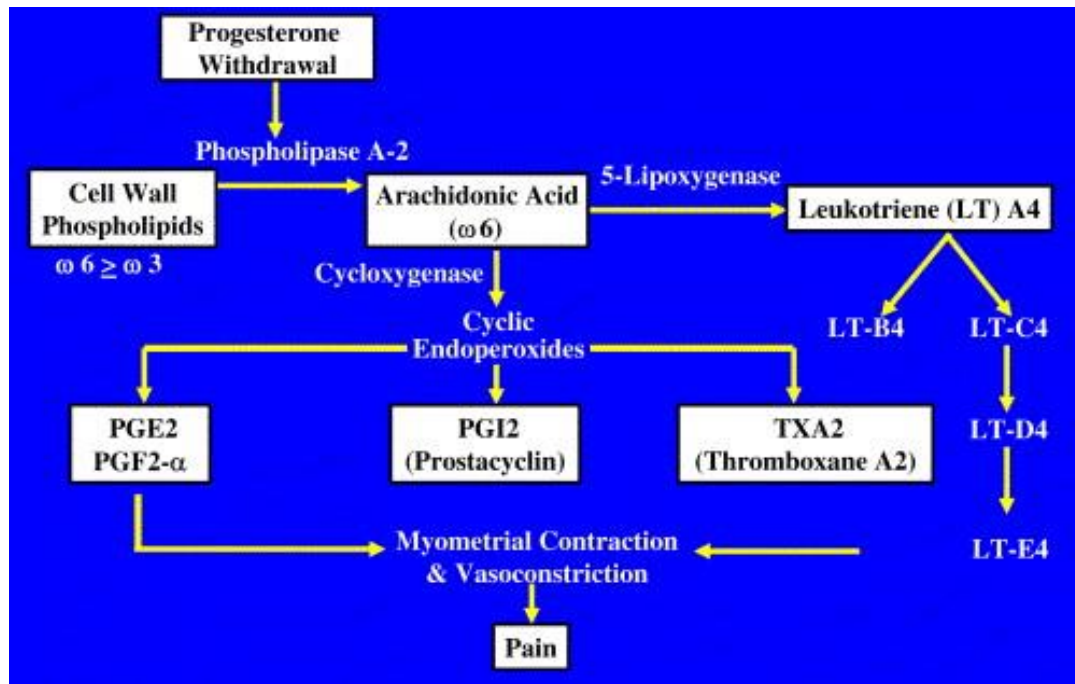


Figure 1.6- Pathophysiology of Dysmenorrhea

#### 1.4.2.2. Pathophysiology of Secondary Dysmenorrhea

It refers to painful menstruation associated with pelvic abnormalities. Secondary dysmenorrhea is more likely to be associated with chronic pelvic pain, midcycle pain, dyspareunia, and metrorrhagia. Dysmenorrhea is primary or secondary on the basis of absence or presence of pathology. Primary dysmenorrhea is seen only in ovulatory cycles usually developing within 6 to 12 months of menarche with no underlying pathology or organic basis. Secondary dysmenorrhea is usually due to pelvic pathology and it is not common in adolescent girls, however some adolescent girls may suffer secondary dysmenorrhea following pelvic inflammatory disease (John, 2015).

#### 1.4.3. Signs and Symptoms of Dysmenorrhea

Some Common signs and symptoms of Dysmenorrhea are following below-



<p><b>Abdominal cramps</b></p> <p><b>Dizziness</b></p> <p><b>Nausea</b></p> <p><b>Vomiting</b></p> <p><b>Diarrhea</b></p> <p><b>Stress</b></p> <p><b>Sleep problem</b></p>	<p><b>Emotional disturbances</b></p> <p><b>Headache</b></p> <p><b>Physical discomfort</b></p> <p><b>Restlessness</b></p> <p><b>Leg cramps</b></p>
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Table 1- Signs and symptoms of dysmenorrhea

**Abdominal Cramps-** Lower abdominal cramps is one of the most common dysmenorrhea symptoms. They can strike right before or during that time of the month. Many women get them routinely. It also includes aching and feeling pressure in the belly area, pain in the hips, lower back and inner thighs.

**Stress** - Dysmenorrhea is the most common gynecologic disorder in women during their reproductive years. Many women face physical stress during their menstrual period.

**Physical Discomfort** – During menstrual period because of excessive pain, dizziness, nausea or other problems it can cause physical discomfort.

**Leg Cramps** – Cramp is one of the common symptoms of dysmenorrhea. It can strike during the period or before the period.

**Constipation** – Sometimes painful dysmenorrhea includes constipation. It may include bowel movements, trouble having bowel movement, swollen belly or belly pain (Brazier, 2017).

**Diarrhea**-The exact reasons why diarrhea occurs during period aren't fully understood, but it is quite common and often tied to menstrual cramps. Believed to be at the root of the cause are prostaglandins, chemicals released during period that allow the uterus, and thus the intestines, to contract. Prostaglandins can also because other pain associated with dysmenorrhea, the medical term for painful menstrual periods. Prostaglandin-related cramps

and diarrhea usually occur in the first three days of your menstrual period. (EverydayHealth, 2017)

Except above signs and symptoms many adolescents suffer from other menstrual - associated symptoms such as- dizziness, nausea, vomiting, fatigue, restlessness, irritability, sleep problem etc. Symptoms typically accompany the start of menstrual flow or occur within a few hours before or after onset and last for the first 24-hours (Brazier, 2017).

#### 1.4.4. Risk Factors and Complications

<b>Dysmenorrhea risk factors</b>	
<b>Increased risks</b>	<b>Decreased risks</b>
<ul style="list-style-type: none"> <li>• <b>Age</b></li> <li>• <b>Obesity</b></li> <li>• <b>Long-menstrual period</b></li> <li>• <b>Smoking</b></li> <li>• <b>Depression</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Physical exercise</b></li> <li>• <b>Fish intake</b></li> <li>• <b>Oral contraceptive use</b></li> </ul>

Table 2– Risk factors of Dysmenorrhea

Dysmenorrhea is a very common problem and affects quality of life in reproductive aged females. A range of risk factors for dysmenorrhea have been identified. In general, increased severity of dysmenorrhea has been suggested to relate to age, smoking, higher body mass index, earlier age at menarche, nulliparity, longer and heavier menstrual flow, and family history of dysmenorrhea.

Women using oral contraceptives generally report less severe dysmenorrhea. Depression and stress have also been shown to increase the risk of dysmenorrhea. Other common factors, such as education, marital status, employment, alcohol consumption, and physical activity. Young age and nulliparity are associated with dysmenorrhea. However, one longitudinal study found that age was not a risk factor after controlling for parity and other factors, and that dysmenorrhea improved after childbirth. Heavy menstrual flow is associated with dysmenorrhea.

Behavioral risk factors are of interest because of the potential to intervene. Several observational studies have found an association between smoking and dysmenorrhea. In women 14 to 20 years of age, attempts to lose weight are associated with increased menstrual pain independent of body mass index (Speer, 2017).

However, the evidence of an association between overweight and dysmenorrhea is inconsistent. Other behaviors such as physical activity and alcohol consumption have not been associated consistently with dysmenorrhea. Mental health problems are another potentially modifiable risk factor. Depression, anxiety, and disruption of social support networks have been associated with menstrual pain. An association between poor self-rated overall health and dysmenorrhea has been noted, but socioeconomic status is not associated consistently with dysmenorrhea. Although there has been concern that tubal sterilization may be a risk factor for dysmenorrhea, a cross-sectional study found no difference in menstrual pain in women with and women without tubal sterilization (Mishra et al, 2017).

## 1.4.5. Treatment Options for Managing Dysmenorrhea

### 1.4.5.1. Non-Medicinal Approach-

Interventions such as herbal preparations, transcutaneous nerve stimulation, acupuncture, exercise, rest and topical heat therapy have been improved the condition of dysmenorrhea (Speer, 2017).

#### Herbal Treatment-

- **Ginger** - This warming herb may help ease cramps and soothe menstrual troubles by lowering levels of pain-causing prostaglandins (as well as fight the fatigue commonly associated with premenstrual syndrome). In a 2009 study, women who took 250 mg capsules of ginger four times a day for three days from the start of their menstrual period experienced a level of pain relief equal to that of study members who treated their menstrual cramps with ibuprofen. Another study, published in BMC Complementary and Alternative Medicine in 2012, analyzed the use of ginger root powder or a placebo in 120 women with moderate or severe primary dysmenorrhea and found that there were significant differences in the severity of pain between the ginger and placebo group.



Figure 1.7 – Herbal treatment (Ginger)

- **Chinese Herbs-** In a 2008 report, scientists sized up 39 studies (involving a total of 3,475 women) and concluded that Chinese herbs may alleviate menstrual cramps more effectively than over-the-counter pain medications. Most study participants were given formulas containing five or six herbs (used in traditional Chinese medicine), such as Chinese angelica root, fennel fruit, licorice root, cinnamon bark, and red peony root.



Figure 1.8 - *Angelica sinensis*

According to a survey published in the *Journal of Ethnopharmacology* in 2014, the herbal formula most frequently recommended for primary dysmenorrhea in Taiwan is "Dang-gui-shao-yao-san" which contains Dang gui (*Angelica sinensis*) and Peony powder and is believed to have sedative and anti-inflammatory compounds (Speer, 2017).

### Heating Pad-

Simply changing the position of the body can help ease the pain of cramps.



Figure 1.9 -Use of heating pad

The simplest technique is assuming the fetal position with knees pulled up to the chest while hugging a heating pad or pillow to the abdomen.

### **Yoga and Exercise –**

It may be a way to reduce the pain of menstrual cramps through the brain's production of endorphins, the body's own painkillers and orgasm can make a woman feel more comfortable by releasing tension in the pelvic muscles.

Likewise, several yoga positions are popular ways to ease pain.



Figure 1.10- Cat Stretch position

In the "cat stretch," position, the woman rests on her hands and knees. Exercise tones the muscles of the pelvic floor and the core abdominal muscles and releases pressure on the articular facets in the lumbar spine. These include knee/chest stretches and core abdominal strengthening. (Sciencedirect, 2017)

### **Diet-**

- **Increase the intake of Fish Oil**

Recent research suggests that vitamin B supplements, primarily vitamin B<sub>6</sub> in a complex, magnesium, and fish oil supplements (omega3 fatty acids) also may help relieve pain.

A low-fat vegetarian diet was associated with a decrease in dysmenorrhea duration and intensity in young adult women. Dietary supplementation with omega-3 fatty acids had a beneficial effect on dysmenorrhea symptoms. Increasing dietary omega-3 fatty acids intake leads to production of less potent prostaglandins and less potent leukotrienes, which may have accounted for the reduction in menstrual symptoms observed in adolescent girls (Emedicine.medscape.com, 2017).



Figure 1.11 – Fish oil supplements (helps in relieve cramps)

- **Avoid Salty Foods**

Many women feel incredibly bloated and puffy around the time of menstruation. Consuming too much salt at that time will only make feel worsen.



Figure 1.12 – Salty French Fries

High-sodium foods can increase already existing bloating and discomfort, so try to stay away from foods like chips, French fries, and canned foods (Wheeler, 2017)

- **Avoid Coffee**

Like salt, caffeine can increase discomfort from cramps and bloating. Caffeine is a vasoconstrictor. It makes blood vessels constrict and may cause the vessels that feed the uterus to tighten (Lori, 2015).

- **Decrease the intake of sweets**



Figure 1.13 – Sweet containing foods

Blood sugar is like a roller coaster during menstruation. On top of that, Sugar is a strong inducer of inflammation and has a tendency to increase cramping. If someone having an insatiable craving for something sweet, try eating some natural sugars such as figs or dates, which keep her blood sugar levels more stable (Shemek, 2017).

- **Control the intake Animal fat**

Many heavy meats are high in saturated fats, pains. This fat contains arachidonic acid, which produces prostaglandins that can cause uterine contractions and cramping. Eating a diet high in saturated fat during the first few days of period can lead to bloating, breast tenderness and breakouts (Shemek, 2017).

- **Processed food**

Trans fats, also known as hydrogenated oils, are found in junk foods such as French fries, packaged foods and desserts, and they can worsen your period symptoms. These detrimental fats cause inflammation in the body, and can worsen pains already experience while menstruating (Healthcare.com, 2012).



Figure 1.14 – Processed foods

- **Dairy Products**



Figure 1.15 – Dairy products

Not only will dairy worsen bloating, but it can also exacerbate cramping. Foods like milk, cheese, and ice cream contain arachidonic acid, an omega-6 fatty acid which can increase inflammation and can cause cramping. Women who experience higher levels of pain have higher levels of pro-inflammatory prostaglandins in their body. Prostaglandins are hormone-like substances. Too much of the wrong kind of prostaglandins can promote painful uterine contractions and decrease blood flow to the uterus. High levels also lead to increased muscle contraction, inflammation and pain. Sugar, omega 6 rich processed vegetable oil, dairy products and alcohol all raise levels of inflammatory prostaglandins in the body (Shemek, 2017).



- **Include more fruits and vegetables in diet**

Green vegetables and fruits have a high fiber content that can actually ease bloating. They contain calcium, vitamins A, C, B6, and E, potassium, and magnesium — nutrients that help to reduce pain (Medicaldaily, 2016).

#### **Aromatherapy –**

Other women find relief through visualization, concentrating on the pain as a particular color and gaining control of these sensations. Aromatherapy and massage may ease pain for some women (Natural-fertility-info, 2017).

#### **Rest-**

Tense muscles contract more forcefully. Relaxed muscles contract with less intensity.

#### **Lifestyle modification-**

Few studies have examined the effect of lifestyle-modification interventions in the management of dysmenorrhea. One cross-over study of a low-fat vegetarian diet versus placebo pill showed decreased duration and intensity of dysmenorrhea in women in the intervention group. Although some studies have reported a benefit with exercise, the effect is questionable because participants were not blinded to the study hypothesis. Smoking cessation has not been studied as an intervention to manage dysmenorrhea. (Speer, 2017)

#### **Transcutaneous electrical nerve stimulation (tens) / acupuncture**

TENS involves use of electrodes to stimulate the skin at various frequencies and intensities in an attempt to diminish pain perception. Acupuncture also involves stimulating nerve fiber receptors in an attempt to block pain impulses (Sogc.org, 2017)

### **1.4.5.3. Non-Hormonal Medicinal Approach-**

#### **Over-the-counter (OTC) medications**

OTC medications available to treat dysmenorrhea include acetaminophen (Tylenol), acetaminophen plus paracetamol (Midol), acetylsalicylic acid (Aspirin), and ibuprofen (Advil, Motrin). Acetaminophen is an analgesic/antipyretic drug, not a peripheral prostaglandin synthetase inhibitor, and is a weak cyclooxygenase (COX) inhibitor in the presence of high peroxide concentrations that are present in inflammatory tissues. Acetaminophen produces analgesia by raising the pain threshold. It is a safe drug when used in therapeutic dosages with a good gastrointestinal tolerance. Acetaminophen can cause liver damage after three or

more alcoholic drinks per day. Acetaminophen is indicated to provide temporary relief of dysmenorrhea. Adolescents who experience less menstrual discomfort, shorter duration of menstrual discomfort, and less severe disability were more likely to be associated with the use of OTC medications. More than half (56%) of the adolescents who used OTC medications took the pills less often than the maximum daily recommendation. There was a greater frequency of OTC medication use among young women aged 16 to 21 years than among girls aged 12 to 14 years (Sogc.org, 2017).

## **NSAIDS**

Nonsteroidal anti-inflammatory drugs (NSAIDs) are the best-established initial therapy for dysmenorrhea. They have a direct analgesic effect through inhibition of prostaglandin synthesis, and they decrease the volume of menstrual flow (Speer, 2017).

Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or naproxen are the mainstay of treatment. They are most effective if levels are adequate before the release of pain mediators, take three 200-mg ibuprofen, three times a day, starting 3 days before the menses begins. Most NSAIDs are equally effective, although one study shows naproxen to be superior. The most common adverse effects of NSAIDs are nausea, dizziness, and headaches (Sciencedirect, 2017)

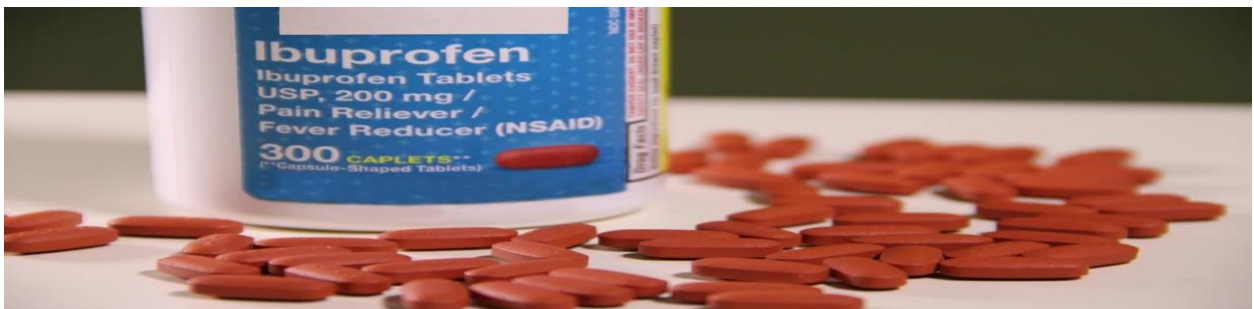


Figure 1.16 – NSAIDs

### **1.4.5.3. Hormonal Medical Treatment-**

#### **Combined oral contraceptive (COC)**

As early as 1937, researchers showed that dysmenorrhea responds favorably to inhibition of ovulation. Research suggests that the COC suppresses ovulation and endometrial tissue growth, thereby decreasing menstrual fluid volume and prostaglandin secretion with subsequent decrease in intrauterine pressure and uterine cramping. COCs are considered an effective treatment for primary dysmenorrhea. Observational studies support an association between COC use and decreased dysmenorrhea (Sogc.org, 2017).

## **Oral contraceptive pills**

Treatment of dysmenorrhea is a well-accepted off-label use for oral contraceptive pills (OCPs). The proposed mechanism of action is reduced prostaglandin release during menstruation. Combined oral contraceptive pills (OCP) are a widely used treatment for primary dysmenorrhea in women. OCPs are perhaps an ideal treatment for adolescent dysmenorrhea: they are safe during adolescence, have health benefits important to adolescents such as improvement in acne, and could prevent unintended pregnancy. OCPs prevent or improve dysmenorrhea directly by limiting endometrial growth and reducing the amount of endometrial tissue available for PG and LT production, and indirectly by inhibiting ovulation and subsequent progesterone secretion. Many studies have reported an association between OCP use and decreased dysmenorrhea. While one study suggested that OCPs consisting of a potent progestin (such as levonorgestrel) might be more beneficial in treatment of dysmenorrhea, other studies showed OCPs with less potent progestins to be beneficial as well. Overall, the consistency of OCPs effect across populations and with different pill formulations support the use of OCPs in the treatment of dysmenorrhea (Herlel, 2017).

# **Chapter - 2**

## **Literature reviews**

## **2. Literature Review**

### **2.1. Level of knowledge among adolescent girls regarding effective treatment for dysmenorrhea**

The objective of this study was to determine the prevalence of dysmenorrhea, the morbidity associated with dysmenorrhea, and the level of knowledge about the treatment process. It was a questionnaire based survey which was performed by 182 adolescent women, were in the age group of 14-18 years. 72.7% of them had 'pain or discomfort' during their period, 58.9% of them had decreased activity, and 45.6% reported school or work absenteeism, only 15.5% reported that they had used a prescription medication and 14.7% of them used nonsteroidal anti-inflammatory agent, except aspirin. This study showed that there is a significant misinformation and ignorance between adolescent women regarding the treatment options of dysmenorrhea (Johnson, 1988).

### **2.2. The Prevalence and Risk Factors of Dysmenorrhea**

This study was performed to assess the prevalence and risk factors of dysmenorrhea. In this study the prevalence of dysmenorrhea varies between 16% and 91% in women of reproductive age, 2%–29% of the them had severe pain. Women's age, parity, and use of oral contraceptives were inversely associated with dysmenorrhea, and high stress increased the risk of dysmenorrhea. Family history of dysmenorrhea also a risk factor of dysmenorrhea, which strongly increased its risk, apart from these, others modifiable factors such as cigarette smoking, diet, obesity, depression, and abuse also responsible for dysmenorrhea. This study states that dysmenorrhea improves with increased age, parity, and use of oral contraceptives and it is more positively associated with stress and family history of dysmenorrhea (Ju et al, 2014).

### **2.3. Primary dysmenorrhea in young Western Australian women: prevalence, impact, and knowledge of treatment**

This study is an attempt to investigate the prevalence of dysmenorrhea, it was conducted in Perth, Western Australia, among senior high school girls and to know about its impact on school, sporting, and social activities, students' management strategies, and their knowledge about the available treatment of dysmenorrhea. This survey was performed by 388 female students in Grades 11 and 12 at three metropolitan secondary schools, they completed an anonymous questionnaire administered during class time, among all participants 80%; 53% of those girls with dysmenorrhea reported that it limited their activities and 37% of them reported that dysmenorrhea affected their school activities. Simple analgesics (53%) was the

most commonly used medications and followed by nonsteroidal anti-inflammatory drugs (NSAIDs), which was used by 42%. Among them 27% had no knowledge that NSAIDs were a possible treatment option for managing dysmenorrhea (Hillen et al., 2017).

#### **2.4. Self-treatment Patterns among Adolescent Girls with Dysmenorrhea**

It was a cross sectional study, performed in Urban Academic Medical Centre to know about the non-pharmacological and pharmacological treatment options used by adolescents with dysmenorrhea. The participants were healthy adolescents aged 19 years or younger with moderate to severe primary dysmenorrhea were included and those using hormonal contraception, they were excluded. The data showed that 42% of them had moderate, 58% of them had severe and 55%, 24% were associated with nausea and vomiting, 46% of them were reported missing one or more days monthly due to dysmenorrhea. Regarding this all the participants used nonpharmacological remedies such as sleeping and heat pad and nearly all used at least one medication, 31% of them reported using two, and 15% of them used three medications (not concurrently). Many participants reported using medication at sub-therapeutic doses for reducing pain of dysmenorrhea (O'Connell K, 2006).

#### **2.5. Influence of dietary intake of dairy products on dysmenorrhea**

The objective of this study is to explore dysmenorrhea and its associated symptoms among adolescents and investigate the influence of dietary intake of dairy products on dysmenorrhea. 127 female university students (age 19-24years) were participated in a self-assessment questionnaire study. About 87.4% of them reported that they had pain few days before or first two days during menstrual period. 46% of them had severe dysmenorrhea. Common symptom was abdominal bloating, symptoms of dysmenorrhea found in remarkably less number of female students who took three or four servings of dairy products per day as compared to participants who consumed no dairy products (Abdul-Razzak KK, 2010).

#### **2.6. Effects of stretching exercises on primary dysmenorrhea in adolescent girls**

Dysmenorrhea is also known as painful periods which occurs less often in those who exercise regularly and those who have children early in life. This study is performed to determine the effect of stretching exercise on primary dysmenorrhea in high school students. It was done on 179 adolescent girls (age 15-17 years) with moderate-to-severe primary dysmenorrhea, they were selected from 6 high schools located in 2 different city zones. The students were non-athletes and volunteered for the study and randomly divided into 2 groups: an experimental group and another one was control group. Participants were requested to complete an active stretching exercise for 8 weeks (3 days per week, 2 times per day, 10

minutes each time) at home. In the pre-test, all of subjects were examined for pain intensity (10-point scale), pain duration, and the use of sedative tablets in 2 continuous menstruation cycles. The posttest was examined 8 weeks later. And after 8 weeks, pain intensity was reduced from 7.65 to 4.88, pain duration was decreased from 7.48 to 3.86 hours, and use of sedative tablets was decreased from 1.65 to 0.79 tablets in the experimental group and in the control group, a significant decline was only noted for pain duration. Stretching exercises has positive effect in reducing pain intensity, pain duration, and reduced the use of painkillers (Shahr-jerdy et al, 2012).

## **2.7. Prevalence of Dysmenorrhea and its Effects on School Performance: A Cross-sectional Study**

Dysmenorrhea is the medical term for pain with menstruation. It can be accompanied by nausea-and-vomiting, fatigue, and even diarrhea. This was a cross-sectional study performed in Debre Berhan University, Ethiopia, to explore the Prevalence of Dysmenorrhea and its Effects on School Performance. It involved self-administered questionnaires completed by 307 students (age 18-29). Among them, most of the participants 249(84.4%) were in the in the 18-21 age category, regarding painful menstruation, around 197 (66.8%) of students were suffering from dysmenorrhea, 119 (60.4%) of them said that their school performance was affected because of pain and this was explained by loss of concentration and class absenteeism. Among all the participants, 34 (17.26%) of them reported severe pain, 81 (41.11%) of them had moderate pain and 82 (41.63%) had mild pain. The location of this pain differed with students and the majority of them, reported that it was in the lower abdomen (142/197; 72.1%) followed by abdominal pain that which extended to thighs (20.8%), back pain in 38 (19.3%) and pain extending to anus in 11 (5.6%). Most common symptom accompanied by dysmenorrhea reported were stomach cramp in 176 (89%), backache in 73 (37%), mood change in 58 (29%), fatigue present in 104 (52.8%), diarrhea present in 8 (4.0%) and headache present in 47(23.8%) (Derseh and Ketsela ,2017).

## **2.8. Low-dose oral contraceptive pill for dysmenorrhea associated with endometriosis: a placebo-controlled, double-blind, randomized trial**

It was a double-blind, randomized, placebo-controlled trial, which aim to assess the efficacy of a low-dose oral contraceptive pill (OCP) for patients with dysmenorrhea associated with endometriosis. 100 patients having dysmenorrhea associated with endometriosis were

participated, Total dysmenorrhea scores determined by the verbal rating scale were remarkably decreased at the end of treatment in both groups. From the first cycle through the end of treatment, dysmenorrhea in the OCP group was significantly milder than in the placebo group. Non-menstrual pelvic pain was present at baseline in 24.5% (12 of 49) of the OCP group and 34.0% (16 of 47) of the placebo group. The volume of endometrioma (larger than 3 cm in diameter) was decreased in the OCP group, but not in the placebo group. No serious adverse events related to using OCPs occurred (Harada et al., 2017).

## **2.9. Prevalence and Impact of Dysmenorrhea on Hispanic Female Adolescents**

Dysmenorrhea is the occurrence of painful cramps during menstruation. The purpose of this study is to assess the prevalence of dysmenorrhea among Hispanic female adolescents; its impact on academic performance, school attendance, and sports and social activities; and its management. It was a questionnaire based survey completed by 706 Hispanic female adolescents, in grades 9 through 12. Among all the participants, who had a period in the previous 3 months, among them 85% of participants reported dysmenorrhea. Of these, 38% reported missing school due to dysmenorrhea during the 3 months prior to the survey and 33% of them reported missing individual classes. Their regular activities affected by dysmenorrhea included class concentration (59%), sports (51%), class participation (50%), socialization (46%), homework (35%), test-taking skills (36%), and grades (29%). Treatments taken for dysmenorrhea included rest (58%), medications (52%), heating pad (26%), tea (20%), exercise (15%), and herbs (7%). Among them 14% consulted a physician and 49% saw a school nurse for help with their symptoms. Menstrual pain was significantly associated with school absenteeism and decreased academic performance, sports participation, and socialization with peers (Banikarim C, 2017).

## **2.10. A survey of adolescent dysmenorrhea and premenstrual symptom frequency: A model program for prevention, detection and treatment**

Dysmenorrhea refers to the symptom of painful menstruation. This survey was performed by 88% female high school adolescents in two separate physical education classes. Each group had to answer a questionnaire requesting age, presence, severity, and nature of dysmenorrhea and premenstrual symptoms; and treatment options. The results of the study showed that the majority of the female adolescents identified dysmenorrhea and



premenstrual symptoms as problems that significantly affected their academic, performance and were responsible for school absenteeism. Contradictory to common belief, premenstrual, symptoms in these adolescents (76 of 88, 86%) were found to be as prevalent as symptoms of dysmenorrhea (80 of 88, 91%), and most of the girls were not aware of the causes and treatments of these symptoms (Jr, 2017).

# **Chapter – 3**

## **Methodology**

### **3.Methodology**

#### **3.1 Type of the Study**

It was a survey based study.

#### **3.2 Study Population & Study Area**

The study was carried out on 300 students of East West University studying in different departments.

#### **3.3 Inclusion Criteria**

University Female students aged between 18-26 years old, studying in any department.

#### **3.4. Exclusion Criteria**

Male students are excluded from the survey.

#### **3.5. Study Tools**

Two-page structured questionnaire was prepared and it was in English language. The questionnaire has different parts consisting personal details, familiarity and perception about Dysmenorrhea, signs & symptoms of Dysmenorrhea, risk factor and complications of Dysmenorrhea, diagnosis & treatments of Dysmenorrhea.

#### **3.6. Development of the Questionnaire**

The questionnaire was developed based on different factors that shows the potentiality of developing Dysmenorrhea among the university students. Perception about Dysmenorrhea along with the signs & symptoms, treatment, risk factors, diagnosis, perception towards doctor consultation, lifestyle modification, exercise and food habit etc. were asked in the survey.

The questionnaire was prepared to learn the level of knowledge and awareness about Dysmenorrhea along with demographic information that would help us to correlate among demographic characteristics with perception and attitude of people towards Dysmenorrhea.

#### **3.7. Data Collection Method**

The data was collected through questionnaire that is formed in English language. The questionnaire consists of multiple choice type questions. The data was collected by both face to face interview and by questionnaire supply.

### **3.8. Sampling Technique**

In these study equal samples from different department was followed. The departments were

English EEE CSE Law BBA Pharmacy Statistics Economics Genetics

### **3.9. Data collecting period**

The duration of the study was about five months that started from June, 2017 up to November,

2017.

### **3.10. Data Analysis**

After collecting, all the data were checked and analyzed with the help of Microsoft Excel 2013.

### **3.11. Ethics**

Oral consent was taken from all participants before the survey took place. It was maintained strictly that there was no enforcement during data collection.

### **Aims & Objectives of the study**

Dysmenorrhea has become a common disorder in women recently. Unfortunately, not many people are concerned about it. This ignorance is present not only in Bangladesh but also al around the world. So, the study aims to examine the level of awareness among the educated portion of female population. Some major objectives:

1. To investigate knowledge among female students of different study background about signs & symptoms, risk factors, lifestyle modification, and treatment of Dysmenorrhea.
2. To evaluate their perception towards Dysmenorrhea.
3. To assess potential risk factors among the subjects.
4. To determine the level of health concern and attitude to doctor consultation of the subjects

# **Chapter - 4**

## **Result**

## 4.Result

### 4.1. Demographic data

	Variable	N (%)
<b>Marital Status</b>	<b>Single</b>	<b>94</b>
	<b>Married</b>	<b>4</b>
	<b>Divorced</b>	<b>2</b>
<b>Education Level</b>	<b>College</b>	<b>98</b>
	<b>Graduate</b>	<b>2</b>

Table 3 - Demographic Data

Among all the participants 2% were graduate and 98% were undergraduate.

## 4.2. Knowledge about Dysmenorrhea

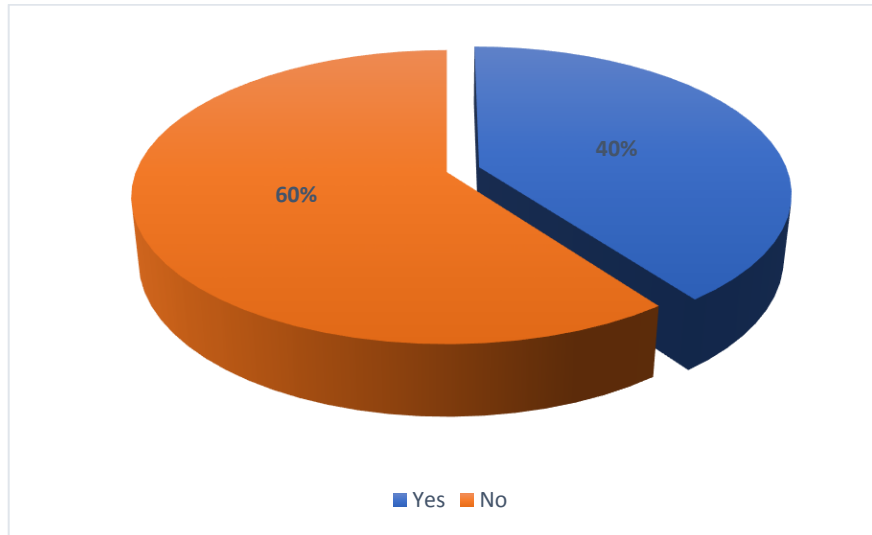


Figure 4.1 – Knowledge about dysmenorrhea

Among of all the participants 40% of participant said that they had knowledge about dysmenorrhea and 60% of them reported that they didn't have knowledge about dysmenorrhea.

## 4.3. Family History of Dysmenorrhea

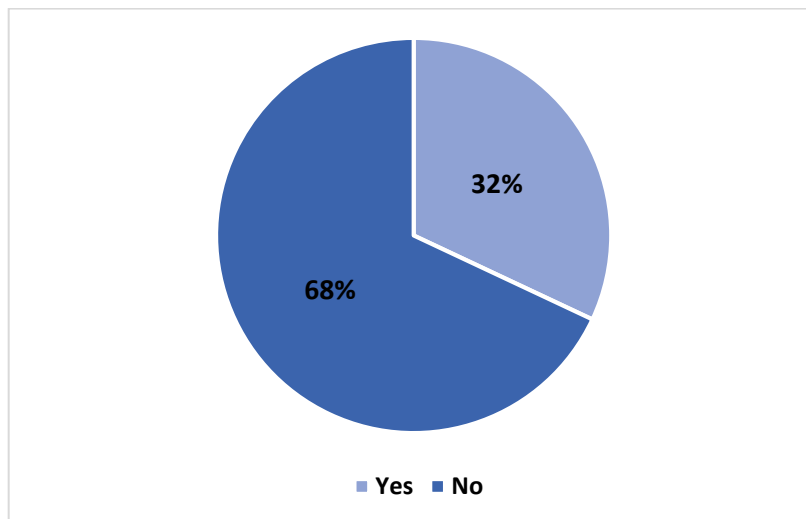


Figure 4.2 - Family history of dysmenorrhea

Among all participants 32% had family history of dysmenorrhea and 68% of them didn't have family history of dysmenorrhea.

#### 4.4. Diagnosis of Dysmenorrhea

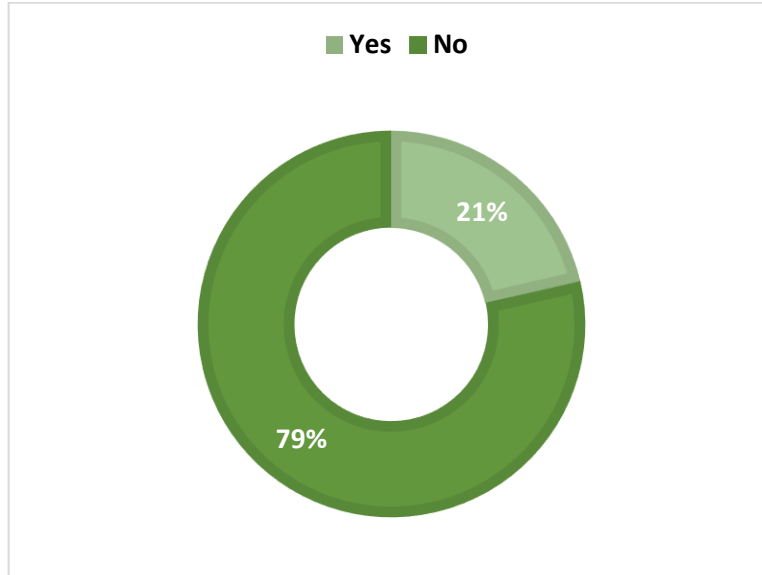


Figure 4.3 – Diagnosis of dysmenorrhea

About 21% of them reported 'Yes' and 79% among them said 'No'.

#### 4.5. Types of Menstrual Cycle

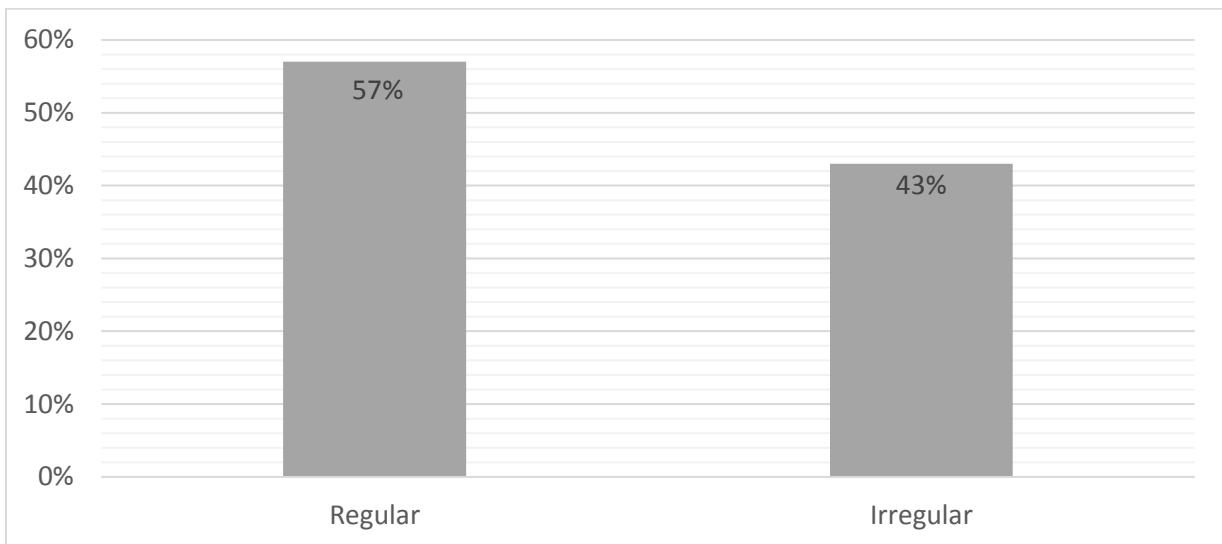


Figure 4.4 – Types of menstrual cycle

Among of all the participants majority had regular menstrual cycle 57% and 43% of them had irregular menstrual cycle.



## 4.6. Duration of Menstrual Cycle

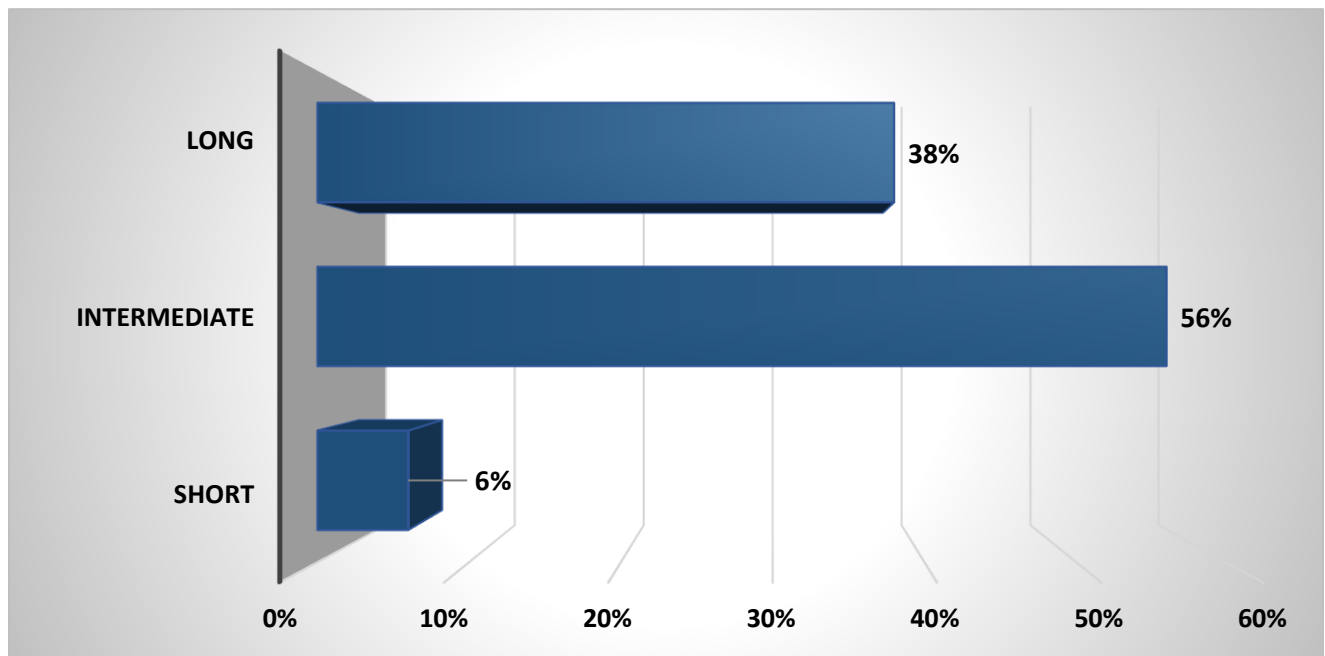


Figure 4.5- Duration of menstrual cycle

Almost around 56% of them had Intermediate cycle (20-30 days), 38% had long (>31 days) and 6% of them had short menstrual cycle (<20days).

#### 4.7. Perception about Dysmenorrhea

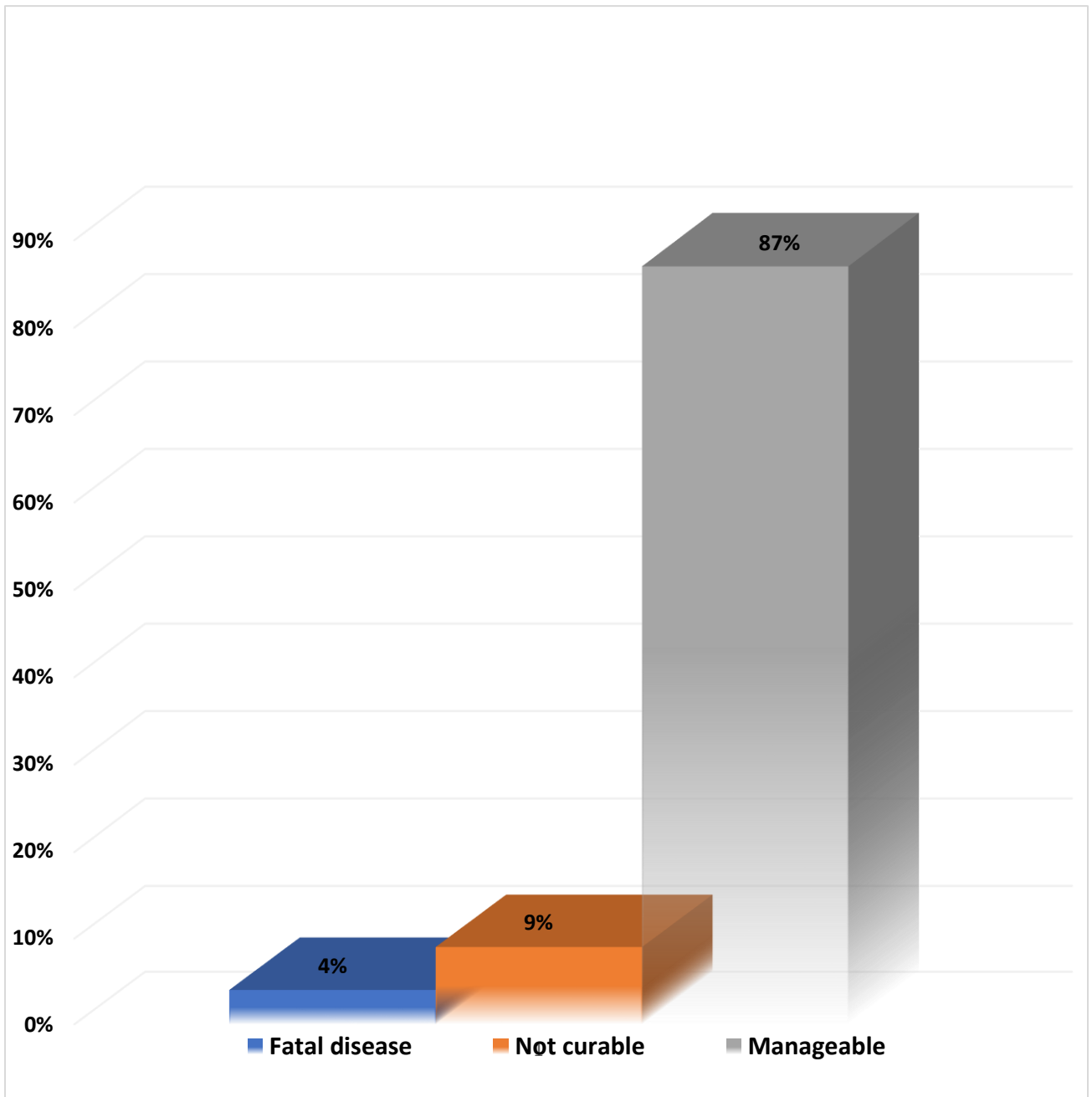


Figure 4.6 – Perception about dysmenorrhea

Around 87% of the population thought that it's manageable, 9% of them thought that it's not curable and 4% of them thought that that it's a fatal disease.

#### 4.8. Knowledge about the role of healthy-diet plays in managing Dysmenorrhea

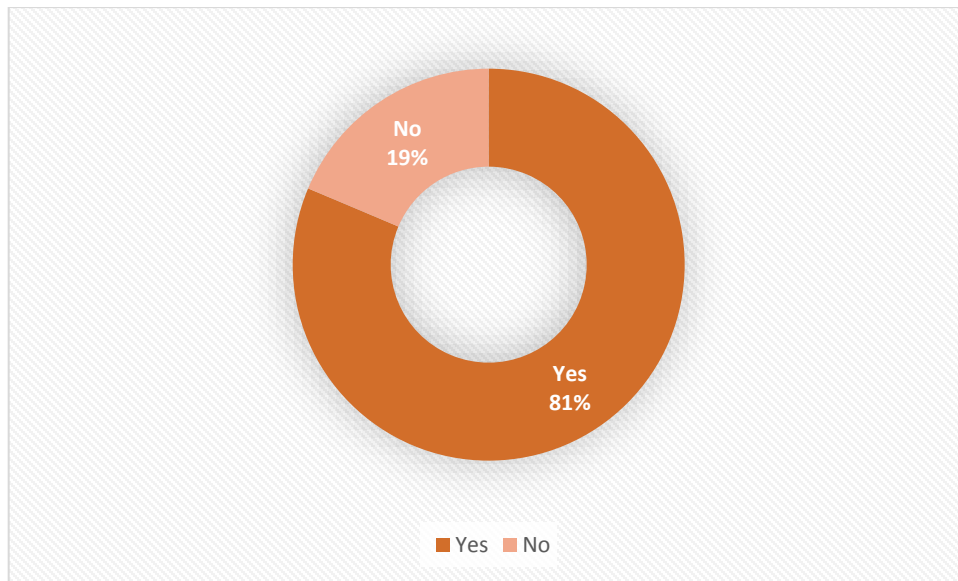


Figure 4.7- Knowledge about the role of healthy-diet plays in managing Dysmenorrhea  
Among of all the participants 81% of them thought a healthy-diet plays important role in managing dysmenorrhea and 19% of them reported as 'No'.

#### 4.9. Knowledge about the usefulness of exercise for managing Dysmenorrhea

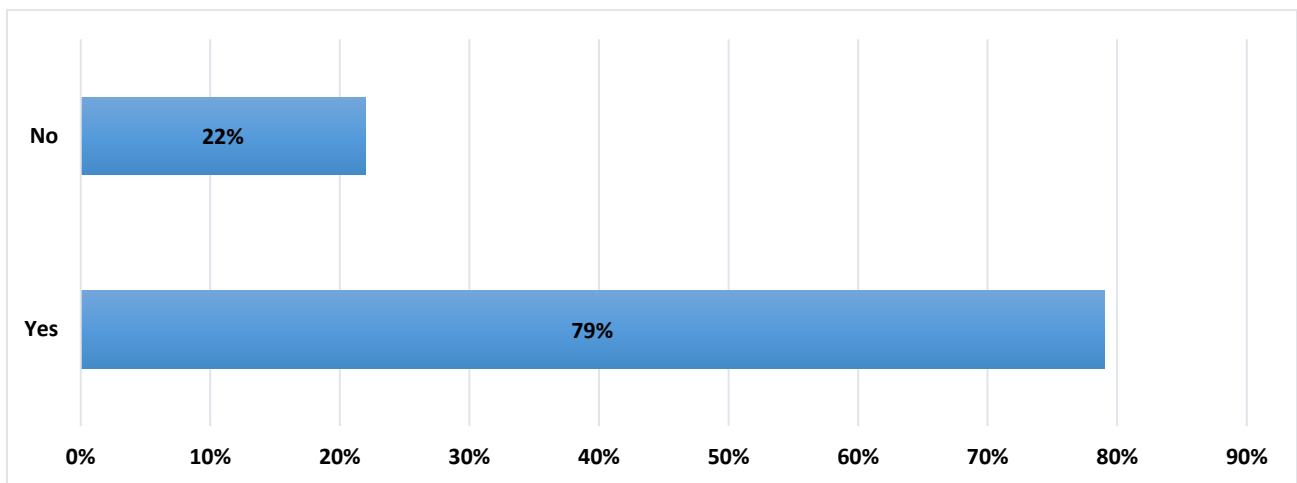


Figure 4.8- Knowledge about the usefulness of exercise for managing Dysmenorrhea  
Majority of them,79% thought that exercise played important role in managing dysmenorrhea and 22% of them were disagreed.

#### 4.10. Knowledge about the benefits of exercise for managing Dysmenorrhea

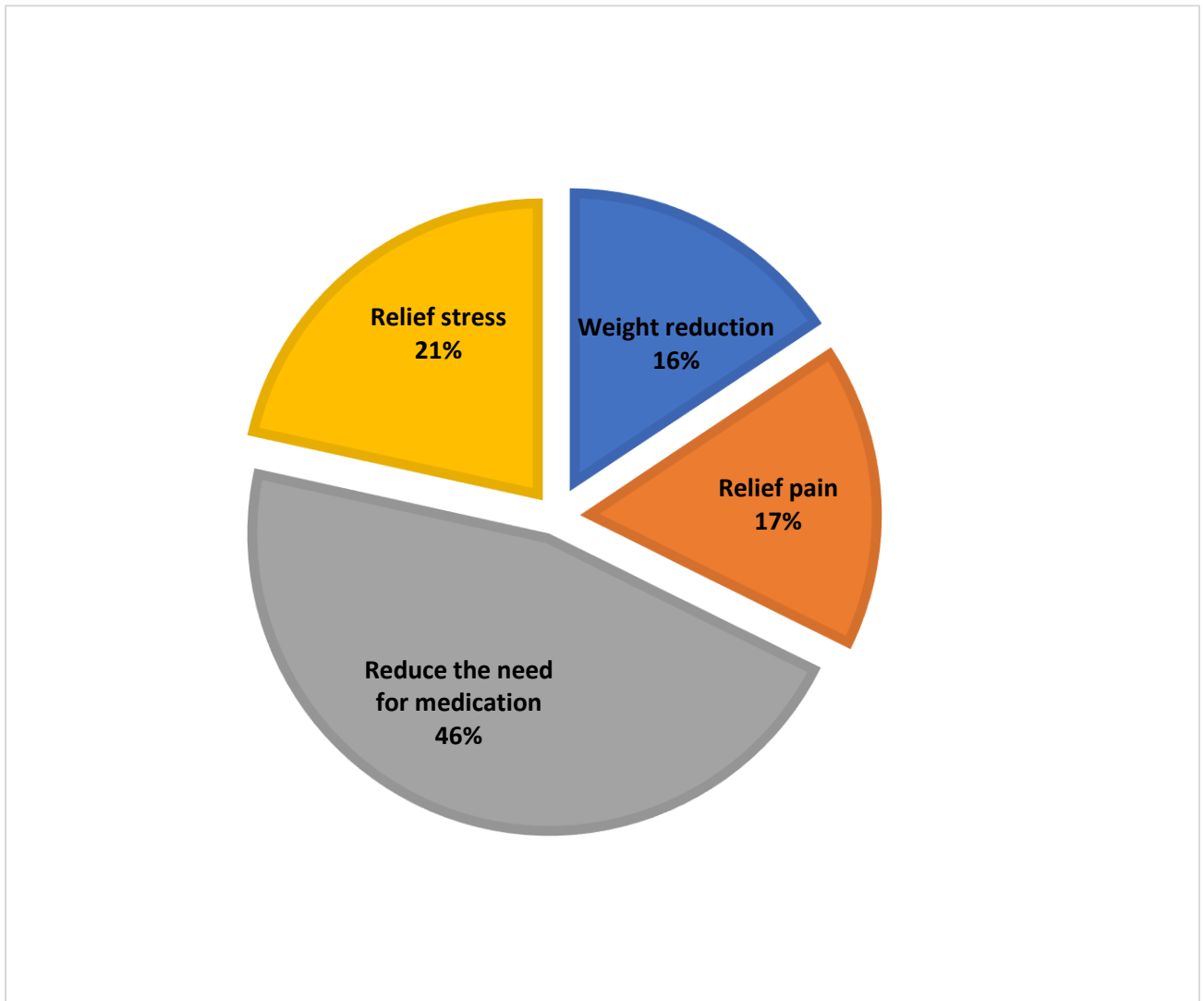


Figure 4.9 – Knowledge about the benefits of exercise for managing Dysmenorrhea

Among of all the participants 46% of them reported that exercise help to reduce the need for medication, 21% said that it is used to relief stress, 17% of them said that it is used for relief pain and 16% said it is useful for weight reduction.

#### 4.11. Knowledge about the signs and symptoms of dysmenorrhea

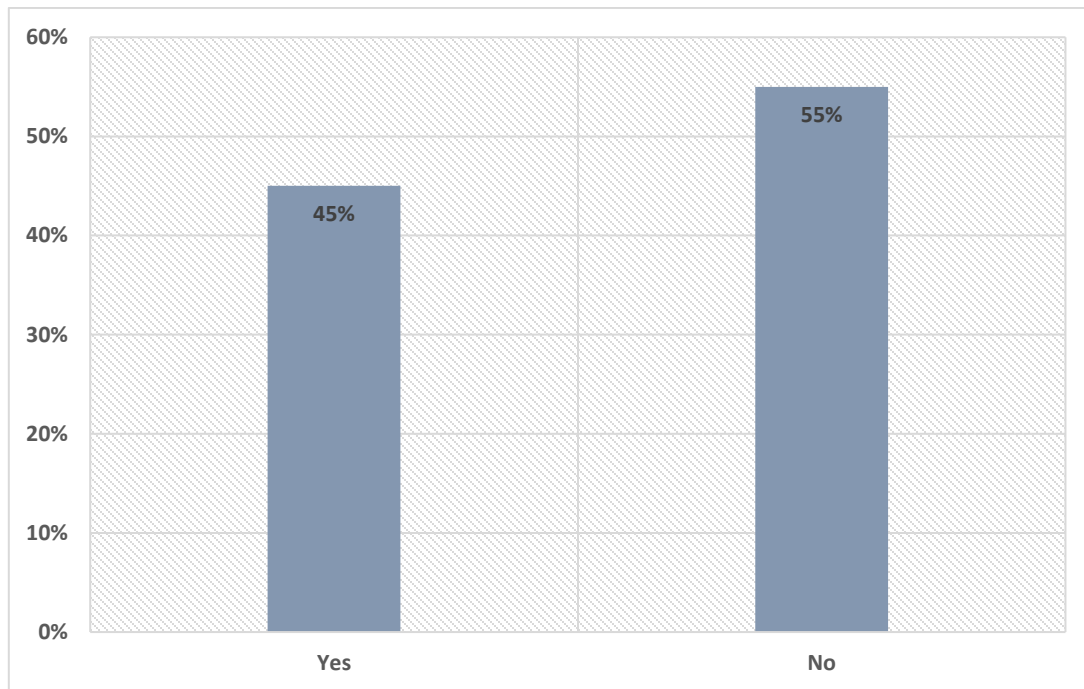


Figure 4.10 - Knowledge about the signs and symptoms of dysmenorrhea

Among all of them 45% had the knowledge about the signs and symptoms of dysmenorrhea and 55% of them didn't have.

#### 4.12. Signs and symptoms face during Dysmenorrhea

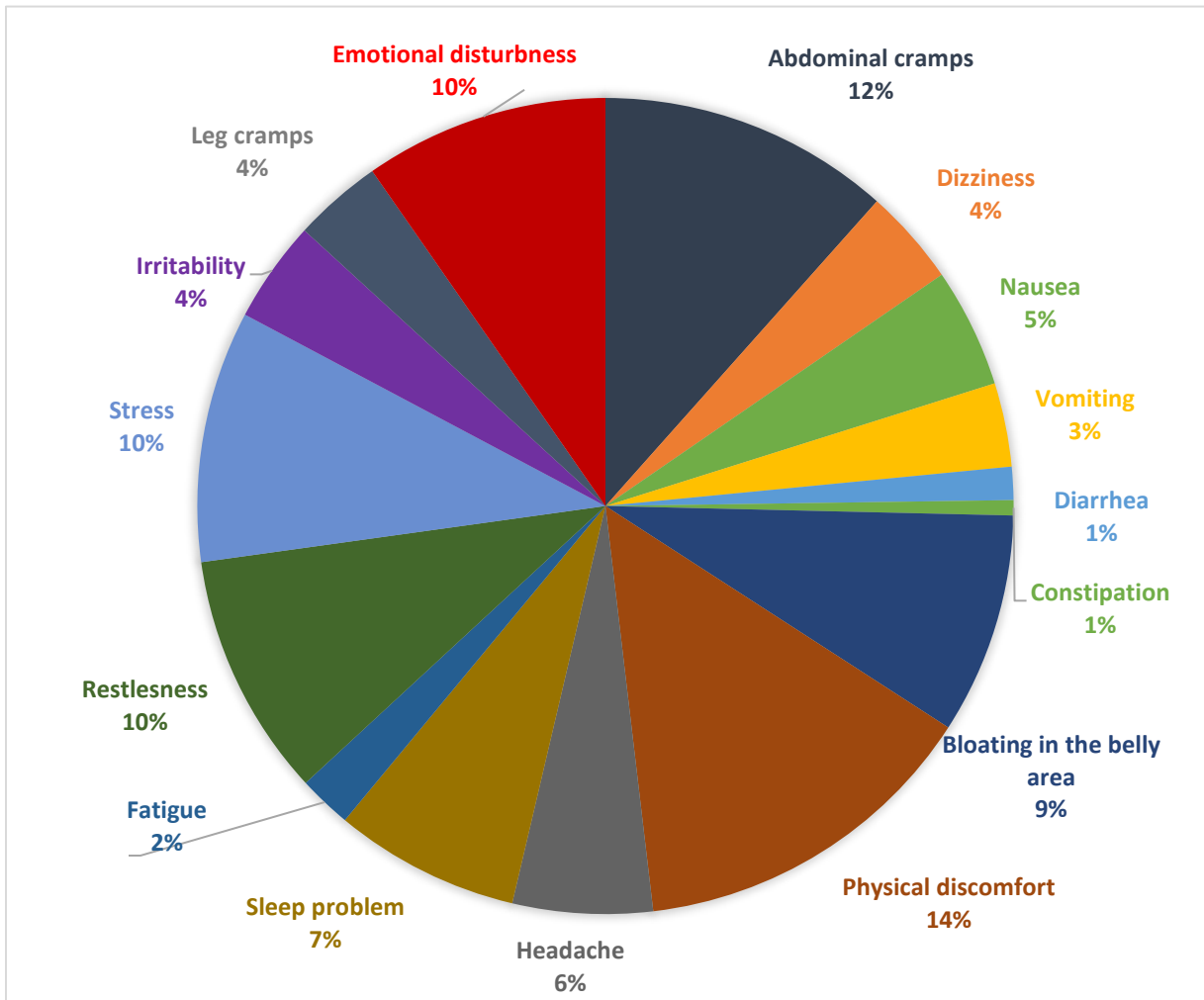


Figure 4.11 - Signs and symptoms face during Dysmenorrhea

Among all of the participants 10% had emotional disturbances, 4% had leg cramps, 4% had irritability, 10% had stress, 10% had restlessness, 2% faced fatigue, 7% of them faced sleep problem, 6% had headache, 14% had physical discomfort, 9% had bloating in the belly, 1% had constipation, 1% had diarrhea, 3% had vomiting, 5% had nausea, 4% had dizziness and 12% faced abdominal cramps.

#### 4.13. Knowledge about risk factors of dysmenorrhea

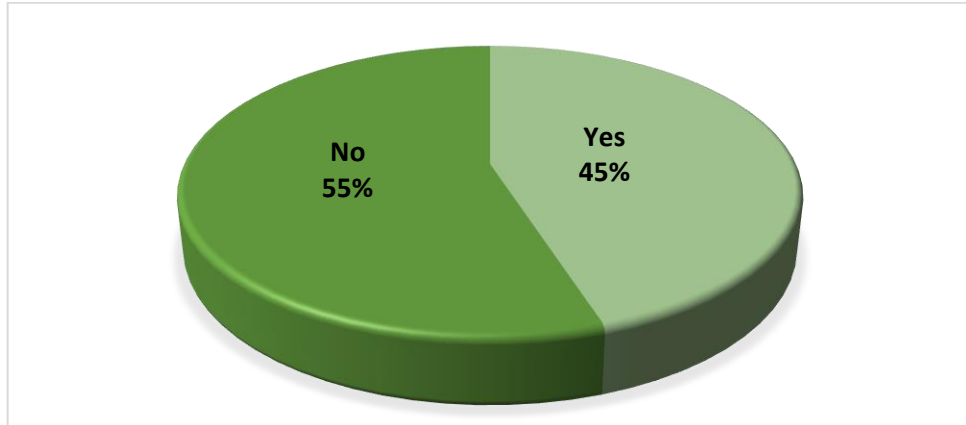


Figure 4.12 - Knowledge about risk factors of dysmenorrhea

Among all the participants 55% of them said no and 45% of them said yes.

#### 4.14. Having risk factors of dysmenorrhea

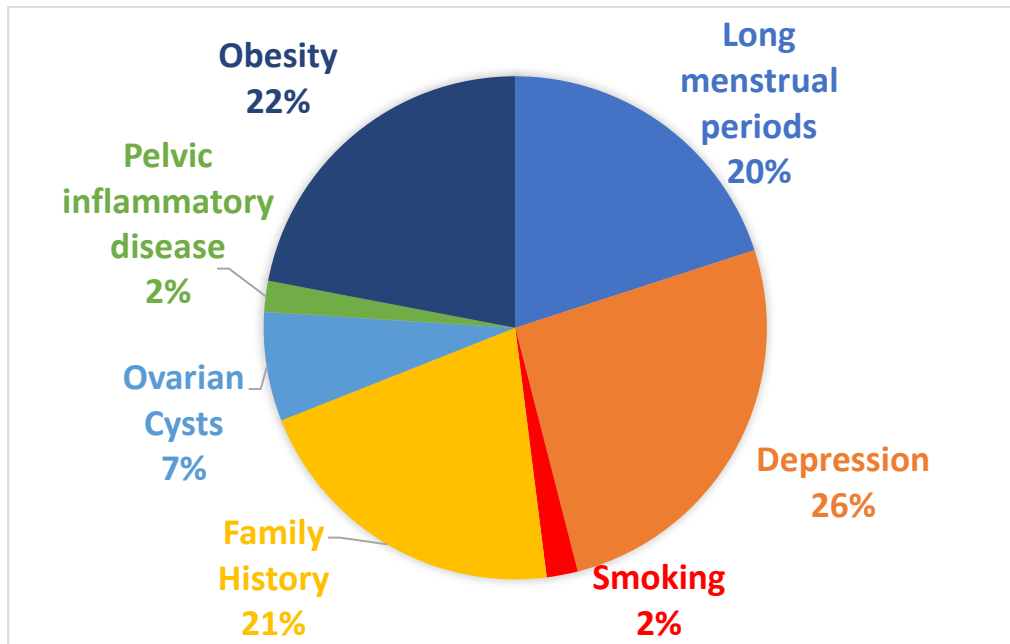


Figure 4.13- Having risk factors of dysmenorrhea

From this study, it's observed that 22% of them had the risk factor of obesity, 2% had pelvic inflammatory disease, 7% had ovarian cysts, 21% had family history, 2% had smoking, 26% are depressed and 20% had long menstrual periods.

#### 4.15. Knowledge about the complication result from dysmenorrhea

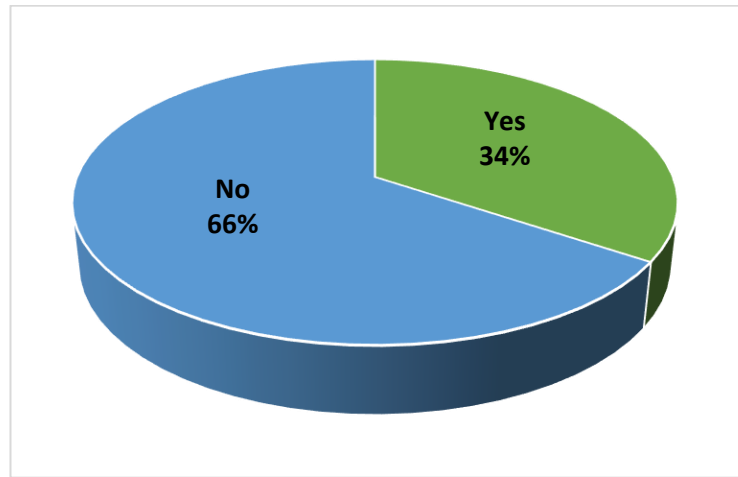


Figure 4.14- Knowledge about the complication result from dysmenorrhea

Majority of the participants around 66% said 'no' and 34% of them said 'yes'.

#### 4.16. Complications arise due to Dysmenorrhea

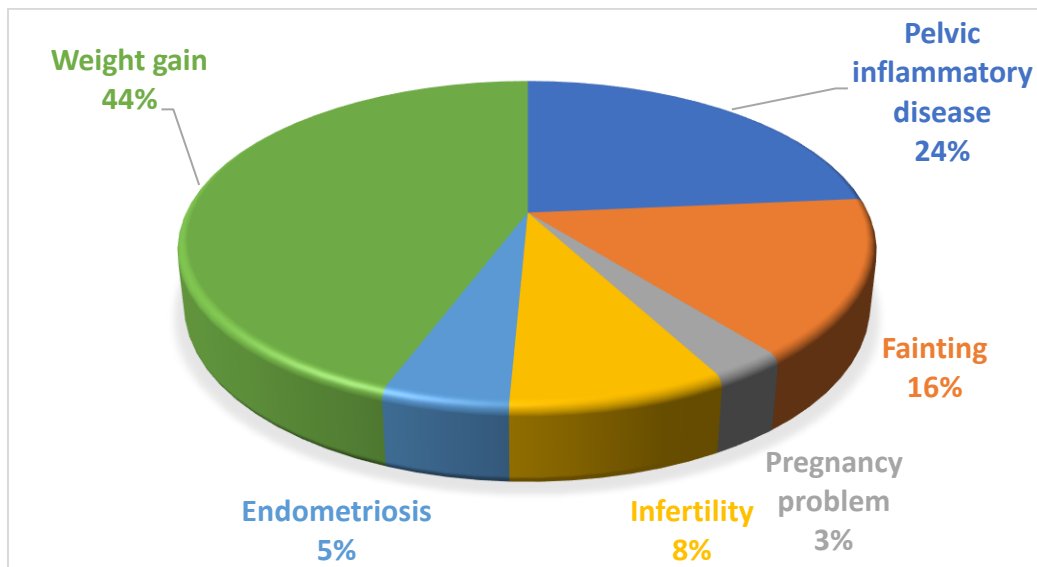


Figure 4.15- Complications arise due to Dysmenorrhea



Around 44% had the complication of weight gain, 24% of them had pelvic inflammatory disease, 16% had fainting, 3% had pregnancy problem, 8% had infertility, 5% had endometriosis.

#### 4.17. Knowledge about the treatments of dysmenorrhea

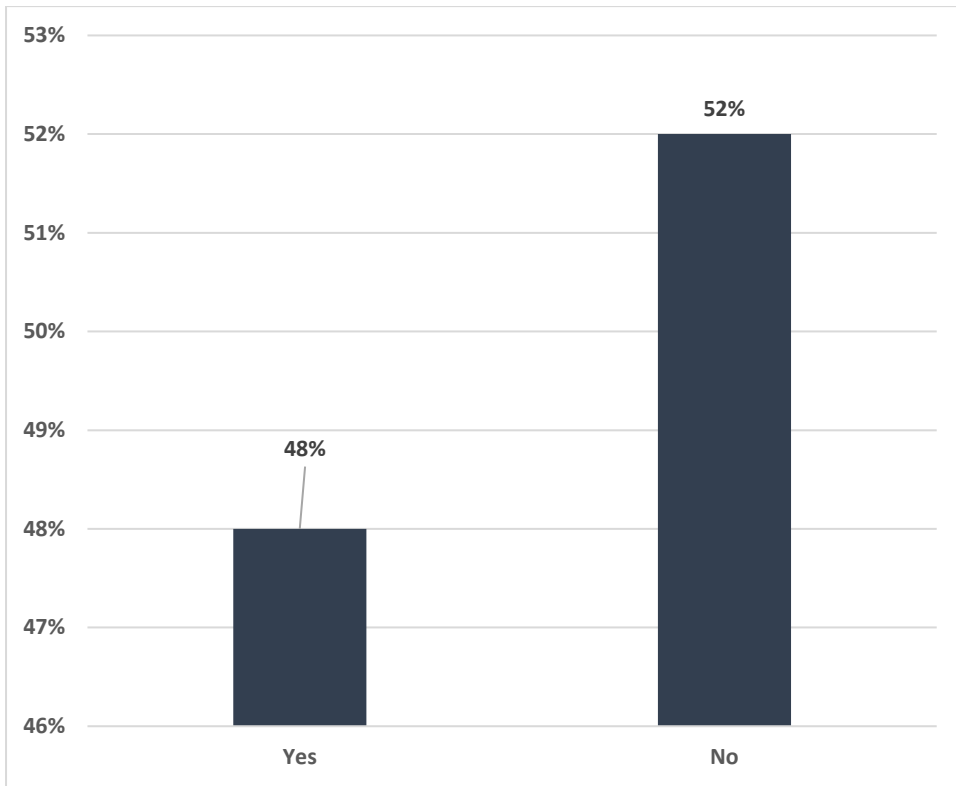


Figure 4.16- Knowledge about the treatments of dysmenorrhea

Among all the participants 52% had no knowledge of the treatment option of dysmenorrhea and 48% had knowledge about it.

## 4.18. Treatment options of Dysmenorrhea

### 4.18.1. Pharmacological

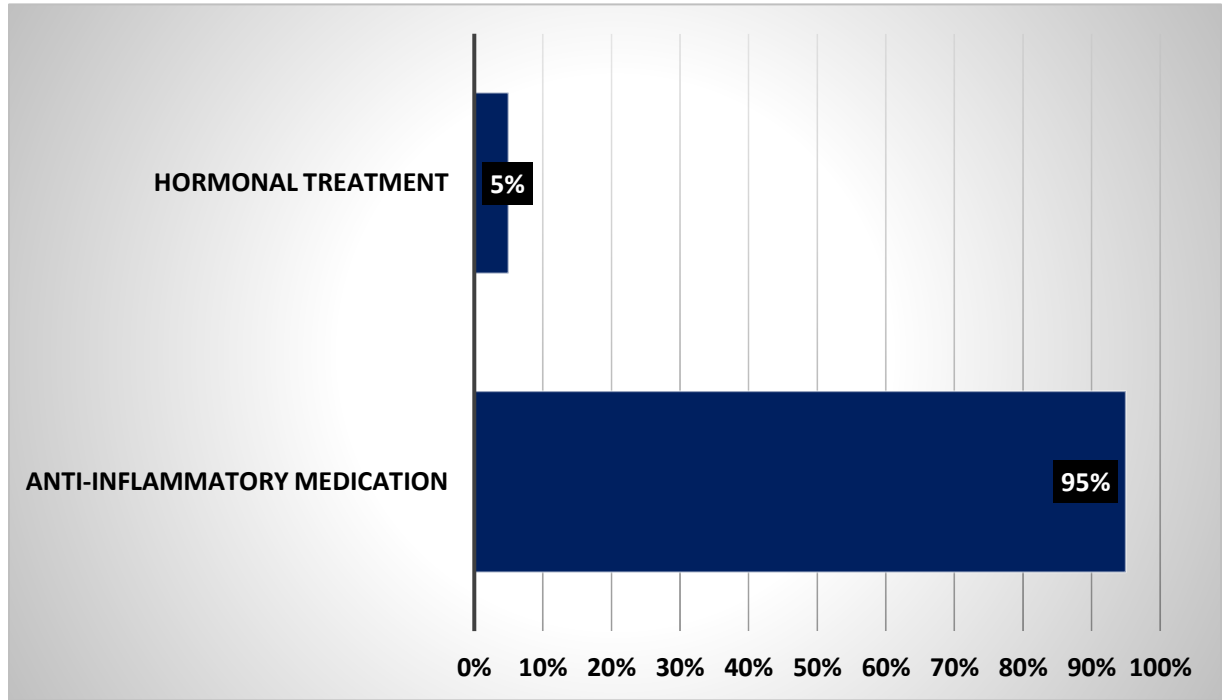


Figure 4.17 - Treatment options of Dysmenorrhea (Pharmacological)

Around 95% of them used anti-inflammatory medication and 5% of them used hormonal treatment.

### 4.18.2. Non-Pharmacological

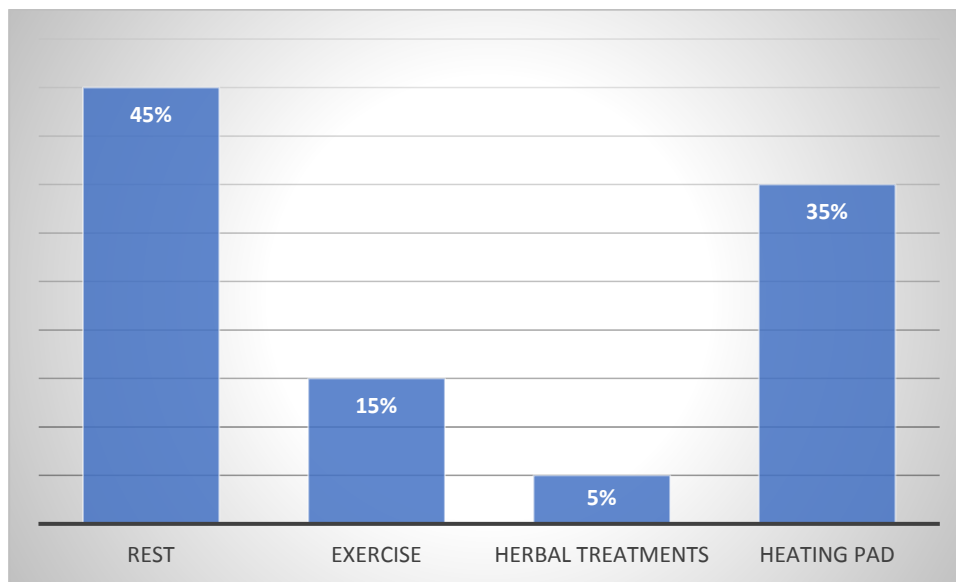


Figure 4.18 – Treatment options of Dysmenorrhea (Non-Pharmacological)

Among all the participants 35% of them applied heating pad, 5% of them had herbal treatment, 15% had exercise and 45% had rest.

### 4.18.3. Change in Diet

	Increase (%)	Decrease (%)	Do nothing (%)
<b>Sweet Intake</b>	<b>0</b>	<b>78</b>	<b>22</b>
<b>Beverages Intake</b>	<b>7</b>	<b>72</b>	<b>21</b>
<b>Vegetables and Fruits Intake</b>	<b>86</b>	<b>12</b>	<b>2</b>
<b>Dairy Products Intake</b>	<b>56</b>	<b>33</b>	<b>11</b>
<b>Animal Fat Intake</b>	<b>19</b>	<b>62</b>	<b>19</b>
<b>Meat and Protein Intake</b>	<b>55</b>	<b>25</b>	<b>20</b>
<b>Consumption of Salt</b>	<b>12</b>	<b>55</b>	<b>33</b>

Table 4-Treatment options of Dysmenorrhea (Change in diet)

#### 4.19. Source of dysmenorrhea knowledge

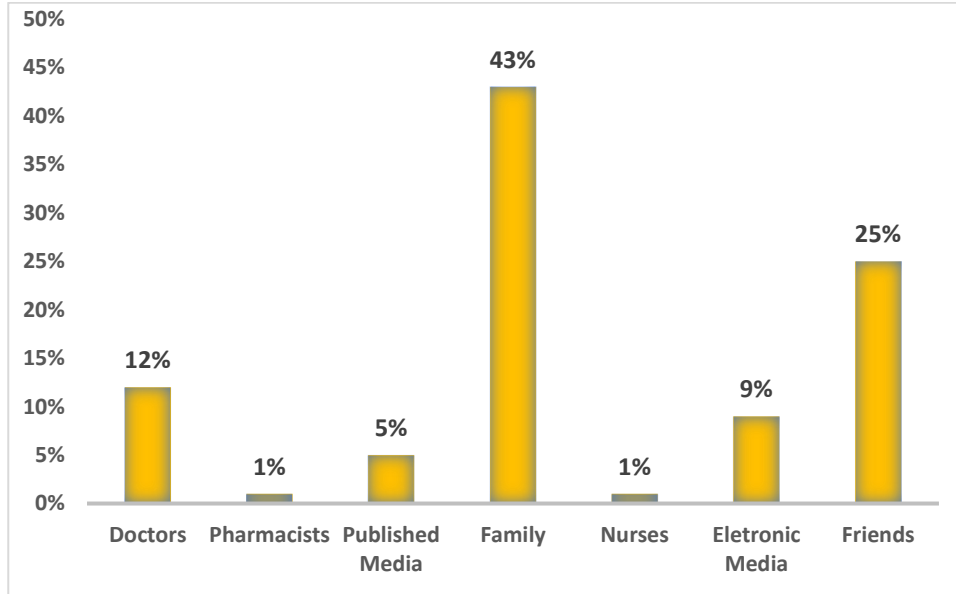


Figure 4.19 – Source of Dysmenorrhea knowledge

Majority of the participants know about dysmenorrhea by their family 43%, 25% of them from friends, 12% from doctors, 9% from electronic media, 5% from published media, 1% from pharmacists and nurses.

#### 4.20. Regular checkup regarding Dysmenorrhea

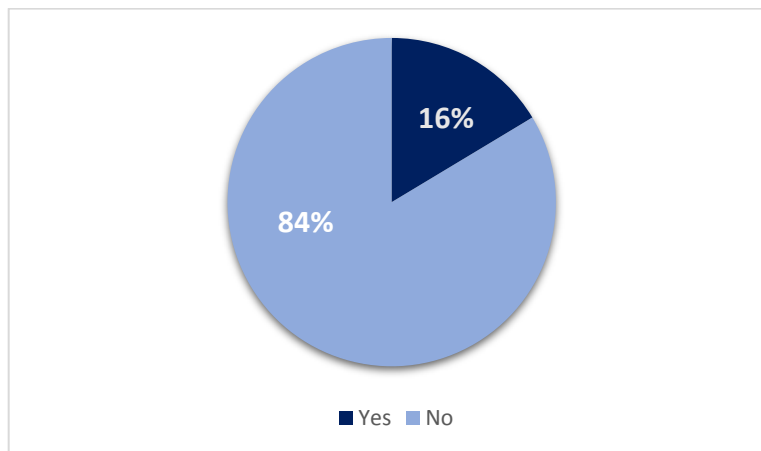


Figure 4.20 – Regular checkup regarding Dysmenorrhea

Around 16% of the participants visit doctors regularly regarding dysmenorrhea and 84% of them don't visit doctors regarding dysmenorrhea.

#### 4.21. Reasons for not visiting doctors

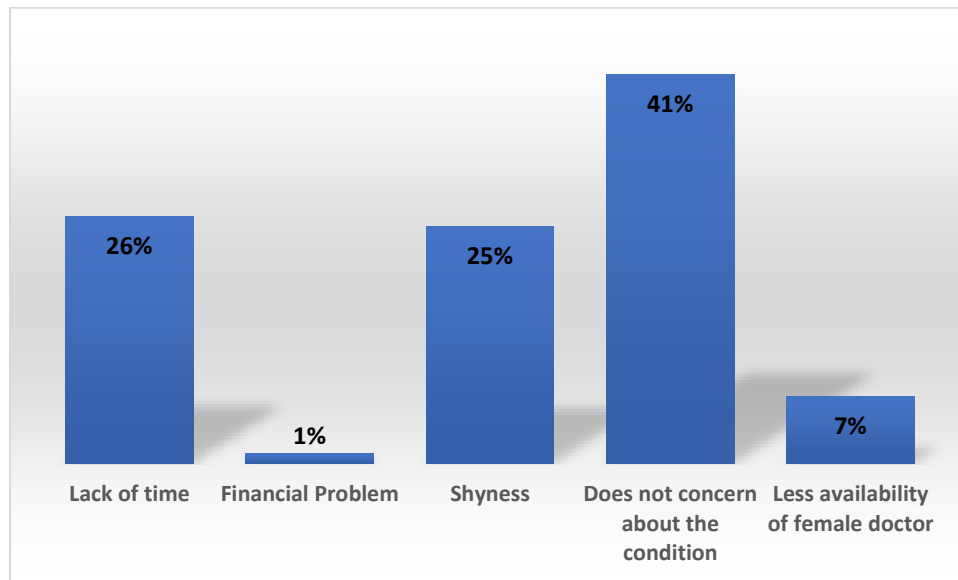


Figure 4.21 - Reasons for not visiting doctors

Around 26% of the participants didn't visit a doctor regarding dysmenorrhea because of lack of time, almost 25% of them didn't go for shyness, around 41% of them didn't concern about the condition, 7% reported for less availability of female doctor and 1% said that they had financial problem.

# **Chapter - 5**

## **Discussion & Conclusion**

## 5.1. Discussion

*Joann* conducted a study on the level of knowledge among adolescent girls regarding effective treatment for dysmenorrhea. It was a questionnaire based survey which was performed by 182 adolescent women, were in the age group of 14-18 years. 72.7% of them had 'pain or discomfort' during their period, 58.9% of them had decreased activity, and 45.6% reported school or work absenteeism, only 15.5% reported that they had used a prescription medication and 14.7% of them used nonsteroidal anti-inflammatory agent, except aspirin. This study showed that there is a significant misinformation and ignorance between adolescent women regarding the treatment options of dysmenorrhea. We performed our study on 300 university students age 18-26 years, they were selected randomly in this survey. One-page structured questionnaire was prepared and it was in English language. The questionnaire has different parts consisting personal details, familiarity and perception about Dysmenorrhea, signs & symptoms of Dysmenorrhea, risk factor and complications of Dysmenorrhea, diagnosis & treatments of Dysmenorrhea. From our study we can observe that majority of them had no idea about the treatment options of dysmenorrhea (53%) and around 47% of the participants had knowledge about the treatment options. Anti-inflammatory medication had been used by 95% of them and 5% of the population used hormonal treatment, some of them also used non-pharmacological medications such as rest (31%), exercise (33%), heating pad (24%), herbal treatment (12%) (Jones, 2012).

*Hong Ju* performed a study to assess the prevalence and risk factors of dysmenorrhea. In this study the prevalence of Family history (21%) is also a responsible factor for dysmenorrhea, it is one of the risk factors of dysmenorrhea which strongly increased its risk of dysmenorrhea, except these smoking (2%), obesity (22%), depression (26%) are also increased the possibility of dysmenorrhea and it is consistent with the Hong Ju's study (Ju, 2000).

*Chatnay* conducted a questionnaire based survey, completed by 706 Hispanic female adolescents, in grades 9 through 12. The aim of this study was to determine the prevalence of dysmenorrhea among Hispanic female adolescents; its impact on academic performance, school attendance, and sports and social activities; and its management. Among all the participants, who had a period in the previous 3 months, among them 85% of participants reported dysmenorrhea. Of these, 38% reported missing school due to dysmenorrhea during the 3 months prior to the survey and 33% of them reported missing individual classes. Their regular activities affected by dysmenorrhea included class concentration (59%), sports (51%), class participation (50%), socialization (46%), homework (35%), test-taking skills (36%), and grades (29%). Treatments taken for dysmenorrhea included rest (58%), medications (52%), heating pad (26%), tea (20%), exercise (15%), and herbs (7%). Among them 14% consulted a

physician and 49% saw a school nurse for help with their symptoms. We performed a questionnaire based survey which was performed by 300 university students age 18-26 years, they were selected randomly in this survey. Most of them reported that treatments taken for dysmenorrhea rest (31%), heating pad (24%), exercise (33%) and herbal treatment (12%), which is consistent with the study (Speer, 2014).



## **5.2. Conclusion:**

This study concludes that the level of knowledge about causes, sign & symptoms of Dysmenorrhea is insufficient. From this study we see that, the level of knowledge about Dysmenorrhea is not enough. We consider it is necessary to improve knowledge about Dysmenorrhea and upgrading the current health care curricula.

Dysmenorrhea is a very common problem and affects quality of life in reproductive aged females. Dysmenorrhea will require the attention and can be better managed by appropriate change in lifestyle, assurance and medicine.

# **Chapter - 6**

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