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Knowledge, Attitude, and Practices among Governmental Secondary School Girls Towards Menstrual Hygiene in Al-Daw Hajouj Secondary School for Girls

Samar Sami Muawiyih^{1*}

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ABSTRACT

Menstruation is a natural part of the reproductive cycle and a physiological process unique to females. However, adolescent girls can face challenges in managing it as a result of limited knowledge, cultural taboos, and inadequate facilities. This study, therefore, assessed the knowledge, attitudes, and practices (KAP) regarding menstrual hygiene among 200 students at Al-Daw Hajouj Secondary School for Girls in Sudan (2022–2025). A descriptive cross-sectional design was used to analyze data collected from a self-administered questionnaire administered to 200 respondents. The results show that 96% of the respondents had good awareness and knowledge of menstruation. Likewise, 76.6% understood menstruation as a normal physiological phenomenon and most students acknowledged that it is caused by hormonal changes. However, misconceptions persisted, particularly regarding the source of menstrual blood. Attitudinal responses showed that students generally recognized the importance of menstrual hygiene for health and supported school attendance during menstruation, though many reported feelings of nervousness and emotional changes. Practices varied, with some gaps in hygienic management. The study concludes that while knowledge and attitudes are relatively positive, persistent misconceptions and emotional challenges highlight the need for strengthened menstrual health education and improved school-based hygiene facilities to promote dignity, safety, and wellbeing among adolescent girls.

INTRODUCTION

Menstruation is a natural part of the reproductive cycle, unique to females. The pre-menarche stage is marked by physiological, cognitive, and psychological transitions that typically begin in the second decade of life (Mubashra, Rana, Parveen, Zahid, John, & Khan, 2021). Furthermore, many women will have other symptoms, such as pain, dysmenorrhea, anxiety, depression, and fatigue, associated with their menstrual cycle that require attention for them to achieve early diagnosis of reproductive health. Menstrual hygiene played a significant role, leading to improvements in the quality of life and health outcomes for females. (Senapathi & Kumar, 2018). Due to a deficiency in pre-menarche knowledge, adolescent girls facing negative sociocultural attitudes coupled with the adoption of unhygienic menstrual practices may equally face frustration, psychological burden, and other life and health quality concerns like skin abrasions, irritations, and urinary tract infections (Jha, 2019).

Many factors have served as barriers to managing the neglected public socio-cultural and health issue, such as prevailing illiteracy, financial hindrances, lack of guidance and facilities for adolescent girls to manage their menstruation in school and that require prioritisation by public health authorities (Gultie, Hailu, & Workineh, 2014). Some rural families in Nepal still practice an ancient tradition of banishing girls and women to sheds during their menstruation. (Nnennaya, Atinge, Dogara, & Ubandoma, 2021). Access to basic facilities for menstrual hygiene management (MHM) is critically essential for women's health, safety, and dignity. According to the United Nations Children's Fund (UNICEF, 2016),

various primary elements are required, including clean materials to absorb or collect menstrual blood, a private place to change these materials as often as necessary, soap and water for washing the body as needed, and access to safe, convenient facilities for disposing of used materials. Different socio-cultural and so-called religious taboos have connected menstruation with multiple misconceptions and myths, Cultural restrictions, social prohibitions, and so on. (UNICEF, 2016).

Poor menstrual hygiene can potentially lead to many diseases, such as urinary tract infection, reproductive tract infection, and sexually transmitted diseases like cervical cancer, HIV/AIDS. Therefore, menstrual hygiene is an essential component of adolescent women's health (El Meselhy, Salama, & El Mawardy, 2020). Research conducted in southeast Nigeria found that only 44% of teenage girls had premenarcheal training, resulting in inappropriate menstrual experiences and poorer menstrual hygiene practices. In East Africa, it was discovered that 4 out of 5 girls lacked access to sanitary pads and related health education. In South Sudan, the majority of adolescent girls (66%) had excessive limitations or incorrect knowledge about MHM. In contrast, many had no knowledge of menstruation before it occurred (Nnennaya *et al.*, 2021).

For most girls in Sudan, discriminatory social norms, gender inequality, cultural taboos, poverty, and lack of basic services like toilets and sanitary products can all cause their menstrual health and hygiene needs to go unmet (UNICEF, 2021). The aim of this research is to examine knowledge, attitudes, and practices among government secondary school girls towards menstrual

¹ University of Khartoum, Faculty of Public Health and Environmental Health, Sudan

* Corresponding author's e-mail: samarsami2312@gmail.com

hygiene at Al-Daw Hajouj Secondary School for girls, 2022-2023, by (i) assessing the level of knowledge of menstrual hygiene among secondary school girls at Al-Daw Hajouj Secondary School; (ii) investigating the attitudes of secondary school girls at Al-Daw Hajouj Secondary School towards menstrual hygiene; and (iii) identifying the menstrual hygiene practices among secondary school girls at Al-Daw Hajouj Secondary School for girls.

LITERATURE REVIEW

The current definition of normal menstruation is cyclic bleeding from the uterine corpus between menarche and menopause (Critchley, Babayev, Bulun, Clark, Garcia-Grau, Gregersen, Kilcoyne, Kim, Lavender, Marsh, Matteson, Maybin, Metz, Moreno, Silk, Sommer, Simon, Tariyal, Taylor, Wagner & Griffith, 2020). Menstruation is a physiological process, a cyclical shedding of the inner lining of the uterus, the endometrium, under the control of the hypothalamic-pituitary axis. (Hala M et al,2020). The name 'menstruation' comes from the Latin 'menses', meaning 'moon' (El Meselhy *et al.*, 2020). Menstruation is a biological phenomenon that occurs every month in healthy reproductive-age females. In low- and middle-income countries, researchers have shown increasing interest in studying menstrual hygiene management (MHM) and sexual and reproductive health education (SRHE) among young girls (Atari, Tariquzzaman, & Nancy, 2021).

Most women do not experience normal menstrual bleeding; they could have symptoms such as pain, dysmenorrhea, anxiety, depression, and fatigue associated with their menstrual cycle (Munro, Critchley, Fraser, & FIGO Menstrual Disorders Committee, 2018). Physical and mood changes usually become noticeable about 1-2 weeks before period bleeding begins. The Majority of women (90%) have premenstrual syndrome (PMS). Some women experience more severe PMS signs and symptoms than others. Many uncomfortable or unpleasant period signs and symptoms, like cramps and tender breasts, hormonal changes, are responsible; brain chemicals are also involved, but it is unclear to what extent. (WebMD Editorial contributors, 2022). One of the most common problems faced by women is menstrual-related symptoms. Specifically, primary dysmenorrhea (PD) and premenstrual syndrome (PMS) are reported to cause symptoms in many women with considerable impact on their daily lives (Mitsubishi, Sawai, Kiyohara, Shiraki, & Nakata, 2022). A study reported that women with short sleep duration, late bedtime, and those who skipped breakfast had a high rate of dysmenorrhea. Still, physical activity and caffeine intake were not associated. (Hu, Tang, Chen, Kamanga, & Xu, 2020). The duration of menstrual flow reported by respondents ranged from 2 to 6 days, with a modal duration of 5 days (Tijani, Awowole, Badejoko, Badejoko, Ijarotimi, & Loto, 2019).

Similarly, menarche is the first menstrual period in a female adolescent, so it commonly occurs between the ages of 10 and 16. And the 12.4 years is the average age

of menarche. (Gill, Del Greco, Rawson, Sivakumaran, Brown, Sheehan, & Minelli, 2017). Once menarche occurs before or at 10 years of age, it is considered early; if it occurs at 15 years or later, it is considered late. The issue of concern is when menarche occurs too early, too late, or not at all; such scenarios have future adverse outcomes. (De Sanctis, Rigon, Bernasconi, Bianchin, Bona, Bozzola, Buzi, De Sanctis, Tonini, Radetti, & Perissinotto, 2019). Many women view menarche as their body's crucial declaration of fertility (Šaffa, Kubicka, Hromada, & Kramer, 2019).

Menstrual Disorders and Associated Conditions

Early menarche has been associated with both physical and psychological problems, such as anxiety and depression, and substance use. (Kaltiala-Heino, Marttunen, Rantanen, & Rimpelä, 2003). Undergoing menarche at an early age leads to a higher prevalence of hypercholesterolemia in adulthood, eventually leading to a higher risk of developing cardiovascular diseases (Yang, Du, Xie, Zhang, Yu, Ding, & Hong, 2022). The risk of developing Alzheimer's disease has been associated positively with late menarche (Li, Chen, Zhang, Xu, Gu, Lin, & Jiang, 2026). Increased risk of insomnia symptoms and poor sleep quality has been demonstrated to have an association with early menarche and menstrual problems (Liu, Chen, H., Liu, Fan, & Jia, 2017).

Premenstrual syndrome is described as a group of predictable physical, cognitive, affective, and behavioural symptoms that occur cyclically through the luteal phase of the menstrual cycle and resolve quickly at or within a few days of the onset of menstruation. A severe form of premenstrual syndrome is called premenstrual dysphoric disorder. Symptoms related to mood and physical condition were involved in premenstrual syndrome symptoms. (Zaka & Mahmood, 2012). Premenstrual syndrome is a distinct clinical condition that occurs because of an abnormal central nervous system response to the hormonal changes of the female reproductive cycle. In addition to the hormonal changes, the diet and lifestyle may cause PMS. Therefore, the therapy of PMS and PMDD should include this aspect (Reid & Soares, 2018). Management of PMS and PMDD often requires a multifaceted approach, and lifestyle modification is considered one of the most effective non-pharmacological strategies.

Lifestyle Modification in PMS/PMDD Management

Management of premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD) often requires a multifaceted approach, and lifestyle modification is considered one of the most effective non-pharmacological strategies (Reid & Soares, 2018). Lifestyle interventions can be broadly categorized into communication strategies, dietary adjustments, and exercise, each of which plays a role in alleviating symptoms and improving quality of life.

Communication Strategies

In communication strategies, encouragement should be

used to discuss problems with those individuals who are central to her life (Reid *et al.*, 2017). Such dialogue can reinforce emotional support and reduce the psychological burden associated with PMS.

Diet

The health disorders may affect the menstrual cycle, including certain eating disorders which are related to irregularities and periods of amenorrhea (Harrington, Jimerson, Haxton, & Jimerson, 2015). Furthermore, regarding dietary factors, several previous studies have examined the possible association between the consumption of certain foods and menstrual pain, highlighting the potentially protective role of increased intake of fruits, vegetables, fish, and dairy products. But the evidence on this subject remains limited at present, and further research is warranted (Onieva-Zafra, Fernández-Martínez, Abreu-Sánchez, Iglesias-López, García-Padilla, Pedregal-González, & Parra-Fernández, 2020).

Exercises

Exercise is mentioned to reduce premenstrual molimina in women running in excess of 50 km/ cycle. A lower quantity of regular aerobic exercise may relieve symptoms, at least temporarily, in many women. However, some PMS sufferers reported that exercise promotes relaxation and helps them sleep at night (Reid *et al.*, 2017).

Herbal Medicine for Treatment of Premenstrual Syndrome

Beyond lifestyle modification, herbal and complementary medicine has emerged as an additional therapeutic option. Plants have been used for a long time as an important treatment for numerous ailments, particularly in Eastern nations (Nahid Maleki-Saghooni *et al.*, 2018). In recent times, products from natural sources, such as plants and animals, have emerged as a potential basis for novel pharmaceutical agents and food supplements (C. Y. Kuo *et al.*, 2018). The active compounds from natural products or foods are also known to have antioxidant and antimicrobial properties, as well as carcinogenicity (K. Rashed & M. Butnariu, 2021). Evidence from recent research confirmed that vitamins and supplementation such as magnesium, calcium, vitamins B6, D, and E or herbal/complementary and alternative medicine (CAM), might alter oxidative stress and hormonal or inflammatory profiles in women who experience PMS (Frankel, Michels, Kim, Kuhr, Omosigho, Wactawski-Wende, Levine, Perkins, & Mumford, 2021).

Menstrual hygiene management

Menstrual hygiene management (MHM) refers to the use of clean materials by girls and women to retain menstrual blood, which can be change stealthily, safely, hygienically, and as often as necessary during menstruation (Shumie & Mengie, 2022). from country to country and within countries, women have their strategies to cope with menstruation with significant variation, depending on an individual's personal preferences, available resources,

economic status, local traditions, cultural beliefs, and knowledge or education.

MHM is when women and adolescent girls use a clean material to collect menstrual blood, which can be changed in privacy as often as necessary for the length of menstruation, with soap and water for washing the body and reusable materials as needed and access to facilities for the disposal of used materials (Danial, 2023). The United Nations International Children's Emergency Fund (UNICEF) report indicates that every day, 300 million women and girls do not have a comfortable environment, safe sanitary products, or a private area in which to manage their menstruation (UNICEF, 2016). It was stigmatised and misunderstood. Girls felt uncomfortable and ashamed to discuss it in public, in class with their friends, and even at home with their families (Rheinländer, Gyapong, Akpakli, & Konradsen, 2019).

Evidence showed that poor personal hygiene and unsafe sanitary conditions have primarily resulted in gynaecological problems among adolescent girls. A preponderance of cases of infections due to a lack of hygiene during menstruation has been reported. UNICEF, however, recommends the use of clean MHM materials to absorb or collect blood, which can be changed in privacy as often as necessary throughout the menstrual period. Furthermore, adolescent girls are expected to use soap and water to bathe at least twice a day, wash their underwear and change their clothing daily and have access to facilities to dispose of used menstrual management material (Nnennaya *et al.*, 2021). For girls to have healthy, productive, and dignified lives, they must be able to manage menstrual bleeding effectively. To achieve this, girls need access to appropriate WASH facilities, a private room to change their sanitary material, a waste disposal site for used sanitary material, and access to information about the menstrual cycle and how to manage it hygienically (Shumie & Mengie, 2022).

Empirical research

Oligomenorrhea and amenorrhea are among the most common gynecologic complaints among women of reproductive age. The prevalence of oligomenorrhea and secondary amenorrhea has been reported to be 10–15% and 3–4%, respectively. Regardless of diagnosis, oligomenorrhea and amenorrhea represent changes in regular menstrual cycles, including prolonged cycles and absence of menstruation. Hormonal therapy based on estrogen and progesterone compounds remains the mainstay of treatment, though there has been an increasing trend in the use of CAM (Moini Jazani, Naseri, & Kooti, 2018).

Not all women experience “normal” menstrual bleeding; up to 30% report alterations in the volume or pattern of menstrual blood flow, defined as abnormal uterine bleeding (AUB). AUB can be caused by multiple etiologies, sometimes occurring simultaneously (Munro *et al.*, 2018). Herbal and natural therapies have also been explored: cinnamon supplementation has been shown to increase serum progesterone levels in the luteal phase, facilitating

menstrual cycle regulation, while a mixture of *Paeonia lactiflora* and *Glycyrrhiza glabra* extracts was effective in normalizing cycles and hormonal balance in women with polycystic ovary syndrome (Moini Jazani *et al.*, 2018).

A cross-sectional study conducted at secondary schools in the West Midlands, England, to explore the secondary school girls' experiences of menstruation and the awareness of endometriosis, findings demonstrate that the period pain was common (94%), with pain reported as moderate\ severe (89%). Girls reported missing school due to their periods (23%), mainly due to pain. Most secondary school girls report dysmenorrhea. Although most women who reported atypical periods had seen a doctor, over a quarter did not know whether their periods were typical or regular. The majority lack knowledge of endometriosis. (Kavitha, Jadhav, Ranganath, & Vishwanatha, 2018).

A study conducted to update current knowledge of functional hypothalamic amenorrhea underscores the complexity of the disorder, with particular emphasis on the nutritional aspects and potential interventions for restoring balance. This study showed that the disorder can be reversed by modifying its causes, but therapeutic intervention does not address all of them (Amoroso, Fiorini, Lopes Neri, Guglielmetti, Tagliabue, Nappi, & Ferraris, 2025).

A systematic study was conducted in 2018 to review medicinal plants used to treat oligomenorrhea and amenorrhea according to the pharmaceutical textbooks of traditional Persian medicine (TPM) and to review the evidence in conventional medicine. This study demonstrates that Traditional Persian medicine has proposed many different medicinal plants for the treatment of oligomenorrhea and amenorrhea. Although only a few plants have been proven effective for the treatment of menstrual irregularities, the results and classification in the present study can serve as an outline for future studies and treatment (Moini Jazani *et al.*, 2018). A cross-sectional study was conducted among adolescent schoolgirls in rural areas of Nelamangala to assess their knowledge of menstrual hygiene and management. It was evident that 38.3% participants were aware of menstruation before their menarche, and among them, mothers were the primary source of information for 72.3% girls. It was found that 80.4% of respondents used sanitary pads, and 73.6% of girls did not change their absorbent pads at school. Only 27.7% practised changing ≥ 4 pads/cloths per day during menstruation. The majority of the girls were restricted from entering the place of worship (73.3%). The study found that the majority of the girls had no information about menstruation before menarche, and the Menstrual hygiene management (MHM) was abysmal (Kavitha *et al.*, 2018).

A study on the use of hygienic menstrual absorbents during menstruation among unmarried young women in India and the Empowered Action Group (EAG) states was conducted in 2018. The study revealed that the unavailability of toilets at the households (42%), living in the rural area (20%) and the number of years of schooling

(27%) contributed about 90 per cent of the total socio-economic inequalities in using hygienic menstrual absorbent at all India level and in the EAG states except Assam where low economic status and residence in rural area explained the inequality. Recognising MHM as a public health concern is the first step towards addressing the problem (Singh & Anand, 2018). Finally, a recent study in India reported that 70% of girls had not heard about menstruation before menarche, underscoring the urgent need for menstrual education (Thakur *et al.*, 2024).

MATERIALS AND METHODS

This was a descriptive survey study that assessed the knowledge, attitude and practice (KAP) of menstrual hygiene among secondary school girls in Al-Daw Hajouj Secondary School for Girls. This school was chosen because it offers an ideal setting to investigate menstrual hygiene since the population of interest are young girls who have started menstruating (menarche) and are managing menstruation at school. A sample of 200 was chosen for the study. This was deemed sufficient for obtaining a representative sample and for statistical analysis. A simple random sampling method was used to select the respondents, ensuring that each student had an equal probability of being selected. A questionnaire was used to collect data and was designed based on the study objectives and literature reviews. The questionnaire was broadly grouped into four sections, which included socio-demographic data, knowledge of menstrual hygiene, menstrual attitudes and menstrual hygiene practices. The questionnaire included both closed-ended questions and Likert-scale statements to provide both descriptive and attitudinal information.

The responses were coded and analysed using descriptive statistics such as frequencies and percentages. The findings were tabulated for better understanding. Furthermore, mean scores were employed for the analysis of the Likert scale response so as to ascertain respondents' attitudes towards menstrual hygiene. The study ensured all ethical principles, such as informed consent, confidentiality and voluntary participation, were upheld.

Demographic Statistic

The findings indicate that most respondents are aged above 14 years (48.5%), 14 years (32.5%) and below 14 years (19.0%). This suggests that the majority of the respondents are in the age group in which menstrual hygiene awareness is important. In terms of class level, 77.5% were in the first class, indicating that most students are in the early stages of secondary school. The distribution of family size indicates that 45.0% of participants had a family size of over six members, which could affect the availability of menstrual hygiene products.

The age of menarche reveals that a majority of girls (40.0%) had their menarche at the age of 14, followed by at the age of 13 (26.5%), which is within the normal range. The education of fathers and mothers indicates that most fathers (67.0%) and mothers (55.0%) were

Table 1: Demographic characteristic of the respondents in Al-Daw Hajouj Secondary School, 2026.

ITEM	Frequency	Percentage
Age		
<14	38	19.0
14	65	32.5
>14	97	48.5
Total	200	100.0
Educational level		
First	155	77.5
Second	41	20.5
Third	4	2.0
Total	200	100.0
Family size		
<6	61	30.5
6	49	24.5
>6	90	45.0
Total	200	100.0
First menstrual period		
11	17	8.5
12	32	16.0
13	53	26.5
14	80	40.0
15	18	9.0
Total	200	100.0
Mother's education level		
No.		%
Illiterate	4	2.0
Khalwa	2	1.0
Primary	35	17.5
Secondary	49	24.5
University and above	110	55.0
Total	200	100.0
Father's educational level		
NO.		%
Illiterate	6	3.0
Khalwa	9	4.5
Primary	22	11.0
Secondary	29	14.5
University and above	134	67.0
Total	200	100.0

Source: Field survey, 2023

university graduates or higher, which suggests a higher level of education in the family, which in turn may improve their knowledge of menstrual hygiene.

The study shows that the respondents are well aware of menstrual hygiene. Most (96%) were aware before their first period, suggesting good pre-menstrual education. The majority (87.1%) had correct knowledge of menstruation

Table 2: Level of knowledge of menstrual hygiene among secondary school girls of Al-Daw Hajouj Secondary School.

Have you know about menstruation before your first period?		
Yes	192	96%
No	8	4.0%
Total	200	200
Menstruation is		
A normal biological process of the body in which woman is more fertile	147	76.6
Monthly loss of endometriosis	24	12.5
pathological condition of the body	18	9.4
Other	3	1.6
Total	200	100
What is the cause of menstruation		
Hormone	135	87.1
Disease	14	9.0
other (select)	6	3.9
The normal menstrual cycle lasts		
3-5 days	95	54.3
6-7 days	75	42.9
Others	5	2.9
Source of Menstrual Blood		
Uterus	104	63.0
Vagina	32	19.4
Urinary bladder	7	4.2
other (select)	22	13.3
Poor menstrual hygiene can lead to infection:		
Yes	181	
No	19	
Total	200	100.0
Total	200	100.0

as a physiological process and hormonal basis. But there were some gaps in knowledge, especially about the origin of the menstrual blood, where a significant number (23.6%) believed the vagina or urinary bladder was the source. Menstrual duration knowledge was quite satisfactory, with minor variations. It's reassuring that a majority understood the health risks of poor menstrual hygiene.

The findings suggest that the students have a favourable viewpoint on menstrual hygiene. Many agreed that good menstrual hygiene is important for health (Mean = 4.43)

Table 3: Response to the attitudes of secondary school girls in Al-Daw Hajouj Secondary toward menstruation Hygiene

ITEMS	SA	A	N	D	SD	MEAN	DECISION
I feel comfortable discussing menstruation with others	40 (20.0%)	60 (30.0%)	30 (15.0%)	45 (22.5%)	25 (12.5%)	3.23	Agree
Menstruation is something to be ashamed of	20 (10.0%)	35 (17.5%)	25 (12.5%)	60 (30.0%)	60 (30.0%)	2.48	Disagree
Girls should attend school during menstruation	90 (45.0%)	70 (35.0%)	15 (7.5%)	15 (7.5%)	10 (5.0%)	4.08	Agree
I feel nervous during menstruation	50 (25.0%)	70 (35.0%)	20 (10.0%)	40 (20.0%)	20 (10.0%)	3.45	Agree
Menstrual hygiene is important for health	120 (60.0%)	60 (30.0%)	10 (5.0%)	5 (2.5%)	5 (2.5%)	4.43	Agree
I develop emotional changes during menstruation	80 (40.0%)	60 (30.0%)	20 (10.0%)	25 (12.5%)	15 (7.5%)	3.83	Agree

Source: Field survey, 2023

and that it is acceptable for girls to go to school while menstruating (Mean = 4.08). But there are emotional and social difficulties. Although some girls felt it is okay to talk about menstruation (Mean = 3.23), many felt nervous during menstruation (Mean = 3.45), indicating cultural stigma affect girls' perceptions. Notably, many respondents did not agree that menstruation is shameful (Mean = 2.48), suggesting more positive societal views. Further, many respondents reported emotional changes while menstruating (Mean = 3.83), which suggests that they recognise the emotional impact of menstruation. The results suggest respondents have good menstrual

hygiene. Most of them (94.0%) use disposable sanitary pads and change them regularly, which is good hygiene practice. Hygiene is also good, with the majority (93.5%) of respondents cleaning their genital area during menstruation. But there is a need for improvement in the disposal practices as some respondents (27%, 10%) respectively dispose of the materials in toilet and public place, which is environmentally unsafe. Pain (20.5%) and leakage (22.9%) were found to be the main reason for school absence and religious beliefs (76.5%) were identified as the greatest obstacle to menstruation.

Table 4: Menstrual Hygiene Practices

What do you use during menstruation?	Frequency	Percentage
Disposable sanitary pads	173	94.0
Reusable sanitary pads	5	2.7
cloth pieces	2	1.1
Cotton	4	2.2
How often do you change your sanitary material?	Frequency	Percentage
Every 2–4 hours	174	87.0
Once a day	5	2.5
Only when full	18	9
Above 4 times	3	1.5
Do you wash your genital area during menstruation?	Frequency	Percentage
Yes	187	93.5
No	13	6.5
Where do you dispose of used sanitary materials?	Frequency	Percentage
Toilet	54	27.0
Dustbin	108	54.0
Open field	20	10
Burn	18	9
What constraints facing the students during the menstruation?	Frequency	Percentage
I don't read the Quran and prayer	153	76.5

I don't go to school	3	1.5
I don't exercise	10	5.0
all above	34	17.2
Total	200	100.0
Reason of Absences from School	Frequency	Percentage
Lack of sanitary materials	2	2.9
Fear of leakage	16	22.9
lack of school-equipped bathrooms	3	1.5
Pain	41	20.5
Other	8	4

RESULTS AND DISCUSSION

Knowledge of Menstrual Hygiene

This study demonstrated that the respondents had a good degree of knowledge about menstrual hygiene. The majority of respondents (96.0%) had knowledge about menstruation before menarche, while 76.6% considered menstruation as a normal phenomenon. Further, 87.1% knew menstruation was due to hormonal changes and 90.5% understood that poor menstrual hygiene practices can cause infections. These results align with a recent study by Richa Rathoria *et al.* (2024) which found that adolescent girls had good knowledge of menstruation, especially its biological basis and health consequences. Likewise, research from Nigeria by Nkemdilim Ene *et al.* (2024) suggests that the majority of the respondents had good knowledge about menstrual hygiene, particularly among the in-school adolescents. Yet, despite the good knowledge of menstrual hygiene in this study, there were some misconceptions, particularly in relation to the origin of menstrual blood, with only 63.0% citing the womb.

Attitudes Towards Menstrual Hygiene

The study revealed a positive attitude towards menstrual hygiene among the respondents. The majority of the respondents regarded menstrual hygiene as important to health (Mean = 4.43) and endorsed the practice of going to school during menstruation (Mean = 4.08). This is consistent with the study by Nkemdilim Ene *et al.* (2024) which found positive attitudes among school girls towards menstrual hygiene in terms of using sanitary materials and performing daily activities. However, there is evidence of emotional discomfort. In the current study, participants reported a level of nervousness (Mean = 3.45) and only average comfort in talking about menstruation (Mean = 3.23). This echoes a review on menstrual hygiene by Hennegan and Montgomery (2024) that noted cultural stigma and societal taboo still affect girls' perceptions. Also, many participants reported emotional changes during menstruation (Mean = 3.83). This is also supported by Sommer *et al.* (2023) who noted that psychological and emotional symptoms are often linked with menstruation in adolescents.

Menstrual Hygiene Practices

The study found that the respondents had good menstrual

hygiene practices. The majority (86.5%) used disposable sanitary pads and 87.0% changed their sanitary products every 2-4 hours. Additionally, 93.5% maintained good genital hygiene. This is in agreement with the study by Nkemdilim Ene *et al.* (2024), which showed that most school girls used sanitary pads, and reported good hygiene practices, especially among the educated and economically empowered. However, in this study, the disposal practices were varied with some respondents disposing in toilets or open dumpsites. This finding is in line with a systematic review in Sub-Saharan Africa that found poor disposal and poor sanitation facilities are challenges in menstrual hygiene. Further, our study found that pain (58.6%) and fear of leakage (22.9%) were the main causes of school absenteeism. These findings were also reported in a 2024 study in Malawi, which indicated that menstruation pain and inadequate facilities have a negative impact on school attendance for girls.

CONCLUSION

The study found that most students at Al-Daw Hajouj Girls' Secondary School had good awareness and knowledge of menstruation, as 96% knew about menstruation before they started menstruating. Moreover, 76.6% understood menstruation as a normal physiological phenomenon and most students acknowledged that it is caused by hormonal changes. However, despite their high level of awareness, there were deficiencies in specific knowledge, especially about reproductive anatomy, as only 63.0% knew that blood comes from the uterus. Regarding attitude, the study found that the students had a positive attitude towards menstrual hygiene. Many students recognized that menstrual hygiene is important for health and felt that it was not a reason for absence from school. As for the presence of nervousity and discomfort talking about menstruation, this suggests that cultural taboo and emotional sensitivities still exist among students. In terms of practices, the study revealed that most participants practiced good menstrual hygiene. The majority (86.5%) of students used disposable sanitary pads and 87.0% regularly changed their sanitary materials (every 2-4 hours). Also, 93.5% of the students maintained proper genital hygiene during menstruation, demonstrating a good sense of hygiene. However, there were some issues detected with regard to proper disposal

of sanitary materials, pain during menstruation, fear of leaking and lack of adequate sanitation facilities. In conclusion, the study found that while the knowledge, attitude and practices of the students are generally sufficient and positive, there is a need to improve comprehensive menstrual health education, sanitation and tackle the socio-cultural issues that may affect menstrual hygiene.

Recommendations

This study has shown that there is a need to improve menstrual health education in schools to include more detailed information on reproductive anatomy and menstrual hygiene. This will assist in overcoming the deficiencies in student knowledge. There should also be efforts to break the cultural stigma by encouraging conversations about menstruation in schools. Educators should be equipped to discuss menstrual health in a sensitive manner and foster a positive learning environment. Moreover, schools should enhance hygiene by providing clean toilets, water supply and adequate disposal for menstrual waste. Making sanitary pads available at an affordable or free cost should also be promoted to improve hygiene. In addition, schools should offer advice on how to cope with menstrual pain and discomfort, which were pinpointed as major issues among students. Communities and parents should be engaged in menstrual health education to promote positive behaviours and attitudes, and government funding should be provided to sustainably implement menstrual hygiene initiatives.

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