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ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING MENSTRUAL HYGIENE AMONG NURSING STUDENTS AT COLLEGE OF NURSING SERVICES HOSPITAL, LAHORE

Mehwish Naseer*[1], Sidra Ashraf[2], Iqra Server[3], Razia Parveen[4]

*[1,2,3,4]Aligarh College of Nursing and Allied Health Sciences Lahore

*[1]osamanaseer82@gmail.com, [2]ahsidch@gmail.com, [3]sarverpaari@gmail.com, [4]agconprincipal@gmail.com

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Abstract

Background: Menstrual hygiene management (MHM) is a significant public health concern, particularly in low- and middle-income countries (LMICs), where socio-cultural taboos, inadequate knowledge, and limited resources hinder safe and dignified menstrual practices. Nursing students, as future healthcare providers and educators, must possess adequate knowledge, positive attitudes, and appropriate practices regarding MHM to effectively support and educate communities. This study aims to assess the knowledge, attitudes, and practices of nursing students regarding menstrual hygiene, identifying potential gaps in their understanding and training.

Objective(s): This study assesses the knowledge, attitudes, and practices of menstrual hygiene among nursing students at Services Hospital Lahore. It aims to identify gaps and enhance menstrual health education.

Methodology: This study employs a descriptive cross-

sectional design to assess the knowledge, attitudes, and practices regarding menstrual hygiene among nursing students at Services Hospital Lahore. A sample of 133 participants was determined using Solvin's formula, with data collected through a structured questionnaire. Ethical considerations, including informed consent and confidentiality, were strictly followed. Data collection spanned three months, utilizing adopted questionnaires. Statistical analysis was conducted using SPSS version 24.0, with results presented through descriptive statistics, including frequency, percentage, mean, and standard deviation.

Results: The findings revealed that 54.1% of participants were above 20 years, and 45.9% were below 20 years. The majority (70%) were from urban areas, and 52.6% had a family income of less than 40,000. Most participants (41.4%) reported that their mothers had an intermediate level of education. Regarding menstrual knowledge, 60.2% identified white discharge as a sign of menstruation, and 46.6% believed menstruation is caused by hormonal changes. The most common menarche age was 11–13 years (56.4%). Attitudes toward menstruation showed that 59.4% of participants had missed college due to menstruation, mainly due to pain (49.6%). About 60.4% abstained from household work, and 56.4% found it shameful to discuss menstruation. Regarding menstrual hygiene practices, 57.9% used sanitary pads, while 18.8% used old cloth. The most common reason for not using sanitary pads was cost (51.1%). The study found that 67.7% of participants had inadequate menstrual hygiene knowledge, while 74.4% held a positive attitude. However, 63.9% demonstrated poor menstrual hygiene practices, highlighting the need for improved education and awareness.

Conclusion: The study reveals gaps in student nurses' menstrual hygiene knowledge, influenced by cultural beliefs and misconceptions. Despite common sanitary pad use,

improper absorbent changes and disposal issues persist. Attitudes impact practices, leading to absenteeism and restrictions. Enhanced education and resources are needed for better menstrual health.

1.Introduction

1.1 Background

In low- and middle-income countries (LMICs), young women often encounter societal and cultural restrictions, insufficient education, and financial challenges, making menstrual hygiene management (MHM) a pressing public health issue. Nursing students, as future healthcare professionals, have a responsibility to themselves and others to learn about menstruation, develop a positive attitude towards menstruation, and practice good menstrual hygiene so that they may advise and assist others with this important health topic. (According to Tshomo and colleagues, 2021).

More than 70% of women have had genital infections at some point in their lives, and 10% of women globally were exposed to genital illnesses such as bacterial vaginosis and urinary tract infections each year. The most prevalent causes of vaginal infections are uncleanliness, particularly during pregnancy and menstruation, as well as poor sanitary conditions in general. The importance of menstruation hygiene has not been given the attention it deserves. 2 During your period, it's very vital to practice good hygiene by using sanitary pads and cleansing your genital regions properly. Sanitized, absorbent tampons are an essential health care item for women of childbearing age because they prevent a host of illnesses. (The study conducted by Stigger-Outshoven and colleagues in 2024).

The World Health Organization reports that there is an increasing global concern with sexual and reproductive health problems. Period hygiene is one of the most pressing issues that girls and women of childbearing age face, since it has a direct impact on their well-being and sense of agency. On a monthly basis, 1.8 billion girls experience menstruation. However, a significant section of this demographic does not have the necessary information or access to basic facilities to manage their period in a safe and acceptable manner. Additionally, there are still regions of the globe where menstruation is considered a taboo topic. Teens in low- and middle-income nations (LMICs) face societal, religious, and cultural barriers, as well as false information, when it comes to menstruation and menstrual hygiene, according to the research. In addition, girls in rural regions have additional challenges due to a lack of education, training, and resources about

menstruation management at home and in the classroom. In Pakistan, menstruating females suffer from a lack of knowledge about menstruation and how to properly care for themselves during this time. In 2023, Shah et al.

The degree to which menstruating females adhere to personal hygiene practices was influenced by their views about menstruation. Menstrual hygiene issues had been associated with genitourinary tract infections, cervical cancer, low self-esteem, low academic performance, school absences, and overall health problems. Between forty-five and forty-five percent of adolescent girls engage in potentially harmful hygienic practices because they did not understand the dangers of their menstrual cycle. In terms of healthcare system initiatives aimed at promoting menstrual hygiene behaviors, this had important clinical implications. In order to educate girls about menstruation and encourage them to practice healthy hygiene habits beginning in their teenage years, massive campaigns with policy implications are required. In 2024, Das and Goosh published.

As per the joint monitoring program (JMP) between the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), menstrual hygiene management is described as the monthly practice of using sanitary materials to absorb a woman's or girl's blood. In a setting that prioritizes privacy, respect, and comfort, this may be adjusted as needed. It also allows for the correct disposal of spent items and the washing of hands and body as needed with soap and clean water. A lack of confidence, an unhealthy perception of one's body, and risky sexual behavior might result from poor menstrual hygiene management (MHM). "Global Menstrual Hygiene Day" was established by WASH United on May 28 to raise awareness and acknowledge the right of girls to manage their periods hygienically, and its significance to women's lives is recognized on the same day. (According to Tshomo and colleagues, 2021).

The fundamental human rights to education, health, and privacy are jeopardized when girls in underdeveloped nations struggle to manage menstruation appropriately due to a lack of WASH (water, sanitation, and hygiene) facilities, accurate information, an appropriate environment, and support. This is because menstruation and menstrual hygiene are still mostly unknown, and people have negative views, attitudes, and behaviors towards them. Poor menstrual hygiene is associated with a number of factors, including a lack of access to sanitary pads, a lack of water, sanitation, and hygiene (WASH) facilities at schools, concerns about blood stains on clothing, and negative views regarding menstruation held by both male students and instructors.

Additionally, lower-class, rural-dwelling females have shown a lack of menstrual education. These variables have a significant impact on girls' health and are therefore a matter of public health concern. (According to Tshomo and colleagues, 2021).

Another paper has shown that when people don't know enough about menstruation, it may lead to dangerous habits, which in turn can cause pelvic infections, cervical cancer, poor academic performance, school dropouts, and low standards of living. According to research, over 500 million women worldwide do not have access to basic services that help them manage their menstrual hygiene, which means they face significant obstacles while trying to be clean and respectful during their periods. According to these facts, we need to stop keeping menstruation a secret and instead educate and empower women and girls so that they may reach their full potential. Pertiwi and colleagues (2021).

1.2 Significance of Study

The evaluation of nursing students' understanding, perspective, and behavior concerning menstrual hygiene is of utmost importance, as it has a direct bearing on their health, their professional development, and their capacity to instruct future patients. In order to combat stigma, improve health, and cultivate a supportive atmosphere, it is important for them to understand menstrual hygiene management. The populations that these studies aim to help will reap the benefits of better menstrual health education and better overall health outcomes. On top of that, it helps shatter taboos and create a welcoming atmosphere in hospital settings while addressing an important public health problem.

1.3 Problem Statement

Current study aims to assess nursing students' knowledge, attitudes, and practices regarding menstrual hygiene, as they were future health educators who would play a critical role in promoting health awareness. Understanding their competency in this area is essential for improving menstrual hygiene education and empowering students to effectively address related health concerns among diverse populations. Identifying gaps in knowledge and practices can also guide curriculum enhancements and promote better health outcomes. It also provides insights into potential gaps in their training, informing curriculum improvements to better support women’s health.

1.4 Objectives of the Study

1. To assess the level of knowledge regarding menstrual hygiene among nursing students at

services hospital Lahore.

2. To examine the attitudes and practices related to menstrual hygiene among nursing students at services hospital Lahore.

2.Literature Review

For women's overall health and wellness, menstrual hygiene management is essential, and this is especially true for nursing students getting ready to work in healthcare. The purpose of this literature review was to summarize previous studies on nursing students' KAP (knowledge, attitude, and practice) on menstrual hygiene and to draw attention to the ways in which these findings may be used to the field of nursing.

A Nursing students often have little information about menstruation hygiene, according to research. While the majority of the nursing students surveyed by Yadav were aware of the need of menstrual hygiene, many had false beliefs about the mechanics of menstruation and how to properly use sanitary products. Similarly, it was shown that students had a lack of comprehension of the significance of menstruation hygiene in avoiding infections. This ignorance is a result of incomplete reproductive health education in early childhood, highlighting the necessity for all-encompassing educational programs in nursing schools. In 2020, Achar and colleagues published...

The amount of information that nursing students know about menstrual hygiene had been examined in many studies. While most nursing students in India had a general understanding of menstruation, many had false beliefs on proper menstrual hygiene practices, according to research by Bhargava et al. (2020). Some students, for example, didn't know that menstruation infections might occur if they didn't use clean and safe items.

How nursing students felt about menstrual hygiene had a major impact on how they actually do it. Research conducted by Bansal et al. (2021) examined the viewpoints of rural nursing students and found that cultural taboos and stigma associated with menstruation often resulted in unfavorable opinions. A few students expressed shame and awkwardness when asked about menstrual hygiene, which might have influenced their capacity to counsel patients. Kiran et al. (2022) found the opposite to be true; they linked a positive attitude to more knowledge and improved hygienic behaviors. Based on these findings, it seemed that creating a welcoming classroom setting for nursing students might have helped spread positive messages and improve knowledge about menstrual hygiene.

How people felt about menstrual hygiene might have had a big influence on what they did. Nursing students had favorable views on period hygiene management, according to research by Puri et al. (2021). Their confidence in freely addressing menstruation with patients was affected by persistent unfavorable cultural attitudes. The survey found that many students avoided talking about menstruation hygiene because they were ashamed of the stigma that surrounded the topic.

Research was conducted in India and results showed that the knowledge and behaviors of adolescent schoolgirls in Tamale Metropolis, Ghana, regarding menstrual hygiene, in recognition of the importance of menstrual health during this transformative period of adolescence. The majority of girls (90.9%) and menstruation's hormonal basis (82.1%) were aware of its normal frequency and causes, but just over half (57.3%), according to a cross-sectional survey of 363 girls, knew how long menstruation typically lasted. While a large majority of persons (95.6%) utilized absorbent goods, with 87.3% utilizing sanitary pads, there were still issues with improper storage and disposal. There was a strong correlation between menstrual knowledge and age, socioeconomic status, and ethnicity. Another factor that influenced behaviors was religious beliefs. According to Mohammed et al. (2024), some girls felt they couldn't attend religious events or handle holy books when they were menstruating.

Nursing students' knowledge and attitudes impacted the practices around menstruation hygiene, which might differ greatly. While the majority of nursing students had used sanitary napkins, Ahmed et al. (2021) discovered that students' disposal practices and product turnover rates varied widely. A lack of knowledge on the dangers of improper menstrual hygiene, such as UTIs and reproductive health problems, had been related with insufficient practices. According to Nahar et al. (2020), nursing schools should have made sanitary goods and disposal facilities available to their students in order to promote appropriate menstrual hygiene habits.

Inconsistent menstrual hygiene habits were common among nursing students, even when they had enough information and a favorable attitude about the topic. Research conducted by Nair et al. (2021) revealed that a considerable portion of nursing students had not properly used menstrual hygiene products, even though the majority had access to them. The research highlighted the need of teaching students both theoretical and practical elements of menstrual hygiene management in educational programs.

The effect of educational interventions on moral convictions was another critical factor. Nursing students had more favorable views and were more eager to participate in conversations about menstruation after attending instructional workshops regarding menstrual hygiene (Mohan et al., 2020). Results like this showed that nursing students' perspectives on menstrual hygiene could be changed via focused educational initiatives.

Awan et al. (2022) found the opposite to be true; their research indicated that nursing students had better menstrual hygiene habits than non-nursing students, demonstrating the impact of their training and instruction. On the other hand, many nursing students had still participated in risky behaviors, such reusing menstruation products, according to one research.

Another study highlighted that 96 respondents, ages 17 to 19, participated in the study, which evaluated the knowledge and practices of adolescent girls at Lubaga Girls' Secondary School in Uganda about menstrual hygiene management (MHM). The results showed notable gaps in knowledge and practices, even though 41% understood MHM as menstrual management methods and 52% acknowledged the use of clean materials: 69% knew to bathe twice daily and change materials frequently, yet 54% continued to absorb using old pieces of cloth. The findings emphasized the need for improved education and resources for these girls by highlighting their lack of understanding and bad menstrual hygiene habits (Laker and Africa, 2024).

Given the critical role that nursing students played in healthcare, it was imperative to integrate menstrual hygiene management into nursing curricula. Educators should have prioritized training on reproductive health and menstrual hygiene to empower future nurses to effectively educate their patients. Workshops and seminars could have been valuable tools for improving knowledge and attitudes, fostering an environment where students felt comfortable discussing menstruation. Additionally, educational institutions should have ensured the availability of adequate facilities and resources to support good menstrual hygiene practices among students. (Anee et al., 2020).

The assessment of KAP regarding menstrual hygiene among nursing students had important implications for nursing education. There was a clear need for incorporating comprehensive menstrual health education into nursing curricula. This education should have addressed not only the biological aspects of menstruation but also the social, cultural, and psychological dimensions. (Sakhi et al., 2023)

3.Methodology

This sub-section of the study emphasized as well as discussed the broader approach used to

analyze how nurses responded to menstrual hygiene.

3.1 Study Design

A descriptive cross-sectional design was used in order to assess the knowledge, attitude and practices regarding menstrual hygiene among nursing students.

3.2 Study setting

Student nurses at services hospital Lahore morning batch (one, two, three and four).

3.3 Study Duration

The research was covered during three to four months after the approval of synopsis from the research ethical committee (REC) of Aligarh College of Nursing, Lahore.

3.4 Sampling Technique

Convenient sampling Technique was used to collect data from nursing students working in services hospital Lahore.

3.5 Sample Size

The sample size was determined by considering the population size along with level of confidence, and margin of error through a power analysis. At least 133 candidates of nursing disciplines were part of this study to give meaningful comparisons.

Study Sample: The sample size of 133 was determined using the formula for sample size calculation, known as Solvin's formula.

$n= N/ (1+Ne^2)$

n= Sample size

N= the total population (N) was 200.

e= the margin of error (e) represents the range within which the true value is expected to fall.

e= the margin of error was set at 0.05 for calculation.

$n=200/1+200(0.05)^2$

Using Solvin's formula, the calculation is as follows: $n = 200 / (1 + 200 \times (0.05)^2)$, which gives a sample size of 133.3.6

3.6 Study tool

For this research, we used an adopted questionnaire that was accessible in an open access format to gather data. That is according to Nahar (2019). The survey was primarily split into four sections: a participant demographics section, an examination of participants' knowledge and attitudes about menstruation in Section II, and questions based on participants' actual menstrual

experiences in Section IV. There were nine questions designed to assess the participants' understanding of menstrual hygiene management, with one point awarded for each right response. Those who got six points out of a possible nine were said to have "adequate" knowledge on menstrual hygiene, while those who got less than six were said to have "inadequate" knowledge. Similarly, they were asked five questions to gauge their perspective on menstrual hygiene, with each right response carrying one point. People were said to have a "positive" attitude towards menstruation if their score was three points or more, and a "undesirable" attitude if their score was lower. The kind of menstrual hygiene practice was lastly evaluated using a 10-item questionnaire. Menstrual hygiene practices were characterized as "good" by those who scored seven or above out of 10, and as "poor" by those who scored below seven. Each right response was assigned a code of one, while each wrong response was assigned a value of zero.

3.7 Data Collection

Data collection process spanned three months from the start of September to the end of November 2024. The aim of the study and instructions for completing the tool were explained to the participants by the researcher. Data about menstrual hygiene was collected through distributing questionnaires to student nurses during study hours in the morning shift. Participants were given 5-10 minutes to fill the questionnaire sheets and observation checklist was utilized to assess nurse's performance done by the researcher through observing student nurses individually. This needed the researcher to attend in the unit for a long time on different days' in morning shift. The number of questionnaire sheets collected from student nurses per day ranged from 3-4 sheets. The researcher went for data collection three days per week.

3.8 Data Analysis

The data collected was entered to SPSS version 24.0 for statistical analysis. Demographic characteristics of study participants were expressed in frequency and percentage (Mean, Standard deviation). A probability value of < 0.05 was considered statistically significant in the study. Data was presented in the form of tables, graphs, frequency and percentage.

Results and Interpretations

The research was carried out at the College of Nursing Services Hospital in Lahore to evaluate the awareness, perspectives, and behaviors related to menstrual hygiene among nursing students.

Table 1 Age of participants

		Frequency	Percent	Valid Percent	Cumulative Percent
	< 20	61	45.9	45.9	45.9
	> 20	72	54.1	54.1	100.0
	Total	133	100.0	100.0	

Table 1 illustrates that from total number of participants who participated in the study and with the age group < 20 were 61 (45.9%) and with age group > 20 were 72 (54.1%).

Table.2 Class

	Frequency	Percent	Valid Percent	Cumulative Percent
1st year	39	29.3	29.3	29.3
2nd year	37	27.8	27.8	57.1
3rd year	34	25.6	25.6	82.7
4th year	23	17.3	17.3	100.0
Total	133	100.0	100.0	

Table 2 illustrates that out of total number of participants who participated in the study belonged to 1st year were 39 (29.3%), from 2nd Year were 37 (27.8%), from 3rd year were 34(25.65%) and those from 4th year were 23(17.35%).

Table. 3 Menarche Age

	Frequency	Percent	Valid Percent	Cumulative Percent
11-13 years	75	56.4	56.4	56.4
14-16 years	58	43.6	43.6	100.0
Total	133	100.0	100.0	

Table 3 illustrates that from total number of participants who participated in the study and with the age at Menarche 11-13 Years were in 75 (56.4%) and with age group 14-16 years were 58 (43.6%).

Table 4 Knowledge about Menstruation

	Frequency	Percent	Valid Percent	Cumulative Percent

White discharge	80	60.2	60.2	60.2
Uterine bleeding	41	30.8	30.8	91.0
Bleeding from stomach	12	9.0	9.0	100.0
Total	133	100.0	100.0	

Table 4 illustrates that from total number of participants who participated in the study those respond white discharge about menstrual hygiene the frequency was 80 (60.0%), those respond uterine bleeding the frequency was 41 (30.8%), and rest of participant's respond bleeding from stomach the frequency was 12 (9.0%) .

Table. 5 Feeling about first menstruation

	Frequency	Percent	Valid Percent	Cumulative Percent
Surprised	58	43.6	43.6	43.6
Afraid	21	15.8	15.8	59.4
Got nervous	24	18.0	18.0	77.4
Normal	30	22.6	22.6	100.0
Total	133	100.0	100.0	

Table 5 illustrates that from total number of participants who participated in the study respond that feeling surprised about first mensuration the frequency was 58 (43.6%), those feeling afraid was 21 (15.8%), those feel nervous were 24 (18.9%) and those had normal feeling were 30 (22.6%).

Table.6 Sources of information about menstruation before menarche

	Frequency	Percent	Valid Percent	Cumulative Percent
Mother	27	20.3	20.3	20.3
Sister	69	51.9	51.9	72.2
Friend	24	18.0	18.0	90.2
Teacher	13	9.8	9.8	100.0
Total	133	100.0	100.0	

Table 6 illustrates that from total number of participants who participated in the study those had source of information regarding mensuration was mother the frequency was 27 (20.3%), those had information from sister were 69 (51.9%), those had information from friend were 24 (18.0%)

and those had information from Teacher were 13 (9.8%).

Table.7 Material use during menstruation

	Frequency	Percent	Valid Percent	Cumulative Percent
Sanitary pad	77	57.9	57.9	57.9
Old cloth	25	18.8	18.8	76.7
New cloth	31	23.3	23.3	100.0
Total	133	100.0	100.0	

Table 7 illustrates that from total number of participants who participated in the study those used sanitary pad during menstruation were the frequency was 77 (57.9%), those used old cloth the frequency was 25 (18.8%), and rest of participants used new cloth during menstruation the frequency was 31 (23.3%).

Table.8 Frequency of changing material used

	Frequency	Percent	Valid Percent	Cumulative Percent
Once a day	65	48.9	48.9	48.9
Twice a day	34	25.6	25.6	74.4
More than three times	34	25.6	25.6	100.0
Total	133	100.0	100.0	

Table 8 illustrates that from total number of participants who participated in the study those had changing material in once a day the frequency was 65 (48.9%), those had changing material in Twice a day the frequency was 34 (25.6%), and rest of participants had changing material in more than three weeks the frequency was 34 (25.6%)

Table 9. Knowledge

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error

Q.1 Menstruation	133	1.4887	.65847	1.012	.210	-.119	.417
Q.2 Belief regarding causes of menstruation	133	1.6992	.73839	.546	.210	-.984	.417
Q.3 Menarche Age	133	1.4361	.49777	.261	.210	-1.962	.417
Q.4 Feeling about first menstruation	133	2.1955	1.22139	.378	.210	-1.478	.417
Q.5 Concept about menstrual hygiene	133	2.1053	.90674	-.211	.210	-1.763	.417
Q.6 Sources of information about menstruation before menarche	133	2.1729	.86612	.579	.210	-.150	.417
Q.7 Usual menstrual cycle	133	1.3759	.48620	.518	.210	-1.758	.417
Q.8 Experience of inter menstrual interval	133	2.0526	.82862	.631	.210	.087	.417
Q.9 Duration of menstrual cycle during each period	133	2.6767	.83981	-.262	.210	-.439	.417

Table 10. Attitude

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Q.1 Ever missed college because of menstruation	133	1.4060	.49294	.387	.210	-1.879	.417
Q.2 Main reasons for missing college	133	2.2707	.90560	.491	.210	-.449	.417

Q.3 Abstained from household work during menstruation	133	1.4962	.50188	.015	.210	-2.031	.417
Q.4 There are some food girls should avoid during menstruation	133	1.4962	.50188	.015	.210	-2.031	.417
Q.5 It is too shameful to discuss menstruation	133	1.4361	.49777	.261	.210	-1.962	.417

TABLE 11. Practice

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Q.1 Material use during menstruation	133	1.6541	.83526	.727	.210	-1.177	.417
Q.2 Frequency of changing material used	133	1.7669	.83382	.462	.210	-1.410	.417
Q.3 Perception regarding sanitary pad	133	1.8947	.74124	.171	.210	-1.153	.417
Q.4Perception regarding sanitary cloth	133	1.7444	.82254	.507	.210	-1.338	.417
Q.5 Reason for not using sanitary pad	133	1.9549	1.05072	.409	.210	-1.434	.417

Q.6 Mode of disposal of absorbents	133	2.1955	.92490	-.401	.210	-1.724	.417
Q.7 Material used for Genital Cleaning	133	2.1579	.69459	-.222	.210	-.906	.417
Q.8 Excess bleeding during menstruation	133	1.6015	.49144	-.419	.210	-1.852	.417
Q.9 Excess pain during menstruation	133	1.6391	.48208	-.586	.210	-1.682	.417

5.Discussion

This chapter encompassed discussion, conclusion, limitations of study, and recommendations. In discussion firstly represented the demographics of the participants, secondly represented the Menstrual hygiene includes knowledge, Attitude and practices among student nurses in services college of nursing Lahore.

5.1 Discussion on demographics of the participants

In present study the demographic analysis provided valuable insights into the characteristics of the study participants. The majority (54.1%) were above 20 years of age, indicating a balanced distribution between younger and older participants. which was similar to the findings reported by (Akhtar et al. 2012), who assessed the knowledge and perception about the MH issues among adolescent girls aged 15-19 years. More than half of their respondents were aged 18-19 years (55%). However, a study found that a larger proportion of students were below 20 years, suggesting that variations in participants age may have influenced age distribution in different regions. (Yasmeen et al., 2023).

Current study highlighted that in terms of residential background, 70% of participants were from urban areas, while 30% were from rural areas. These findings align with those reported by (Tshomo et al., 2021) where urban participants formed a larger proportion of the sample (68%). However, a study by (Asim et al., 2023) contradicted this finding, showing a higher proportion of rural participants (55%), which they attributed to the study location and target population differences.

The results of current study indicated that 52.6% of participants had a family income of less than 40,000, while 47.4% had an income above this threshold. These findings are consistent with those of (Yalew et al., 2021), who found that 50% of their study population fell into the lower-

income category. In contrast, a study by (Shumie & Mengie, 2022), found that only 30% of their participants reported a similar income level, which could reflect economic disparities across different regions.

The current study illustrates that 41.4% of participants had mothers with an intermediate education level, 31.6% had mothers with a bachelor's degree, 21.1% had mothers with metric-level education, and 6.0% had mothers with only primary education. Similar patterns were observed in a study by (DAS & GHOSH, 2024), where intermediate education was the most common maternal educational level among participants. However, a contrasting study by (Amri, 2022), found that the majority (55%) of mothers had a bachelor's degree, indicating a higher level of parental education in their sample.

5.2 Discussion on knowledge of the participants about Menstruation

A significant portion of participants (60.2%) identified white discharge as a component of menstruation, while 30.8% recognized uterine bleeding, and 9.0% mistakenly associated it with bleeding from the stomach. This indicates a prevalent misconception among a subset of participants. Similar studies have reported varying levels of understanding. For instance, research conducted in southern Ethiopia (Pertiwi et al., 2021), found that 55.8% of adolescent girls had good knowledge about menstruation. In contrast, a study in rural Gilgit, Pakistan, highlighted that many girls lacked proper knowledge regarding menstrual hygiene. (Ene et al., 2024).

The data illustrates that 56.4% of participants experienced menarche between 11-13 years, and 43.6% between 14-16 years. These findings are consistent with global trends, where the average age of menarche ranges between 12 to 14 years. Studies in Ethiopia and India have reported similar age distributions. (Dube et al., 2024).

Regular menstrual cycles were reported by 62.4% of participants, while 37.6% experienced irregular cycles. Additionally, 51.9% had a menstrual interval of 25-28 days, aligning with the typical menstrual cycle length. These findings are consistent with global data on menstrual patterns. (Kaur et al., 2023).

5.3 Discussion on Attitude of the participants about Menstruation

Current study revealed that 59.4% of participants had missed college because of menstruation, with pain cited as the main reason by 49.6% of them. This aligns with research conducted in (Gomes et al., 2024), where heavy bleeding and associated pain were significant contributors to school absenteeism among menstruating students. In contrast the prevalence of absenteeism in

this study is higher compared to a study (Hassan et al., 2023), in which reported rates ranging from 19% to 40%. This discrepancy could be attributed to differences in cultural contexts, availability of menstrual hygiene resources, and educational environments.

Current study revealed that the belief that certain foods should be avoided during menstruation was held by 60.4% of participants. Cultural and social practices regarding menstruation often dictate dietary restrictions, which can vary widely between different communities. These beliefs may stem from traditional understandings of health and body function during menstruation, though they are not always supported by scientific evidence. (Nautiyal et al., 2021).

5.3 Discussion on Practice of the participants about Menstruation

The study found that 57.9% of participants used sanitary pads, 18.8% used old cloth, and 23.3% used new cloth during menstruation. These findings align with a study conducted in (Twafuna & Katwe, 2023), where 54% of adolescent girls used disposable sanitary pads, while 30% relied on cloth materials. In contrast, studies conducted in low-income settings showed a lower usage of sanitary pads (around 35%), with many relying on traditional cloth materials due to financial and cultural factors. (Parikh & Nagar, 2022).

Current study revealed that 48.9% of participants changed their menstrual absorbent once a day, 25.6% changed twice a day, and another 25.6% changed more than three times a day. This is concerning, as frequent changes are recommended to prevent infections. A study in (Betsu et al., 2024), found that over 60% of schoolgirls changed their absorbents twice or more per day, which is in line with global recommendations. However, another study in rural India found that many adolescents changed their pads only once per day due to lack of awareness and facilities, mirroring the findings of this study. (Madhu et al., 2024).

Current study found that 54.1% of participants disposed of their menstrual absorbents in the dustbin, 34.6% burned them, and 11.3% buried them. This is comparable to findings from India, where 50% of adolescent girls discarded their pads in bins, 40% burned them, and 10% practiced burial (Sharma et al., 2021). However, studies in sub-Saharan Africa indicate that many girls dispose of used absorbents in latrines due to the lack of waste disposal facilities, leading to sanitation issues. (Chakor et al., 2022).

Current study found that 39.8% of participants experienced excessive menstrual bleeding, 36.1% had excess pain, and 47.4% reported feeling weak and unable to eat during menstruation. These findings are in line with a study in (Dominic & Divya, 2023), where 40% of young women

reported heavy bleeding and dysmenorrhea as significant concerns affecting their daily activities. Similarly, a study in Turkey found that 38% of adolescents suffered from severe menstrual pain. However, in developed countries, better access to healthcare and medication results in lower reported cases of severe menstrual pain and discomfort. (Mupasi & Saputra, 2023).

5.4 Conclusion:

This study has provided valuable insights into the knowledge, attitudes, and practices regarding menstrual hygiene among nursing students. It revealed significant gaps in the participants' knowledge of menstruation, with misconceptions about discharge and hygiene practices being prevalent. Despite most participants being aware of menstruation, misconceptions, particularly about the causes of menstruation, persist. Additionally, cultural and societal attitudes toward menstruation played a role in influencing the participants' behavior, including absenteeism from college and dietary restrictions during menstruation.

The study also highlighted that while a majority of participants used sanitary pads, many still relied on cloth materials, and a significant number did not change absorbents frequently enough, potentially leading to health risks. The disposal practices varied, and some participants' practices raised environmental concerns, particularly in terms of the methods used for disposal.

This study emphasizes the need for improved menstrual health education and greater access to hygiene resources. Educational interventions should focus on dispelling myths, promoting hygienic practices, and addressing the impact of cultural attitudes toward menstruation. By enhancing menstrual hygiene knowledge, nursing students can be better prepared to educate others, leading to healthier practices and improved public health outcomes.

5.5 Limitations

The study had several limitations. Firstly, it was conducted in a single nursing college, limiting the generalizability of findings to broader populations. Secondly, self-reported data might have been introduced recall and response bias, affecting accuracy. Thirdly, socio-cultural influences on menstrual hygiene practices were not extensively explored. Lastly, the study did not assess the impact of health education programs on menstrual knowledge and practices .

5.6 Recommendations

- Implement comprehensive menstrual health education programs in nursing colleges to address misconceptions about menstruation.
- Incorporate evidence-based menstrual health topics in the nursing curriculum to improve

knowledge and awareness.

- Ensure the availability of affordable and high-quality sanitary pads, especially for students from low-income backgrounds.
- Promote the use of hygienic menstrual absorbents and provide financial support or subsidies for students in need.
- Conduct hygiene workshops focusing on best practices for menstrual absorbent usage, disposal, and personal care.
- Engage families and communities in awareness programs to change traditional restrictive practices related to menstruation.
- Promote scientifically accurate knowledge about menstruation to reduce cultural and societal taboos.

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