

An Exclusive Review on Menstrual Problems

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Abstract

Menstrual cycle is a multifarious process controlled by numerous glands and the hormones produced in our body. The hypothalamus in brain makes the pituitary gland to produce certain chemicals to prompt the ovaries to produce the oestrogen and progesterone sex hormones. The menstrual cycle is a technique of bio feedback mechanism, which means the activity of each structure and gland is affected by other gland's functions. The average span of the menstrual cycle is 28–29 days, which can differ between women themselves from one cycle to the next cycle. Adolescent girls get their menarche between 11 to 14 years of age. The main objective of this review is to assess the literature concerning the various perimenstrual and menstrual problems and its prevalence. Most common symptoms associated with menstruation in adolescents and women are dysmenorrhoea, irregular periods like primary ovarian insufficiency, pelvic inflammatory disorder, heavy menstrual bleeding, uterine fibroids, uterine polyps, Abnormal Uterine Bleeding (AUB), amenorrhea, oligomenorrhoea, polymenorrhoea, hypomenorrhoea, and menstrual migraine. The predicted causes for menstrual problems in both adolescent girls and women are modified lifestyle, improper dietary intake, lack of physical exercise or activity in daily life which may lead to many hormonal imbalances in body. Conclusion of this review revealed that changes in dietary patterns, improved lifestyle with beneficial exercises, maintaining hygiene during menstruation and imparting health and education can help reduce the menstrual problems and improve the quality of life.

Keywords: Menstruation, Nutrition Education, Perimenstrual Symptoms

female reproductive system that makes pregnancy possible.

1. Introduction

All the adolescent girls who enter puberty undergo bodily changes to become an adult to facilitate reproduction. Menstruation is a normal process that females go through as their bodies prepare themselves for a potential pregnancy. It is regular cycling of hormones every month that occur in the

The original medical term of menstruation is shedding of the functional layer or lining of the uterus.

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Blood, tissues and other materials are discharged through the cervix and vagina at a regular monthly interval from puberty to menopausal stage, which has exception during pregnancy periods. This discharge lasts for about 3-5 days and has been spotted for another 2 days, and it depends on the adolescent girl's body nature and hormonal

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dissolve. Then the cycle begins once again. Menarche is symbolizing the onset of sexual maturity. The average age at menarche is 13.8 years and it ranges from age of 9 to 18 years, gets different according to race, cultural practice, and society. By this stage many changes would happen in the body especially sexual characteristics. The other major physiological changes are an increase in height, wider hips, acne, changes in hormonal level, increased body odour, sweating under armpits, and sometimes with oilier and sweat face¹.

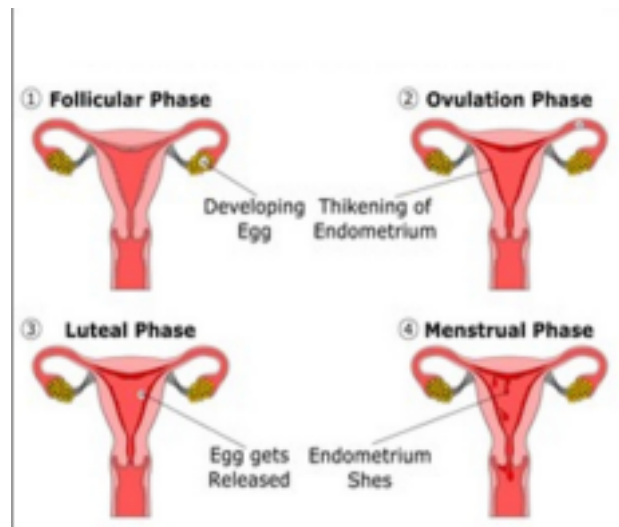
1.1 Phases of Menstrual Cycle

Menstrual cycle is divided into 2 phases i.e., follicular or proliferative phase and the luteal or secretory phase. But other researchers described the menstrual cycle as 4 phases (Figure 1) i.e., the Menstrual phase, Follicular, ovulation, and luteal phase (myhealth.alberta.ca)². Each and every stage the function of hormones can change and shows some major modification. For example, during a menstrual phase, a thick fluid would discharge from the lining of the uterus (endometrial cells) which contains blood, cells, and mucus. The average length of periods is between 1st to 5th days where normally 10 to 80 ml of blood loss would happen with abdominal cramps³.

During follicular phase, which starts from the 1st day of menstruation and ends at ovulation, but it lasts till the 13th day of the menstrual cycle, here hormonal stimulate

condition.

Menstrual cycle is mentioned as "Hormonal Progressive Cycle" in which the first day of periods is bleeding, and approximately on the 14th day starts to ovulate and if an egg is not fertilized, hormone levels finally drop, and at 25th day the egg begins to soften and



the ovary to produce 5 to 20 tiny nodules, cysts follicles, or eggs, which may drop on the surface. It takes 13 days for the eggs to reach maturity. This stage initiates follicle growth stimulating the uterus lining in preparation for possible pregnancy.

At ovulation time developed follicles raise the level of oestrogen and the brain recognizes this rising level to release a chemical called Gonadotrophin-Releasing Hormone (GnRH). This ovulation starts on the 14th day of the cycle.

After these hormones release the pituitary glands prompts to produce Luteinising Hormone (LH) and Follicles Stimulating Hormones (FSH) i.e., it occurs approximately 10-12 hours after the LH⁴. So, the life span of the typical egg is only around 24 hours, unless it meets sperm. This luteal phase occurs between the 15th day to 28th day and the hormone that causes the uterus to retain the endometrium to get used up by the end of the menstrual cycle. These origins are the menstrual phase of the next cycle to start the process again.

1.2 Premenstrual Syndrome

Women at reproductive age experience emotional or physical symptoms in the premenstrual phase. Pre Menstrual Syndrome (PMS) is a combination of symptoms that many women get about a week or 2

days before of their period. The distinctive symptoms of premenstrual syndrome include mood swings, anxiety, and irritability and physical problems like headache, fatigue, bloating, sleep disturbances, nausea, and breast tenderness. About 90% of the women all over the world including Pakistan, experience these symptoms during their childbearing age⁵. Some of the women who experiences severe symptoms while in school or at work and some reported milder symptoms. At age of 30's most of the women have PMS till menopause stage.

Many research studies proved medically that, clinically significant premenstrual symptoms were named Pre Menstrual Tension (PMT) or Pre-Menstrual Syndrome (PMS). According to WHO and the International Classification of Diseases (ICD) mention, it is named "premenstrual tension Syndrome".

The Diagnostic and Statistical Manual III defined the severe form of premenstrual syndrome as Pre-Menstrual Dysphoric Disorder (PMDD). The diagnosis of PMDD

specifies 3 important measures i.e., "(i) The presence of **Figure 1.** Phases of menstrual cycle.

at least 5 luteal-phase symptoms like depressed mood, anxiety or tension, affect lability or persistent anger, and irritability which are commonly called "mood symptoms", (ii) 2 cycles of daily monitoring to confirm the timing of symptoms, and (iii) marking evidence of functional impairment."

The American College of Obstetrics and Gynaecology (ACOG) has attempted and defined the moderate to severe PMS⁶. The researcher Pearlstein (2005) reported the timing of PMDD symptom severity across menstrual period by using Daily Rating of Severity of Problems (DRSP). In this study, they found that the average total symptoms of beginning of the luteal phase through adapted rating scale. According to this rating scale, "the symptoms peak happened on day-2. This study estimates for lifetime comorbidity between PMS and other mood disorders range from 30% to 70%⁷".

"Menstrual problems are very common in girls. Periods can be irregular, sometimes heavy and painful, which happens especially in the first few years following menarche. There is no serious pathology happens but menstrual dysfunction can have a significant effect on body which may show an impact on daily activities and result in school absence⁸. Even though there are many treatment options that are useful to adolescent but sometimes its end up in serious problem in future".

2. Major Menstrual Problems

Regular periods are a sign of normal body function. Most of the adolescent girls and women have regular menarche cycle unless pregnant, breastfeeding, postmenopausal, and have a medical condition which causes the periods to stop. Irregular painful or heavy periods show signs of a serious health problem.

2.1 Dysmenorrhea

Many researchers stated that Dysmenorrhea is a very common problem with painful menstrual cramps of uterine, which are classified into 2 categories primary and secondary dysmenorrhea. The primary stage of dysmenorrhea is described as menstrual pain without any pelvic pathological changes which causes the symptoms of rose up endometrial prostaglandins and their metabolites.

Clinically 45% to 95% showed prevalence of dysmenorrhea, chronic pelvic pain was reported by 17% and 80% and many medical studies of prevalence showed other several factors which are associated with dysmenorrhea like BMI, Early menarche, prolonged menstrual flow and psychological disturbances⁹. Among 33.5% of adolescent girls in India were with dysmenorrhea¹⁰ but a recent study reported that dysmenorrhea to be a common problem in India with a prevalence of 87.7%¹¹.

2.2 Irregular Periods

Irregular periods are normal for few years in teenage girls and perimenopausal women.

According to Vasiliki (2016)¹²—“72.2% were suffered from menstrual cycle disorders, 15.1% and 24% of women were overweight and obese respectively and also, 36% of subjects had androgenic alopecia, and 56.4% had acne”. Current evidence says totally 5-12% of women under the reproductive age were affected by PCOS and supports a close relationship between both the grade of cycle irregularity and endocrine and metabolic disorders¹³.

2.3 Primary Ovarian Insufficiency (POI)

‘Primary Ovarian Insufficiency’ is defined as impaired or abnormal functioning and weakening of ovarian follicles with termination at the age of 40 years or before stopping of reproductive age of women. In olden days it referred as a “premature menopause or primary ovarian failure”, this primary

ovarian insufficiency is named by National Institutes of Health due to ovarian function is unpredictable in many cases. Nearly 5-10% of women were suffering from POI at spontaneous conception and delivery¹⁴.

2.4 Pelvic Inflammatory Disease (PID)

PID is an inflammation of the upper genital tract because of infection in women which affects the uterus, fallopian tubes, and ovaries and sometimes it spreads from lower genital tract. According to Woodhall (2018)¹⁵ majority (85%) cases of PID are associated with sexually transmitted infected bacteria. Approximately 10% to 15% of women were endocervical Neisseria gonorrhoea type of bacteria which develop PID more severe than PID due to other causes¹⁶.

2.5 Heavy Menstrual Bleeding

One in five American women is affected each year with heavy periods and experience of pain affected their normal activities such as schooling and work. The major aetiology of heavy bleeding including problems with ovulation thickening of uterine lining, uterine fibroids, polyps, pregnancy problems and bleeding disorders. Recent research found that many women are affected by myalgia encephalomyelitis or chronic fatigue syndrome which shows a higher risk for heavy bleeding¹⁷.

Even in developed countries an average of 20-30% of women faced the problem of heavy menstrual bleeding¹⁸. Apart from the physical symptoms of anaemia, fatigue, lethargy exertional dyspnoea and excessive menstrual bleeding can disturb normal daily life and productivity.

2.6 Uterine Fibroids

Uterine fibroids are termed leiomyomas or myomas are the commonest benign uterine tumours, with an assessed prevalence of 20-30% in women during their age of reproductive stage¹⁹. Mostly women in the age of 40-49 years in UK (9.4%) and Italy (17.8%) shows the prevalence of uterine fibroids²⁰.

2.7 Uterine Polyps

According to Reslova (1999)²¹—“Polyps is an abnormal growth containing glands, stroma and blood vessels projecting from the lining of the uterus (endometrium) that occupies spaces small or large enough to fill the uterine cavity. This happens during both the reproductive and postmenopausal phases of life”. “About 82% of the women were verified with polyps asymptomatic and 50% of subjects were under the abnormal uterine bleeding²² and 35% of infertility”²³.

2.8 Abnormal Uterine Bleeding (AUB)

Abnormal Bleeding is any bleeding that is different from a typical menstrual period when does not have an exact time for periods. There are many reasons to get this type of problem i.e., hormonal changes, endometriosis ovarian cysts, and cancer such as uterine, cervical and ovarian cancer.

Nearly 5-36% of adolescent facing this ovulatory dysfunction with heavy menstrual bleeding, those have an underlying bleeding disorder. The most common form of Bleeding Disorder is reflecting 13% of adolescent with Abnormal Uterine Bleeding²⁴.

2.9 Amenorrhea

Amenorrhea (Missing periods) refers to the absence of menstrual periods either it may be primary or secondary condition. Primary means a woman never developed menstrual periods and secondary means absence of menstrual periods in a woman who already have menstruating problems²⁵. The main causes of this problem are genetic or inborn conditions, disorders of the ovaries, uterus, hypothalamus, intensive exercising, eating disorder (anorexia nervosa), and extreme weight loss, physical illness, stress, hormonal problems, Practice Committee of the American Society for Reproductive Medicine²⁶ and other serious problems are birth defects, tumours in brain, infertility and possible bone loss (osteoporosis). In India, the prevalence of amenorrhea among adolescent girls is about 21.3% in Uttar Pradesh²⁷.

2.10 Oligomenorrhea

Irregular and inconsistent menstrual blood flow is Oligomenorrhea, it may impact normal menstrual flow at menarche, postpartum or in a perimenopausal period. According to Hennegan, 2020²⁸ reported that it is also higher prevalence in Uttar Pradesh, India. Approximately 12.8% of adolescent girls are suffering with this problem.

2.10.1 Polymenorrhea

Polymenorrhea is another major condition which describe as a menstrual cycle that is shorter than 21 days²⁹. Nearly 22.2% of adolescent girls are polymenorrhea in Uttar Pradesh²⁷.

2.10.2 Menorrhea

Kulshreshtha²⁷ reports "Menorrhea is defining as the flow of blood from the uterus and occurs at roughly monthly intervals during woman's reproductive years and 15.9% of adolescent girls are under this problem in India"³².

2.10.3 Hypomenorrhea

Hypomenorrhea is another major problem among menarche attained adolescent girls, this condition describes as short or scant periods and extremely light menstrual blood flow³⁰. In India, nearly 15% of adolescent girls are affected by hypomenorrhea.

2.10.4 Menstrual Migraine

Many researchers reported that in their lifetime about half of the women report that problem of migraine happens around their periods³¹. According to Bajalana³² "Researchers are not sure what causes migraines and research still in progression. Many factors can trigger migraines including stress, anxiety, and bright or flashing lights. Also, hormones that control the menstrual cycle may affect headache-related chemicals in the brain".

Food is a vital component and it has a powerful effect on physical, mental and emotional feelings of the subject during each phase of menstrual cycle. Evidence suggests diets rich in nutrients help to tackle menstrual problems. Further salt restriction will help to reduce fluid retention, abdominal bloating, breast swelling and pain and also high caffeine intake causes irritability, poor sleep and menstrual cramps in PMS. Regular exercise release hormones such as serotonin and endorphins and exercising women are less likely to suffer from menstrual cramps, pain and mood disturbances. Bajalan *et al.* (2019)³³ reported in his study that "the increased consumption of fruits and vegetables as the sources of vitamins and minerals, as well as fish and milk and dairy products have positive associations with less menstrual pain. Inconsistent results were reported on the consumption of other nutritional groups. Studies showed negative associations of meal skipping and following diet to lose weight with severity of dysmenorrhea".

4. Conclusion

3. Nutritional Status to Overcome Menstrual Problems

The common symptoms of PMS disappear as menstruation commences. Most of the women and adolescent girls are affected by the menstrual problems because of changes in dietary habits, faulty food choices, lifestyle and stress. They can overcome the menstrual problems with balanced intake of nutrients, beneficial exercises and hygienic practices during menstruation which will also help to reduce the menstrual problems and improve the quality-of-health.

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