



Menstrual Cycle Concerns and Awareness: A Myth or a Belief

Kumar R^{1*}, Kumar S² and Akanksha³

¹Department of Psychology, GCW Hisar, India

²Department of Psychology, GC-11 Chandigarh, India

³Department of Psychology, GC Hisar, India

***Corresponding author:** Ramesh Kumar, Department of Psychology, GCW Hisar, India, Tel: +919317772032; Email: rameshgustpsycho@gmail.com

Received Date: September 02, 2024; **Published Date:** September 19, 2024

Abstract

This article delves into the intricate interplay between the menstrual cycle and various dimensions of female health. Investigating the mental, emotional, and social aspects of self-worth, the present review seeks to uncover the multifaceted nature of this biological phenomenon. Through an amalgamation of extensive literature review and empirical analysis, the study explores how hormonal fluctuations during menstruation contribute to physiological changes, potentially affecting energy levels, exercise routines, and dietary habits. It explores mental health concerns by investigating the potential links between hormonal fluctuations and cognitive processes. Emotional well-being is scrutinized, considering the influence on mood, stress levels, and overall emotional stability. Social dynamics are examined to understand how menses impact interpersonal relations, communication patterns, and societal attitudes and perceptions. Psychological dimensions are explored, seeking insights into the broader implications of menstruation on a female's sense of self and identity. Additionally, it scrutinizes implications on daily activities such as work, education, and leisure pursuits. Additionally, we analyse the physical implications of menstruation, incorporating nutritional measures to assess the impact of energy levels, dietary habits, and overall physical health. Moreover, by integrating nutritive measures, its purpose is to offer practical insights that may inform holistic approaches to female health, fostering awareness and support systems tailored to the diverse needs of women as they navigate the challenges and opportunities associated with menstruation.

Keywords: Menstruation; Menstrual Cycle; Adolescents; Women

Abbreviations

PMS: Premenstrual Syndrome; SES: Socioeconomic Aspect; PCOS: Polycystic Ovary Syndrome.

Introduction

What if someone wonders about the origin of the term menstruation and whether menstruation and menstrual

cycle are the same? The etymological meaning of the term menstruation is the moon, derived from the Latin word 'mensis'. A well-known notion stated the moon's role in a woman's menstruation due to the similarity in the periods between menstrual (28 days) and the lunar cycle (29.5 days). After that, a synchronous interdependence between the two was confirmed [1]. It is often seen that layperson uses the terms menstruation and menstrual cycle as substitutes for each other. However, both these terms vary widely. While one

depicts a whole, the other depicts only a phase/stage. It is due to the presence of the uterus that a woman experiences periods per month. The presence of a monthly cycle in women is a result of evolutionary theories, highlighting the biological basis and adaptive significance of the monthly cycle [2].

A female's body is in jeopardy throughout life due to profusion of changes. As a determining impregnation agent, this harmonious pattern of changes within women is termed the menstrual cycle. The shedding of the uterus lining due to no fertilization of the ovum leading to bleeding is known as menstruation. Sevim Y, et al. [3] described menstruation as the 'weeping of a disappointed womb' in case of no fertilization. As a woman plays a vital role in reproduction and other natural, social processes, it is necessary for her to take good care of herself and her body. Every human goes through various stages of growth and development. Adolescence or puberty is a phase of important transitions and experiences marked by fierce bursts in various dimensions, including physical, mental, and emotional development and hormonal changes. Both males and females have their rapid phases of growth and hormonal changes; however, unlike males, females experience the commencement of monthly cycles at puberty. This biological process has a long-lasting duration and experience among females, which is widely expressed and observed via varied dimensions/factors as consequences amid mental and emotional states, social approval and isolation, self-concept and well-being, and adjustments related problems, etc. Menstruation-related impacts like worry, cramps, discomfort, etc, are often negative, as quoted in a study. This current analysis will look into the various pre and during effects and problems faced or symptoms suffered by females at the time of monthly cycles; moreover, the study will also attempt to answer the question(s) of what and how much effect a particular factor counted upon ahead has on a female during the cycle, in addition to this it also seeks to find out the interrelation between menstruation and varied variables.

Menstrual Cycle: An Overview

The term menstrual cycle is a series of events inside a woman's body, preparing her for the monthly pregnancy chances. A particular monthly cycle begins from the former day of the menstrual period and covers the period up to the first day of the next menstrual period. Though the cycle may differ slightly individually, the process is the same. Female hormones trigger the menstrual cycle. The menstrual cycle is regulated by the intricate interplay of hormones, with rising and falling levels of estrogens and progesterone triggering the cycle's different phases [4]. A female of age 10 to 15 experiences menstruation when she attains puberty, a phase called menarche. An end to menstruation at about age 50

is called menopause. The days between menstrual periods constitute the length of the menstrual cycle. On average, a menstrual cycle lasts for 28 days. However, it is important to note that a normal cycle can vary in duration, ranging from 21 to 35 days. Most females have their periods (bleed) from three to seven days. However, it can range from as short as two days to as long as eight days [5].

However, the amount of bleed, the length, and duration may vary from person to another. The menstrual cycle may change from teens to ones 40's or 50's. It is considered normal for individuals to experience longer menstrual cycles or heavier menstrual flow, especially during the onset of their first period. Establishing regular menstrual cycles may take up to 3 years for young individuals after menstruation. Once the female reaches her 20s, cycles become more consistent and regular. Stress, hormonal imbalances, certain medical conditions, and lifestyle factors can contribute to variations in the length and regularity of the menstrual cycle [6]. Further, many such changes, their causes, and major effects or consequences will be discussed; moreover, the preventive measures to overcome such symptoms or problems aroused due to menstrual disorders will be noted.

Psycho-Physiological and Biological Changes

Puberty is interlinked with a series of changes in the case of girls. A female's transition from a girl to a woman can be positive if one tries to understand what is happening within the body. It is often seen that some girls get excited about wearing their bras for the first time; however, some other changes, like first period or changes to their size, can be fearful. A study by Thompson EM, et al. [7] revealed that changes in breast size during puberty can lead to anxiety and self-consciousness, which can also be fearful. Thus, demonstrating the process and sequence that may affect girls physically, emotionally, and socio-economically is essential. Some of the effects of the menstrual cycle can be unpleasant. A systematic review by Murphy JA, et al. [8] revealed that a significant number of women experience a range of unpleasant symptoms. Hormones fluctuate throughout the cycle, and this can cause a range of psycho-physiological changes.

Some people vary with ranges of not feeling indifferent to experiencing increased energy and creativity. A scientific review by Yonkers KA, et al. [9] examined the range of premenstrual experiences and their impact, which revealed that a significant proportion of women experience moderate to severe symptoms. Among the more negative changes are mood swings, fatigue, depression, bloating, breast tenderness, and headaches. Occurrence of mood changes before a period is a usual thing, and even mild depression and emotional instability. A meta-analysis by Oinonen

KA, et al. [10] revealed a consistent pattern of increased negative mood symptoms like irritability, mood swings, etc. They might be authentic expressions that girls are neither comfortable nor able to show securely.

A small yet prominent number of individuals suffer from extreme premenstrual depression that interferes with their work, social life, and well-being [11]. Experiencing cramping during periods may vary widely from no mild to severe cramps. An experience with menstrual-related cramping varies widely, from no or mild cramps to severe ones [12]. Multiple symptoms, including cramps, nausea, diarrhoea, etc, may be experienced as a result of surplus production and release of prostaglandins. Periods can trigger various psychological effects in a woman's body. These may range from crying sprees to anxiety attacks; the intensity of these symptoms varies quickly [13]. Irritability, anger, depression, and hypersensitivity are some of the emotional period symptoms that women encounter. Women mostly experience a loss of motivation and interest in things of daily routine, which may hinder work [14].

Menstrual headaches or migraines can be a cause of a decline in estrogen levels at the end of the cycle [15]. It may also be seen that females find it difficult or dash into the bathroom more often. It is due to the progesterone hormone and how frequently one experiences bowel movements [16]. Cureus Journal of Medical Science 2021, in their study, described people suffering from IBS- irritable bowel syndrome experience frequent bowel movements during their periods. Unfortunately, loose stools, diarrhoea, bloating, and abdominal pain may occur simultaneously. A notable change is seen in the pH of the vagina in advance of periods. As stated by Dr. Dweck, some people may become prone to the overgrowth of yeast/bacteria, thus resulting in yeast infections. Women seem clumsier during periods mainly due to fatigue and water retention, which throws one's gravity off. Water retention can also lead to slightly swollen eyes, which affects clumsiness [17].

The State of Mind and Body

The growth and development of a human are interrelated. Human beings at different stages of life go through different phases of development, which are affected by various facets and traits such as mental or intellectual dimension, socioeconomic dimension, physical or physiological dimension, self-concept and awareness, cultural and spiritual dimension, etc [18]. As puberty is one of the critical and evaluative stages of one's life, these various dimensions and factors crucially affect this stage of development. Various hormonal changes occur that lead to physiological and psychological differences in the body, especially during periods in females [19]. Mental health refers to a condition of

successful performance concerning mental functions those results in high-yielding activities, satisfying relationships, adaptability toward change, and coping ability towards adversity. Mental well-being is a state where a person can realize their potential, cope with daily routine obstacles, yield output in the field, and be an active social member in community rituals.

Adults must look after teenagers as they are prone to many mental illnesses; moreover, it is further linked to other problems such as violence, depression, substance abuse, anxiety disorders, schizophrenia, sexual and reproductive health, etc. Mental illness manifests through the feelings, thoughts, and behaviour of a person [20]. Aftermath talks about consequences, including suffering, functional impairment, exposure to stigma, etc. Adulthood is no less important than adolescence, and it, too, is interlinked with mental health issues. There is no denying that with increasing age, physical health declines [19]. Knowing that physical health and mental health are complementary dimensions, adults may suffer with less mental capacities [20]. Approximately 1 in 4 adults suffer from mental illnesses in which depression, dementia, anxiety, and frequent mental distress are often noticed. Consequences include loneliness, social isolation, suicidal attempts, unusual ideas, constant worrying, etc. Mental health symptoms at the adult stage can delay or hinder the transition period [21]. It is also observed that individuals living in urban areas are exposed to many environmental factors that interact and combine to affect mental health [7]. Socioeconomic conditions and relatable stress are countable factors that affect the mental condition of women. Urbanity is linked to a higher risk for mental disorders such as depression, schizophrenia, anxiety, etc [21]. Air pollution results from majorly loaded traffic, which is key to the onset of mental degradation. Its consequences include cerebrovascular damage, neurodegenerative pathology, oxidative stress, neuro-inflammation, limited exposure to sunlight, deficiency of vitamin D, etc. Nurturing and exposure to a green environment, more physical activities, and reduced exposure to natural stressors may lead to reduced risk of mental illnesses [19].

Psychological distress is intertwined with menstrual changes. Some of the literature came up with the fact that socioeconomic status, religion, family background, and education adversely impact a girl's menses habits. As it is seen, both mental state and well-being and menstrual variations are interrelated; thus, all the facets also impact mental health. The changes in hormones during periods can affect how a female thinks and feels mentally or physically [21]. It can either cause problems or can worsen them even more. Mood swings are often a hint of upcoming periods. Females not only have to deal with physical manifestations like breast tenderness, cramps, bleeding, and bloating, as life

does not stop here, whether it is a working or a nonworking female, both have to deal with routine work tasks; may it be work-related stress or household chores and thus it may make them more upset, may suffer from panic attacks, fatigue [19]. More surprisingly, it is not a one-way effect, i.e., the menstrual cycle does not alone affect a person's mental health; it is vice versa too, i.e. mental health influences menstruation [20]. Periods can become short or may even stop due to stress, making this process more painful. The study discovered that women with a habit of taking stress are prone to dysmenorrhoea. Though mental health is crucial, it is not the only one! The second most emerging factor is emotional stability and maturity during periods that may bring changes within women [21]. Psychological states and neuro-physiological changes related to feelings, thoughts, behavioural responses, and subjective elements are called emotions. They may be consciously experienced or can be intentional.

Though it is a biological process, it is critically affected by context and environment. As adolescence is a crucial exploratory phase, youth are more aware of their thoughts and feelings. With adolescence comes an additional struggle for autonomy, and it is believed that emotionally mature individuals will experience greater satisfaction in life. Emotional maturity allows adolescents to create a fulfilled and happy life, which in turn helps them lead a healthy, social, and individual life [22]. Young people experience emotional distress due to daylight fantasies. In the case of girls, due to the onset of puberty and hormonal changes, periods begin, due to which they experience varied emotional states. It is seen that many females observe variations in the way they emote and behave before and during their menses. During puberty, emotions often increase and may become even stronger. The mood swings may occur more often, frequently in time, and more rapidly [23]. It is important to note that hormones bring about physical changes on the outside and create changes on the inside. The body is adjusting to the influx of new hormones, and sometimes, adolescents may feel like their emotions are out of control. Adolescent girls may not have developed the mental capacity to effectively cope with these intense emotions, leading to increased irritability and frustration [24].

As individuals gain more experience, their emotions become more predictable and less volatile. Negative emotions also tend to occur less frequently. During this time, social roles undergo quantitative and qualitative changes [25]. Researchers have stated small yet significant gender differences in emotional expressions among adults. Women tend to exhibit greater emotional expressivity, particularly regarding positive emotions. Additionally, they may be more likely to internalize negative emotions such as sadness. From a biological perspective, hormones like oxytocin can

predispose women to be more empathetic and relationship-oriented. Women have been observed to utilize more areas of the brain associated with emotions than men. Additionally, the female brain tends to have greater interconnectivity between hemispheres. Psychologically, women may struggle more with anxiety and depression, but they can also demonstrate greater emotional awareness and vulnerability. Women often face higher expectations for caregiving and emotional labour, which can contribute to mental health strains [26]. However, these experiences also provide them with skills in understanding emotions. Each phase of the menstrual cycle is accompanied by a series of biological changes that can result in emotional changes in women. These emotional changes can influence their daily routines and relationships with others. These changes are typically classified as premenstrual and postmenstrual symptoms.

During the menstrual cycle, emotional changes can include irritability, mood swings, and feelings of depression. Many girls experience fear, worry, and sadness at the onset of puberty, and some even report suicidal thoughts and death wishes during the premenstrual period. However, after the periods, there is a stage in which energy levels increase, leading to a state of heightened activity and enthusiasm. Anger is another common symptom of premenstrual syndrome (PMS), often caused by fluctuations, such as a drop in estrogen levels and a rise in the stress hormone cortisol. These hormonal changes can trigger feelings of irritability and frustration. Estrogen, a hormone responsible for regulating various functions, including mood, plays a significant role in how women feel. When estrogen levels are high, there may be an increase in sexual desire [27]. On the other hand, progesterone, known for causing fatigue, bloating, and irritability, can lead to a decrease in libido during the days leading up to the period. It is also important to note that using birth control pills can impact one's emotions, as they can affect hormone levels and potentially lead to emotional changes [28].

The next predominating factor is the socioeconomic aspect (SES), which refers to an individual or group's position on the socioeconomic scale. Various factors, including income, educational level, occupation prestige, place of residence, and, in some societies, ethnic origin or religious background, determine it. Research on SES reveals inequities in resource access and highlights privilege, power, and control issues. It is a commonly used measure to depict economic differences within society. It is typically categorized into three levels: high, middle, and low, representing where a family or an individual falls about others. Recently, there has been growing interest in studying the impact of economic inequality on population health. Low income and educational levels have been identified as strong predictors of various physical and mental health issues [29]. These disparities may arise from environmental conditions, such as living and working in

high-stress environments, limited access to healthcare, food scarcity, or inadequate nutrition.

It is essential to nurture the youth with good facilities and resources, especially adolescent girls. Investing in the health and development of adolescent girls is crucial for national growth. It contributes to the country's overall well-being and addresses their unmet health, education, social, and economic needs. However, adolescent girls are often vulnerable as they navigate the transition between childhood and adulthood. Unfortunately, their predicaments are frequently overlooked. Many girls enter early marriages and become young mothers before realizing their full potential [30]. Additionally, many girls are forced to discontinue their education and assume household responsibilities at a young age. This discontinuation, often occurring between 12 and 14 years old, particularly affects girls.

Achieving sustainable developmental goals and improving universal health necessitates addressing the psycho-social obstacles faced by girls during menstruation. Menstrual difficulties can significantly impact their curricular and co-curricular achievements, parameters related to attendance, and societal lifestyle [31]. These problems can be both affective and somatic. Adolescent girls face various social challenges during menstruation, such as clean menstrual materials are not accessible adequately, is lack of privacy for changing pads, inadequate facilities for disposal of sanitary napkins, social curtailments, and a lack of social and psychological support. Additionally, there is often a need for more information on menstruation and its management, inadequate preparation, and stigma surrounding menstruation. Furthermore, several female adolescents are not able to do house-related chores or even not participate in games due to discomfort or cultural restrictions [32]. Dysmenorrhoea and menorrhagia pose a higher risk of school absenteeism among rural girls. Engaging in sexual activity is a common factor associated with various menstrual problems among adolescents [33]. Access to medications for menses difficulties is often inadequate in adolescent girls, attributed to factors such as lack of awareness and limited healthcare services access. In underdeveloped or developing nations, girls often face restrictions in social interactions, resort to self-medication, and lack knowledge about healthy coping mechanisms during menstruation [34]. Females from urban areas give a competitive edge to rural counterparts in reaching puberty. Females belonging to higher socioeconomic backgrounds tend to experience menarche at a younger age, both in rural and urban areas. Cleaning of genitalia is more satisfactory among urban girls compared to rural girls. There are differences among girls from cities and villages regarding awareness of appropriate methods of disposal for menstrual products and cleaning of external genitalia. Lack

of awareness and facilities lead to severe problems such as urinary tract infections, scabies in the vaginal area, atypical abdominal pain and pregnancy complications.

Self-Esteem and Body Shame

Self-esteem refers to the opinion a person holds for oneself. A female with healthy self-esteem tends to have a positive outlook on her and life. This positive self-perception enables them to navigate life's challenges and fluctuations more effectively. Thus, observing the individual female perspective during the menses phase is also necessary. One of the challenging experiences that adolescent girls go through is menstruation. Although menstruation is a normal physiological process, it has the potential to negatively impact the self-esteem of girls [23]. Women's body dissatisfaction and feelings of shame have been observed to increase during the premenstrual phase of the menstrual cycle. These negative emotions are often associated with premenstrual distress [35]. Girls, at the onset of puberty, may start feeling inferior during menstruation. They may perceive their bodies as having inferior physical appearance, leading to a lack of confidence in communicating and interacting with their social circle. This also results in avoiding social gatherings and preferring to rest and isolate themselves at home [36]. During menstruation, women may experience physical discomfort, which can lead to feelings of self-consciousness and negatively affect a woman's self-esteem. The perception of one's body during this time may be influenced by societal beauty standards, which often emphasize a slim and flawless appearance.

Consequently, women may compare themselves to these ideals and experience low self-esteem if they feel their bodies meet these expectations. Menses can also contribute to the development of body shame in females. Society's stigma surrounding menstruation, often rooted in cultural beliefs and misconceptions, can lead to feelings of embarrassment and shame. This societal pressure to conceal any signs of menstruation can create a sense of shame and secrecy around the natural bodily function of Smith GL, et al. [19]. Consequently, women may feel the need to hide self-perception and overall self-esteem. The emotional changes occurring can further impact self-esteem, as women may feel less in control of emotions and struggle with self-acceptance. Negative emotions associated with menstruation can contribute to decreased self-esteem and body confidence. Working women struggle more during the menses phase as they frequently become conscious of their body posture while sitting, standing, and even walking, ensuring their clothes are free of strains and leakage. They feel trouble while looking for space to change pads, and due to cramps and irritability, they cannot concentrate on job tasks for long

hours [21]. Thus, they may prevent themselves from doing energetic and other tasks requiring regular mobility. These factors reduce self-confidence and level of well-being.

Community awareness and initiatives

Young women's health today is crucial as they will become the healthy mothers of tomorrow. Thus, it is necessary to reflect and understand the role of community during a female's menstruation phase. Ensuring that females can care for their bodies with the desired level of privacy is of utmost importance. They should feel free from unwanted observation or disturbance and be in a safe environment, protected from physical, emotional, or social harm [20]. Safety considerations should be considered when determining the location of infrastructure and services and when assessing the quality of menstrual materials, infrastructure, and disposal practices. The onset of menstruation introduces new challenges and vulnerabilities in their lives. Unfortunately, many girls encounter stigma, harassment, and social exclusion during this time [37]. Additionally, transgender men and more such individuals experience hardships because of their personality, which deprives such individuals of necessary resources and necessities.

Lack of necessities like toilets and sanitary products, poverty, cultural orthodox and prejudices, societal norms and inequality based on gender, and biased distribution of power and roles contribute to menses problems and unsafe and unhygienic habits. Millions of individuals are extremely impacted by their choices of personal needs, mobility, social roles, and contribution certainty to security and attendance in school [37]. As a result, it causes tension and low temperament. Men are responsible for decision-making concerning the resources and facilities females require, such as adequate toilets and sanitary products. Their involvement is crucial in ensuring women's enrollment and being active in sessions and meetings held by the community for enlightenment on the matter [38]. Males can actively stand beside females to go through the menstruation phase effectively across various societal spheres such as households, communities, schools, or workplaces.

The influence of males on females' experiences of menstrual hygiene management is evident in their various roles, such as policymakers, spouses, siblings, in-laws, friends, blood relations, and developmental authorities. However, it is observed that boys often lack interest in discussing menstruation and may not engage in conversations about this topic with their mothers or sisters [20,21]. One of the hardships faced by females in educational institutions regarding menses is the bullying or teasing factor by the opposite sex, which significantly hinders self-worth. Girls

often feel that boys make them feel ashamed, as they may act roughly towards them, go through their bags, or even see their clothes if they bring them to school [20]. Another household decision that men may take is whether to construct a latrine that provides privacy for women to change menstrual materials. However, cultural taboos surrounding menstruation can often hinder women from utilizing the latrine during their period [39].

It is important to recognize that women sometimes enforce the restrictions. One such example is the practice of *chaupati*, where women are required to stay in a makeshift hut outside their homes during menses. It is crucial to acknowledge that it is not solely men who contribute to this stigma but also women, particularly mothers and mothers-in-law, as highlighted by research findings. Addressing these deeply ingrained cultural norms requires a comprehensive approach involving engaging men and women in dialogue, education, and empowerment to challenge and change these harmful practices. Menstrual hygiene and related interventions can remove these obstacles [40].

Stereotypes, Attitudes and Cultural Taboos

Menstruation is a natural biological process that affects women; however, it has been infused with cultural myths and taboos in India, leading to the exclusion of females across various domains of social and culture-related lifestyles. The matter of menstruation has been largely neglected, and the abuse and stigma associated with it have had significant impacts on the emotional well-being, mental health, and lifestyle of girls. Moreover, the lack of knowledge and understanding about puberty, menstruation, and reproductive health among girls in India further complicates the challenges of addressing these social and cultural taboos. Cultural and social influences covering India's many parts still consider menstruation as impure and dirty, with its origins traced back to Vedic times [41]. It is often associated with the story of Indra's guilt and the belief that women bear a part of that guilt through their monthly flow. In Hindu culture, women are prohibited from participating in normal activities during menstruation. They must undergo purification rituals before they can resume their daily lives and rejoin their families. Many females face culminations in their routine habits, the reason being menstruation. Urban girls are often prohibited from entering *pooja* rooms, while rural girls are restricted from entering the kitchens. During menstruation, girls and women are also barred from offering prayers and touching holy books due to the underlying belief in impurity associated with menstruation. There is a common belief that menstruating women are unhygienic and unclean, and therefore, the food they prepare or handle can become contaminated. Women's bodies are also believed to emit a specific smell or aura that can spoil preserved food.

Consequently, they are not allowed to touch or handle foods like pickles.

Cultural norms and religious taboos surrounding menstruation are often compounded by traditional associations with evil spirits, shame, and embarrassment surrounding sexual reproduction. In some cultures, women safeguard their clothes used during menses to prevent them from being used by evil spirits. Menstrual blood is conceptualized as harmful and evil and is capable of causing harm to menstruating women through black magic. There is also a belief that women can use their menstrual blood to exert control over men in some religions in India. In addition to these beliefs and practices, strict dietary restrictions are followed during menstruation, with certain foods like curd, turmeric, and pickles being neglected by females who are menstruating. It is considered that consuming such foods will disrupt the flow of menstruation [42]. Furthermore, menstruating women are often prohibited from taking baths, especially during the initial days of their menstrual period, due to the misconception that water will become contaminated and polluted. It is also observed that girls and women are not allowed to touch the cows as the cows are believed to become infertile.

Teenagers in low and middle-income countries often face inadequate knowledge, lack of awareness, and exclusion when it comes to menstrual problems. These factors contribute to misconceptions and unhygienic practices during menstruation. Sommer A, et al. [31] many studies have found that girls in these countries are restricted from various activities, including school, physical activities like playing, marriages, festivities, travelling, attending social activities, functions, worship, and even basic household work. They face restrictions on entering temples, kitchens, and other houses, as well as limitations on attending schools and touching people and materials used for religious rituals [43]. These restrictions and activities vary based on cultural and regional norms. In certain parts of southern areas and villages of India, girls are not permitted entry into houses during menstruation. Instead, they are instructed to survive at the entrance of their house. During this time, girls were considered dirty and impure [44]. There is a connection between educational level, activity restrictions, and practices related to menstruation. Multiple restrictions are being imposed on teenage girls in slum areas, such as being forced to stay outside homes, resulting in temporary separation from loved ones. They are not permitted to touch others and often lack awareness about menstruation before experiencing it. Additionally, they may not know the cause of menstruation, how to manage bleeding, or how to properly dispose of sanitary pads. Sometimes, they use open areas for disposal or share common toilets for changing pads. These challenges highlight the need for comprehensive education

and awareness programs to address the misconceptions, restrictions, and unhygienic practices surrounding menstruation among teenage girls in low and middle-income countries. Providing accurate information, promoting gender equality, and empowering girls with the knowledge and resources they need will help them navigate menstruation in a healthy and dignified manner [45].

Nutrition and Preventive Measures

The diet of females has a complementary relationship with their menstrual cycle, as it can impact the functioning of the reproductive system. The nutrients obtained from food play a crucial role in supporting hormonal balance, ovulation, and overall reproductive health [46]. Conversely, menstruation affects the body's need for and utilization of micronutrients. During the menstrual cycle, the body undergoes changes that require specific nutrients for optimal functioning. For example, adequate iron, calcium, and vitamin D intake is essential during menstruation to support healthy blood production, maintain bone health, and prevent deficiencies. Consumption of sugary drinks, including soda and fruit, has been linked to an early age at menarche. Additionally, omega-3 fatty acids, vitamin B complex, and antioxidants are important for reducing inflammation, managing hormonal fluctuations, and supporting overall reproductive health.

Conversely, menstruation can impact the body's nutrient needs. The blood loss during menstruation leads to decreased iron levels, resulting in iron deficiency and anaemia if not properly addressed through dietary intake or supplementation. Therefore, females must consume iron-rich foods to replenish the lost iron during menstruation. Similarly, the body may need more micronutrients, such as vitamin C to enhance iron absorption and vitamin B6 to alleviate premenstrual symptoms. A growing body of evidence suggests that following a diet rich in omega-3 fatty acids such as those found in fish, as well as consuming adequate amounts of vitamin D and calcium, while reducing the intake of animal fats, caffeine, and salt can help reduce the risk of troublesome premenstrual syndrome (PMS) symptoms. A diet high in vegetables, fruits, nuts, seeds, and whole grains such as rice, traditional rolled oats, whole meal pasta, and millet can provide essential nutrients and fibre that support overall well-being [47]. Studies have found that women who engage in regular exercise are less likely to experience menstrual pain, cramps, and mood disturbances associated with menstruation. Exercise promotes the release of endorphins, natural painkillers and mood enhancers. However, the causes of menstrual disorders are diverse and multi-factorial. They encompass hormonal imbalances, polycystic ovary syndrome (PCOS), stress, and lifestyle-related factors, as well as sudden changes in sleep schedules, exercise patterns, travel, illness, and dietary habits [48].

Dietary intake and care play a crucial role in managing various menstrual disorders. Proper nutrition can support hormonal balance, reduce inflammation, and alleviate symptoms associated with these disorders. When a balanced diet is consumed that is rich in healthy fats, proteins, vitamins, minerals, and fruits and vegetables can help stabilize hormone levels. Including omega-3-rich fatty acids and avoiding processed foods, refined sugars, and excessive caffeine and alcohol intake are recommended to prevent hormonal imbalances. A low glycemic index diet can be beneficial for managing insulin resistance associated with PCOS. It is advised to focus on consuming whole foods with a low GI, such as whole grains, legumes, fruits, and vegetables. Including lean proteins and healthy fats, like avocados and nuts, can also help regulate blood sugar levels. Limiting the intake of sugary drinks and processed foods is important.

An anti-inflammatory diet can help manage endometriosis pain and inflammation. Including foods rich in antioxidants such as berries, leafy greens, and turmeric, along with omega-3 fatty acids from fish, walnuts, and flaxseeds, can be beneficial. Avoiding processed meats, excessive red meat, and high-fat dairy products is recommended. Consuming a well-balanced diet with adequate nutrients can help alleviate PMS symptoms. Focusing on consuming complex carbohydrates such as whole grains and legumes to support serotonin production and stabilize mood is preferred by Rawat M, et al. [49]. Adequate calcium intake from dairy or plant-based sources can help reduce symptoms like bloating and mood swings Chocano-Bedoya, et al. [47]. Limiting salt, caffeine, and alcohol intake is advisable. In addition to dietary considerations, self-care practices like regular exercise, stress management, and sufficient sleep are essential for overall menstrual health Prior et al. [6]. It is also recommended to consult with a healthcare professional or registered dietician for personalized dietary guidance tailored to specific menstrual disorders.

References

1. Law SP (1986) The regulation of menstrual cycle and its relationship to the moon. *Acta Obstetrica et Gynecologica Scandinavica* 65(1): 45-48.
2. Trevathan WR, Rosenberg KR (2015) Human evolution and the helpless infant. *Costly and cute: Helpless infants and human evolution*.
3. Sevim Y, Yagar H (2022) Changes in Healthy Women's Food Preferences, Taste, Body, and Mood Before and During Menstruation. *Izmir Democracy University Health Sciences Journal* 5(2): 402-418.
4. Critchley HO, Babayev E, Bulun SE, Clark S, Garcia-Grau I, et al. (2020) Menstruation: Science and Society. *American Journal of Obstetrics and Gynecology* 223(5): 624-664.
5. Treloar AE, Behn BG, Cowan DW (1967) Analysis of gestational interval. *American journal of Obstetrics and Gynecology* 99(1): 34-45.
6. Prior JC (2019) *The Menstrual Cycle: its biology in the context of silent ovulatory disturbances*. Routledge international handbook of Women's sexual and reproductive health, Routledge, pp: 39-54.
7. Thompson EM, Destree L, Albertella L, Fontenelle LF (2021) Internet-based acceptance and commitment therapy: a transdiagnostic systematic review and meta-analysis for mental health outcomes. *Behavior Therapy* 52(2): 492-507.
8. Murphy JA, Oliver G, Ng CH, Wain C, Magennis J, et al. (2019) Pilot-testing of "Healthy Body Healthy Mind": an integrative lifestyle program for patients with a mental illness and co-morbid metabolic syndrome. *Frontiers in psychiatry* 10: 91.
9. Casper RF, Yonkers KA (2019) Treatment of premenstrual syndrome and premenstrual dysphoric disorder. *UpToDate*.
10. Oinonen KA, Mazmanian D (2002) To what extent do oral contraceptives influence mood and affect?. *Journal of Affective Disorders* 70(3): 229-240.
11. Halbreich U (2003) The etiology, biology, and evolving pathology of premenstrual syndromes. *Psychoneuroendocrinology* 28(3): 55-99.
12. Dawood MY (2006) Primary dysmenorrhea: advances in pathogenesis and management. *Obstet Gynecol* 108(2): 428-441.
13. English S, Wright I, Ashburn V, Ford G, Caramaschi D (2020) Prenatal anxiety, breastfeeding and child growth and puberty: linking evolutionary models with human cohort studies. *Ann Hum Biol* 47(2): 106-115.
14. Jayaraj L, Sinha A (2020) *Menstrual Hygiene among Urban Poor in Delhi*. Indian Social Institute, New Delhi, pp: 1-138.
15. Nappi RE, Cucinella L, Martella S, Rossi M, Tiranini L, et al. (2016) Female sexual dysfunction (FSD): Prevalence and impact on quality of life (QoL). *Maturitas* 94: 87-91.
16. Musetti A, Schimmenti A, Corsano P (2021) Mass media influences on body image and body esteem in female adolescents: the mediating role of hopeful future expectations. *Atlantic Journal of Communication* 29(4):

- 189-201.
17. Bertone-Johnson ER, Hankinson SE, Johnson SR, Manson JE (2008) Cigarette smoking and the development of premenstrual syndrome. *Am J Epidemiol* 168(8): 938-945.
 18. Plesons M, Patkar A, Babb J, Balapitiya A, Carson F, et al. (2021) The state of adolescent menstrual health in low- and middle-income countries and suggestions for future action and research. *Reproductive Health* 18(1): 31.
 19. Smith GL, Banting L, Eime R, O'Sullivan G, Van Uffelen JG (2017) The association between social support and physical activity in older adults: a systematic review. *Int J Behav Nutr Phys Act* 14: 1-21.
 20. Johnson SM (2019) Attachment theory in practice: Emotionally focused therapy (EFT) with individuals, couples, and families. Guilford Press.
 21. Brown N, Williams R, Bruinvels G, Piasecki J, Forrest LJ (2022) Teachers' perceptions and experiences of menstrual cycle education and support in UK schools. *Front Glob Womens Health* 3: 827365.
 22. Palmer AR, Labella M, Plowman EJ, Foster R, Masten AS (2020) Parental emotion regulation strategies and parenting quality predict child internalizing symptoms in families experiencing homelessness. *Soc Dev* 29(3): 732-749.
 23. Chrisler JC, Rossini M, Newton JR (2015) Older women, power, and the body. In: Muhlbauer V, et al. (Eds.), *Women and aging: An international, intersectional power perspective*, Springer Nature, pp: 9-30.
 24. Larson LI (2019) An exploration of neurofeedback treatment in a sample of men arrested for domestic violence with correlates of anger, aggression, and stress. Doctoral dissertation, Idaho State University.
 25. Shanahan EA, Raile ED, French KA, McEvoy J (2018) Bounded stories. *Policy Studies Journal* 46(4): 922-948.
 26. Barnett RC, Hyde JS (2001) Women, men, work, and family: An expansionist theory. *American Psychologist* 56(10): 781-796.
 27. Schmidt PJ, Dor RB, Martinez PE, Guerrieri GM, Harsh VL, et al. (2015) Effects of estradiol withdrawal on mood in women with past perimenopausal depression: a randomized clinical trial. *JAMA Psychiatry* 72(7): 714-726.
 28. Myoraku A, Robakis T, Rasgon N (2018) Estrogen-Based Hormone Therapy for Depression Related to Reproductive Events. *Current Treatment Options in Psychiatry* 5: 416-424.
 29. Adler NE, Rehkopf DH (2008) US disparities in health: descriptions, causes, and mechanisms. *Annu Rev Public Health* 29(1): 235-252.
 30. Sever A (2011) Discarded daughters: the patriarchal grip, dowry deaths, sex ratio imbalances and foeticide in India. *Women, Gender and Development Reader*, pp: 56-75.
 31. Sommer A (2020) Positive Health in Students: Are Character Strengths Related to an Active Lifestyle?. Bachelor's thesis, University of Twente.
 32. Kotian SM, Chaudhary VK, Mutya VS, Sekhon AS, Sriraman S, et al. (2017) Assessment of knowledge, practice and perception of menstruation among adult women in the reproductive age group, in Mangalore, India. *Int J Reprod Contracept Obstet Gynecol* 6(10): 4595-4601.
 33. Marnach ML, Ramin KD, Ramsey PS, Song SW, Stensland JJ, et al. (2003) Characterization of the relationship between joint laxity and maternal hormones in pregnancy. *Obstet Gynecol* 101(2): 331-335.
 34. Kuhlmann AS, Key R, Billingsley C, Shato T, Scroggins S, et al. (2020) Students' menstrual hygiene needs and school attendance in an urban St. Louis, Missouri, district. *J Adolesc Health* 67(3): 444-446.
 35. Rapkin AJ, Korotkaya Y, Taylor KC (2019) Contraception counseling for women with premenstrual dysphoric disorder (PMDD): current perspectives. *Open Access Journal of Contraception* 10: 27-39.
 36. Tiggemann M, Slater A (2014) NetTweens: The internet and body image concerns in preteenage girls. *The Journal of Early Adolescence* 34(5): 606-620.
 37. Molina-Martinez MA, Marsillas S, Sanchez-Roman M, Del Barrio E (2022) Friendly Residential Environments and Subjective Well-Being in Older People with and without Help Needs. *Int J Environ Res Public Health* 19(23): 15832.
 38. Garcia VA (2019) Women of Salamanca. *Academia society and culture. Culture & History Digital Journal* 8(1): e011.
 39. Jensen R (2017) Looking at the extraordinary success of the 'Clockwork Orange': examining the brilliance of total football played by the Netherlands. *Legacies of Great Men in World Soccer*, Routledge, pp: 104-115.
 40. Roomruangwong C, Carvalho AF, Geffard M, Maes M

- (2019) The menstrual cycle may not be limited to the endometrium but also may impact gut permeability. *Acta Neuropsychiatrica* 31(6): 294-304.
41. Singh G, Khanna A, Agarwal M, Singh VK, Sachan R (2018) Menstrual health and related problems in adolescent girls of Lucknow district: a cross sectional study. *Int J Community Med Public Health* 5(12): 5321-5328.
 42. Patel D, Barot K (2020) Prevalence of dysmenorrhea among adolescent girls in North Gujarat: a cross sectional study. *International Journal of Science and Research* 10(6): 96-100.
 43. Hennegan J (2019) Inserting informed choice into global menstrual product use and provision. *Lancet Public Health* 4(8): e361-e362.
 44. Das M (2008) Menstruation as Pollution: Taboos in Simlitola, Assam. *Indian Anthropological Association* 38(2): 29-42.
 45. Long JL, Haver J, Mendoza P, Kotasek SMV (2022) The more you know, the less you stress: Menstrual health literacy in schools reduces menstruation-related stress and increases self-efficacy for very young adolescent girls in Mexico. *Frontiers in Global Women's Health* 3: 859797.
 46. Chavarro JE, Rich-Edwards JW, Rosner BA, Willett WC (2007) Diet and lifestyle in the prevention of ovulatory disorder infertility. *Obstet Gynecol* 110(5): 1050-1058.
 47. Chocano-Bedoya PO, Manson JE, Hankinson SE, Johnson SR, Chasan-Taber L, et al. (2013). Intake of selected minerals and risk of premenstrual syndrome. *Am J Epidemiol* 177(10): 1118-1127.
 48. Abo S, Smith D, Stadt M, Layton A (2022) Modelling female physiology from head to toe: Impact of sex hormones, menstrual cycle, and pregnancy. *Journal of Theoretical Biology* 540: 111074.
 49. Rawat M, Shields AN, Venetis MK, Seth J (2023) Women's agentic role in enabling and dismantling menstrual health taboos in northern India: a culture-centered approach. *Health Communication* 38(4): 695-704.