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Article

Knowledge, Attitude, and Practices Regarding Menstrual Hygiene among Girls in Ghizer, Gilgit, Pakistan

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Abstract: Introduction: Menstrual hygiene is a critical issue encountered by women and girls of the reproductive age, which negatively affects their health and empowerment. It is still deemed a taboo in several parts of the world and girls hesitate to discuss menstruation with their family members, friends, or schoolteachers, which creates hurdles when they attain their menarche. Girls residing in rural areas encounter more problems, since they lack proper resources, and knowledge to manage their menstruation in school as well as at home. **Methods:** The descriptive cross-sectional design was used to assess the study questions. The consecutive sampling techniques was applied to recruit 300 female participants from remote area of Gilgit, Pakistan, who were 13- to 22-year-old. A pre-tested questionnaire was utilized to collect the data, and to analyze the data the SPSS version 21.0 was used. **Results:** The study found that more than half of the participants had poor level of knowledge, practices, and negative attitude towards menstrual hygiene. This could be because of many cultural and social taboos attached to menstrual hygiene. **Conclusions:** The study concluded that the study participants were not knowledgeable about menstrual hygiene. They had poor practices and attitude regarding menstrual hygiene. Hence, it is recommended that frequent sessions should be conducted by health care workers to enhance the knowledge of parents, teachers, and young girls, to increase the positive attitude and practices regarding menstrual hygiene.

Keywords: Menstrual hygiene; menstruation; knowledge; attitude; practices; Adolescents

Introduction

According to the World Health Organization (WHO), sexual and reproductive health issues are one of the rising problems around the globe. Among them, menstrual hygiene is a critical issue encountered by women and girls of the reproductive age, which negatively affects their health and empowerment (WHO, 2020). Across the globe, 1.8 billion girls menstruate each month, yet a major portion of this population lacks adequate knowledge as well as basic facilities to handle their menstruation in a noble and healthy way (UNICEF, 2021). Moreover, menstruation is still deemed a taboo in several parts of the world (Setyowati, Rizkia, & Ungsianik, 2019; WHO, 2020a). Literature has cited that youngster in low- and middle-income countries (LMICs), confront challenges related to menstruation and menstrual hygiene practices because of religious, cultural, and social constraints and due to incorrect information (Chandra-Mouli & Patel, 2017; Kaur et al., 2018). Besides, Girls residing in rural areas encounter more problems, since they lack proper resources, skills, and knowledge to manage their menstruation in school as well as at home (Kaur et al., 2018). In Pakistan, menstruating girls have inefficient information about practices on menstruation and menstrual hygiene and consequently, this impacts the wellbeing of girls (Arshad Ali et al., 2020).

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WHO has defined the adolescent's age from 10 to 19, years whereas the young people range from 10 to 24 years. Adolescence and adulthood are very crucial as the individuals experience major changes in their physical, hormonal, emotional, behavioral, and mental health. Young people are more prone to adopt unhealthy behaviors and encounter many problems related to their sexual and reproductive health (WHO, 2020a). Because of this transition, young girls face difficulties managing their menstruation and are exposed to societal taboos (Meena, Bhojwani, & Verma, 2018). However, Menstruation or menses is a normal process in females when they are at their reproductive age (UNICEF, 2018). There is evidence that both in developed and underdeveloped countries, girls have had early onset of menstruation because of changes in lifestyle, environmental factors, and geographical locations (Mansoor et al., 2020). A study from Pakistan reported 12 to 14 years of age for menarche (Mansoor et al., 2020). Literature has highlighted that lack of appropriate information at the first menstrual cycle has created many problems for girls in managing their menstrual hygiene (Michael et al., 2020; Setyowati et al., 2019).

WHO and UNICEF's joint monitoring program (JMP), (as cited in (UNICEF, 2019a), has elaborated menstrual hygiene management as the usage of hygienic material for menstrual management, to absorb the blood of the menstruating girls or women every month, that can be changed as per need in an environment that provides privacy, respect, comfort, and washing of hands and body, when required, with soap and clean water, and discard of the used materials properly. Improper menstrual hygiene management (MHM) can also lead to low self-esteem, negative body image, and unsafe sexual practices (MacRae et al., 2019). Considering its impact on women's life, May 28 is celebrated as "Global Menstrual Hygiene Day'', which was introduced by WASH United to create awareness and to recognize the rights of girls to manage their menstruation hygienically (UNICEF, 2018).

The girls in developing countries encounter problems in managing menstruation properly because they lack the basic facilities of WASH (water, sanitation, and hygiene), proper information, suitable environment and support, which ultimately, affects their basic human rights of education, health, and privacy (Human Rights Watch, 2017; MacRae, Clasen, Dasmohapatra, & Caruso, 2019). This is due to lack of knowledge, improper awareness, and poor attitude and practices towards menstruation and menstrual hygiene (Chandra-Mouli & Patel, 2017; Meena et al., 2018). Additionally, several studies have revealed that nonavailability of WASH facility at schools, the anxiety of blood dripping on clothes, no access to sanitary pads, and poor attitude of male students and teachers towards menstruation are linked with poor menstrual hygiene (UNICEF,2015,as cited in Davis et al., 2018). Besides, girls residing in rural areas, and studying in lower classes have demonstrated poor knowledge of menstruation (Davis et al., 2018; MacRae et al., 2019). These factors ultimately affect the health of girls, and it later becomes an issue of public health (MacRae et al., 2019).

Moreover, another article has identified that insufficient knowledge and awareness about menstruation builds harmful practices and, thus, it can cause pelvic infections, cervical cancers, drop out from schools, poor accomplishment in studies, and low standard of living (Belayneh & Mekuriaw, 2019). This evidence indicates that there is a dire need to break the silence on menstrual taboos and empower girls and women by educating them and enabling them to achieve their full potential. Thus, this descriptive study sought to evaluate the "Knowledge, Attitude, and Practices (KAP) regarding Menstrual Hygiene of Girls residing in rural area of Gilgit, Pakistan.

Materials & methods

This study employed a quantitative research design using the cross-sectional descriptive approach, that was conducted at two selected government educational institutions of district Ghizer. Ghizer is one of the 10 districts of Gilgit Baltistan, Pakistan. As per the 2017 census, the total population of district Ghizer is 170,000 (Planning and Development Department Gilgit-Baltistan, 2017). Gahkuch is 72 km away from the main city, Gilgit and it is the capital city of district Ghizer. This was the reason for selecting these institutions from Gahkuch. Moreover, the only female college in the territory of tehsil Punyal, is located here. Hence, this helped the researcher to collect data from a diverse group of students, within limited timeframe.

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Sampling Strategy and Sample Size

Consecutive sampling was applied to collect data from the participants. The sample size was determined by using the Open Epi software version 3.01, with significance level of 95% and 5% margin of error. The total population of students from class 7th to class 12th was 625. The anticipated frequency taken from previous literature was 50% (Mansoor et al., 2020). The sample size after the calculation was 239 participants, and when a 10% attrition rate was added, the sample size obtained was 265 girls. Total 300 participants were included in the study.

Study Population

The participants who were selected for the collection of data were female students from class 7th to 12th who had attained the age of menarche, Age limit was 13 to 24 years, Who were willing to participate in the study and were residents of Ghizer, Gilgit Pakistan. Also, who could easily understand and write English or Urdu. However, Participants who were not prepared to participate in the study and those who did not sign, or their guardian did not sign the form were excluded from the study. To conduct the aforementioned study, approval was taken from the Ethical Review Committee (ERC) of Aga Khan University, Pakistan. Participants were assured about their privacy, confidentiality, and anonymity throughout the study.

Data Collection Procedure

For the collection of data, a standardized questionnaire was used. The questionnaire to evaluate the knowledge, attitude, and practices was taken from a study that was conducted and used in the context of Sindh, Pakistan (Wasan et al., 2020). However, a few modifications were made in the questions according to the study context, after taking permission from the primary author. The tool comprised demographic details of the participants and their knowledge, attitude, and practices regarding menstrual hygiene. The study questionnaires were translated into the national language, Urdu, by Urdu language experts. Additionally, to eliminate any discrepancies, and to maintain the exact meaning and quality of the questionnaires, back- translation was done by an independent expert, who was not aware of the previous translation in both languages. A pilot study was carried out with 10% of the chosen sample, to rule out any inappropriateness and discrepancies in filling the questionnaire.

Official permission was taken from the education directors of Gilgit and the principals of the respective school and college. Eligible participants were asked to give their consent. The participants were thoroughly briefed about the purpose of the study, risk and benefits, and their voluntary participation, and their right to withdraw from the study whenever they wanted. Likewise, parents/guardians were approached through the eligible participants and consent was also taken from them. Furthermore, each guardian or parent consent form was checked by the researcher for their signature and then an assent form was provided to the adolescents. The data collection was completed in three months, from May 2021 to July 2021.

Data Entry and Data Analysis Plan

After the collection of data, the researcher checked the filled questionnaires for their completeness and accuracy. The data was than analyzed through the Statistical Package for Social Sciences (SPSS) version 21. Mean and standard deviation were calculated for continuous variables and frequency and percentages for categorical variables. The frequencies and percentages have been presented via tables.

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Results

Demographic Details of the Study Participants

Total 300 young girls participated in the study and the mean age (± standard deviation) of the study participants was 17.5 (±1.72) years, ranging from 13 to 22 years. The analysis of father's education showed that 33% (n=99) had no formal education, whereas, about mother's education, 65.3% (n=196) had no education. Furthermore, participants were also asked if they had attended any class/orientation on menstrual hygiene, and the results showed that only 44.3% (n=133) had been to an orientation/class on menstrual hygiene, and the provider of the orientation/class was the health care provider 34% (n=102), and schoolteacher 10.3% (n=31). The demographic details are provided in Table 1.

Table 1. Demographic Characteristics of the Study Participants (n=300).

Variables	Frequency (n)	Percentage (%)
Age in years (Mean ±SD)	17.55 ±1.72	42
Class Studying		
Class 7th- Class 10th	95	31.7%
Class 11th- Class 12th	204	68.2%
Elder Sister		
Yes	212	70.3%
No	88	29.3%
Father's Education		
No education	99	33%
Primary education	13	4.3%
Middle education	42	14%
Secondary education	61	20.3%
Intermediate	50	16.7%
Bachelors and above	36	12%
Mother Education		
No education	196	65.3%
Primary education	20	6.7%
Middle education	37	12.3%
Secondary education	30	10%
Intermediate	13	4.3%
Bachelors and above	4	1.3%
Toilet facility at		
home	300	100%
school/college	300	100%
Washing Soap at home	300	100%
Washing Soap at school/college		
Yes	209	69.7%
No	91	30.3%
Facilities at home		
TV	266	56.1%
Radio	64	13.5%
Internet	144	30.4%
First heard about menstruation		
<10 years	12	4%
10-12 years	99	33%
12-15 years	154	51.3%
> 15 years	35	11.7%
Age at menarche		
Before 11 years	5	1.7%

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12-14 years	140	46.7%
15-16 years	134	44.4%
Above 16 years	21	7%

Knowledge of Young Girls Regarding Menstrual Hygiene

It was interesting to know that at the age of menarche, 51.7% (n=155) were not aware of menstruation and the participants who were aware, 47% (n=141), their main source of information was mother, 41.8% (n=59). Most young girls, 48.3% (n=145), mentioned that they discussed their first periods with their mothers. With regard to source of menstrual blood, very few participants, 32.3% (n=97), knew that menstrual blood comes from the uterus: however, 59% (n=177) did not know the answer. Moreover, regarding knowledge about menstrual absorbents, around 30% (n=146) and 33.9% (n=165) of them had heard about disposable pads and reusable old cloth/towel, respectively. Besides, 45.7% (n=137) respondents knew that women in the reproductive age get menstruation, while 33% (n=99) mentioned that only adolescent girls get menstruation. Almost, an equal number of participants, 29% (n=89) and 28.3% (n=87), indicated that menstruation is a sign of fertility and uncleanliness, respectively. When asked about the start of menstruation, around 68.8% (n=207) correctly identified that it starts during adolescence. Table 2 shows the frequency distribution of the knowledge on menstrual hygiene.

Table 2. Knowledge of Young Girls Regarding Menstrual Hygiene (n=300).

Variables	Frequency (n)	Percentage
Discussed first periods		
Mother	145	48.3%
Sister	112	37.3%
Grandmother	1	0.3%
Friend	30	10%
No one	12	04%
At first period were you already aware of it		
Yes	141	47%
No	155	51.7%
Do not remember	4	1.3%
If yes, Source of information		
I was informed directly by teacher	6	4.3%
I was informed directly by mother	59	41.8%
I was informed directly by sister	45	31.6%
I was informed directly by friends/peers	20	14.2%
I indirectly came to know from mother	4	2.8%
I indirectly came to know from sister	7	5%
Where does the menstrual blood come from		
Uterus	97	32.3%
Abdomen	26	8.7%
I don't know	177	59%
Who gets menstruation		
Ill and injured women	4	1.3%
Women in reproductive age	137	45.7%
Adolescent girls only	99	33.3%
Women who have had children	3	1%
Do not know	57	19%
Menstruation is		
Natural process	276	96.5%
Disease	7	2.4%

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Secret	1	0.3%
Do not know	16	0.7%
Menstruation is sign of		
Something has gone wrong	11	3.6%
Being ready to marry	65	21.2%
Fertility	89	29%
Uncleanliness	87	28.3%
Do not know	55	17.9%
When does menstruation usually starts		
When someone is sexually active	22	7.3%
During adolescence	207	68.8%
Do not know	72	23.9%

Attitude of Young Girls Regarding Menstrual Hygiene

The second outcome of the study was to identify the attitudes of the target population. The analysis showed that around 37.6% (n=141) participants mentioned that washing the body during menstruation should be avoided, and 17.1% (n=64) mentioned avoiding exercise. The majority of the girls, 38.2% (n=137), were comfortable to talk about or ask for advice on menstruation with their mothers and 29% (n=104) mentioned sister. About 67.3% (n=202) stated that girls feel anxiety and stress at their menarche, and to solve this issue, the majority 68.3% (n=205), said that mother/sister/friends/relatives should tell her in advance. Additionally, 91% (n=273) agreed that girls should be made aware before their first cycle, and about 42.8% (n=238) stated that mother/sister/friends/ relatives should tell them. Table 3 shows the attitudes of young girls regarding menstrual hygiene.

Table 3. Attitude of Young Girls Regarding Menstrual Hygiene (n=300).

Variables	Frequency (n=300)	Percentages(%)
Activities to be avoided during menstruation		
Going to school	28	7.5%
Working outside home	57	15.2%
Washing the body/bathing	141	37.6%
Cooking/ house keeping	19	5.1%
Touching stored food/utensils	7	1.9%
Talking to boys	15	4%
Exercise	64	17.1%
None of these	44	11.7%
Talk about menstruation comfortably		
No one	35	9.7%
Teacher	2	0.6%
Mother	137	38.2%
Sister	7	29%
Other family members/relative	1	0.3%
Friends/female peers	33	9.2%
Health workers	47	13.1%
What kinds of problems do girls face at menarche		
Feel anxiety and stress	202	67.3%
She thinks she has got a medical problem	17	5.7%
She is unaware of what to do	34	11.3%
She does not share with anyone	27	9%
She does not face any problem	20	6.7%
Girls should be made aware before first cycle		

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Yes	273	91%
No	20	6.7%
Do not know	7	2.3%
If yes, who should tell her		
Mother, sister, friend, relatives or peer	238	42.8%
Schoolteacher	6	1.1%
A health worker	39	7%

Practices of Young Girls Regarding Menstrual Hygiene

Most of the study participants, 47.7% (n=143) used reusable cloth/towel as menstrual absorbent, and 30.7% (n=92) used disposable pads. Among those who used disposable pads, 24.7% (n=74) burned them and only about 6.3% (n=19) of them used the dustbin. Among the respondents who used reusable absorbent, a majority of them, washed it with soap and water; and to dry that washed absorbent, 39.5% (n=68) chose to dry it in the sun outside whereas, 29.1% (n=50) hide under other clothes. A major proportion of the participants, 90.1% (n=263) reported that they stored the cleaned material in a closed place. During menstruation, nearly half of the young girls, 49.3% (n=148), changed the absorbent twice a day, while 23% (n=69) changed it once a day. Regarding the cleaning of the genitals and the area around genitals, nearly equal number of participants, 38.7% (n=116) mentioned only water, and 38% (n=114) mentioned soap and water. Besides, more than half, 59.3% (n=178) reported bathing/washing the body when their periods were over. The majority of girls avoided activities during menstruation and the analysis showed that around 28.5% (n=105) avoided washing the body, followed by working outside home, 20.1% (n=74). Table 4 summarizes the frequency distribution of menstrual hygiene practices.

Table 4. Practices of Young Girls Regarding Menstrual Hygiene (n=300).

Variables	Frequency (n)	Percentage (%)
Absorbent usually used during menstruation		
New cloth	34	11.3%
Disposable pads (available in market)	92	30.7%
Tissue/toilet roll	18	6%
Cotton	13	4.3%
Reusable cloth/towel	143	47.7%
What do you do with the used disposable material (disposable material users only)		
Get rid of it in the field/bush	1	0.3%
Put it into the latrines	22	7.3%
Use waste bin	19	6.3%
Burn them	74	24.7%
Others (bury in the land)	8	2.7%
What do you do with the used reusable material (reusable material users only)		
I wash it with water and soap/detergent and keep it for next use	145	48.3%
I wash it, only with water	25	1.7%
I do not wash	1	0.3%
Dry the washed absorbent (reusable material users only)		
In the sun outside	68	39.5%
In the shade outside	18	10.5%
Hide under other clothes	50	29.1%
In the room inside	35	20.3%
How often do you change the absorbent		
Once a day	69	23%
Twice a day	148	49.3%

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Three times or more a day	82	27.3%
I do not change	1	0.3%
Materials used to clean genital and area around genitals		
Water only	116	38.7%
Soap and water	114	38%
Plain paper/tissue	41	13.7%
Cloth	11	3.7%
Nothing	18	6%
How often do you bathe/wash your body during Periods		
Daily	12	4%
Every second day	52	17.3%
Every third day	58	19.3%
When periods are finished	178	59.3%s
Activities avoided during menstruation		
Going to school	31	8.4%
Working outside home	74	20.1%
Washing body	105	28.5%
Cooking/housekeeping	32	8.7%
Touching stored food/utensils	10	2.7%
Talking to boys	10	2.7%
Exercise	73	19.8%
None of these	33	9%

Discussion

A study in Nepal mentioned that 47.5% participants had heard about menstruation when they were at the age of 10-12 years (Yadav et al., 2018), while in the current study more than half (51.3%) heard about menstruation when they were 12-15 years. The current study found that all the participants had toilet and soap facility at home, but 69.75% had soap at school/college; however, the availability of toilet was 100%. Nevertheless, this was not always the case. Other studies in Asian countries, including Pakistan (Alam et al., 2017; NIPS, 2019) and Ethiopia (Alemu, Abossie, & Yohannes, 2019) have found that schools have no proper system of toilets and sanitation.

In 2019, UNICEF recommended including menstrual hygiene management in the curriculum of primary schools, in the Asian and African region, so that young girls could learn about reproductive health and menstruation prior to their menarche (UNICEF, 2019a). Yet, this study found that, more than half of the participants had not received orientation regarding menstrual hygiene at school/college. A study from Quetta, Pakistan, reported that nearly 80% of the respondents had no prior education on menstrual hygiene (Michael et al., 2020). A systematic review and meta-analysis from India concluded that there is little concept of menstrual hygiene education in schools and this leads to the building up of many misconceptions and poor practices regarding menstrual hygiene (Sharma, Mehra, Brusselaers, & Mehra, 2020). This could be because of lack of attention towards menstrual hygiene in schools and colleges that no topics are included regarding menstrual hygiene at the school level and teachers ignore such topics.

Knowledge of Young Girls Regarding Menstrual Hygiene

The results of this study revealed that the participants had poor level of knowledge. This finding is contradicted by other studies carried out in Indonesia, 66.6% (Andani, 2020), Nepal, 87.7% (Bhusal, 2020) and Afghanistan, 53.3% (Neyazi et al., 2021), where participants had good a level of knowledge regarding menstrual hygiene. This could be due to absence of proper sexual and reproductive health education at the school level, and the majority of the mothers (65.3%) being uneducated in the current study area. This was a hurdle in providing correct knowledge to young girls (Deshmukh et al., 2019).

Moreover, it was also evident in the current study that a significant number of participants were not aware about menstruation when they experienced their first periods. This finding is in contrast

with the study done in China, where a majority, 78.1%, of the participants already had knowledge about menstruation because their mothers already inform them about menstruation (Borjigen et al., 2019). However, results similar with the current study were also reported from India, where 51.7% (Mathiyalagen et al., 2017), and in Pakistan, 82.5% (Usman et al., 2020) of the participants had no prior information about menstruation when they attained menarche. This can also be linked with social taboos and cultural influences in LMICs, where menstruation is still thought of as a shameful event, and females are reluctant to discuss it openly (Zakaria, Xu, Karim, & 58 Cheng, 2019). That is why prior information and awareness about menstrual hygiene is important.

The majority of the respondent (41.8%) in the present study mentioned mothers as their main source of information regarding menstruation, then sisters (31.6%). These finding are also reported in a systematic review of LMICs including Pakistan (Chandra-Mouli & Patel, 2017). Moreover, the current study found that 48.3% girls discussed their first menstruation with their mothers. Study from Ghana and have also documented that 61.8% of the girls, preferred to discuss menarche with their mothers (Ahmad, Garg, Gupta, & Alvi, 2021). However, many studies have concluded that mothers and sisters in LMICs carry wrong information about menstruation and that poor knowledge is transferred to young girls, which negatively effects their level of knowledge and practices regarding menstrual hygiene (Chandra-Mouli & Patel, 2017; Yiadom et al., 2018).

Additionally, this study found that 20% of the participants were not aware what to do at the time of menarche and this could be because most of the girls were not aware about menstruation before the age of menarche. Almost similar results were mentioned from a study conducted at Ethiopia, South Sudan, Uganda, Tanzania, and Zimbabwe, where almost 66% girls did not know about the management of menstruation (Tamiru et al., 2015). The root cause analysis of negative experiences can be the cultural taboos, and the social context around menstruation that are common worldwide (Thomson, Amery, Channon, & Puri, 2019).

It is very surprising that almost 59% of the respondents did not know the source of menstrual blood, and few of them correctly identified that menstrual blood comes from the uterus. This can be because of inappropriate information regarding menstruation from mothers/sisters who were not educated or because the participants had not attended any educational sessions on menstrual hygiene in the school/college. These results are aligned with other studies (Jyothi & Hurakadli, 2019; Mansoor et al., 2020; Michael et al., 2020). Almost equal proportion of girls in the study had heard about menstrual absorbents, which are disposable pads (30%) and reusable cloth/towel (33.9%). A similar study was conducted in Gambia, where about 97% girls had knowledge about reusable cloth, while 87% were aware about disposable pads (Shah et al., 2019).

This study revealed that the majority of the girls (45.7%) knew that women in the reproductive age get menstruation, while 19% did not know the answer. This can be explained, as some students at the intermediate level had attended awareness sessions on menstrual hygiene, so they might have got the information from there. This was a unique finding in our study, as no study was found that had assessed this part of knowledge. In the current study, despite having a poor knowledge regarding menstruation, it was found that participants were mostly aware that menstruation is a natural process. Other studies from Pakistan, Ghana, Indonesia, Nigeria, Ethiopia, Bangladesh, and Nepal also have documented that a high number of girls knew that menstruation was a normal physiological process (Andani, 2020; Fehintola et al., 2017; Michael et al., 2020).

The other interesting finding was that nearly an equal number of participants reported menstruation as a sign of fertility (29%) and uncleanliness (28.3%), while 21.2% said that it is sign of being ready to marry. Current study also found that, only 4.7% girls were married. The possible reasons for the aforementioned findings, in the context of Gilgit can be, that when girls start menstruating, they are considered to be mature enough to get married and produce offsprings. However, studies from the United States, Ghana, and Pakistan portray different results, where the majority of the girls reported that menstruation is a sign of puberty and adulthood (Mansoor et al., 2020; Turner, Huseth-Zosel, & Ostlund, 2020; Yiadom et al., 2018). Moreover, a major proportion of the sample in present study, mentioned that menstruation starts during adolescence. This is in line with other studies from Bhutan and Pakistan (Michael et al., 2020; UNICEF, 2018).

Attitude of Young Girls Regarding Menstrual Hygiene

The findings in the current study showed both negative and positive attitude regarding menstrual hygiene. This can be explained, as many of the young girls had no prior information about menstruation when they experienced it the first time, and in rural areas, menstruation is surrounded by many taboos and the girls had grown up in that environment. These results are in line with other studies, done in Saudi Arabia, and Nepal where girls had a negative attitude regarding menstrual hygiene (Yadav et al., 2018; Yiadom et al., 2018).

The majority of the participants stated that girls should not take a bath or wash the body when menstruating, followed by some stating not working outside the home. The possible reason for this could be in the Pakistani society, menstruation is thought to be a dirty process by many and taking a bath during menstruation is believed to lead to swelling of the body and causing more bleeding (Mumtaz et al., 2017). Similar findings were reported in studies from Saudi Arabia, and India (Gaferi, Al-Harbi, Yakout, & Soliman, 2018; Patel et al., 2019). Furthermore, this study found that many of the girls said that they could comfortably talk about menstruation with their mothers and sisters, and about 9.7% preferred not to discuss with anyone. This is because girls in the Pakistani society are more attached to their mother and sister, also it is not appropriate in this region to discuss feminine things with anyone else, like male members of the family, as menstruation is considered a very sensitive topic to talk about, or to discuss. These finding are contradicted in studies from LMICs (Chandra-Mouli & Patel, 2017; UNICEF, 2017).

This study further showed that the girls were aware of diet during menstruation, however, myths were strongly present as many of them mentioned about avoiding sweets and spicy food, while a few of them mentioned about avoiding cold water. The findings about avoidance of sweets were unique in this study. This could be because of the concept in the study context that sweets cause more bleeding, however, many studies have mentioned about avoidance of cold water, and sour and spicy foods (Alharbi et al., 2018; Mumtaz, Sommer, Bhatti,& Patterson, 2017). Furthermore, present study concluded that more than half of the participants felt stress and anxiety at the onset of menarche. The possible explanation for this could be lack of prior awareness and guidance from parents and educational institutions regarding menstruation and its management, which ultimately creates anxiety, stress, and negative attitudes. Literature has also shared similar findings, where girls mentioned stress, shame, and anxiety during menarche (AKU, 2020; Hennegan et al., 2019; Shah et al., 2019).

Moreover, a high number of girls proposed that they should be made aware before menarche, and 42.8% girls suggested that mothers, sisters, friends, relatives, or peers should tell them, while only 1.1% mentioned schoolteachers. This indicates that girls need more and accurate information on this natural phenomenon, which will help them manage their menstrual hygiene without any hurdles. The possible reasons for low percentage for schoolteachers could be because in Gilgit, there is no concept of sexual and reproductive health in schools/colleges, and teachers are not prepared for this. They avoid discussions on such topics, although teachers can be one source who can provide authentic information on menstrual hygiene. A scoping review from LMICs also reported that girls should be informed about menarche by their mothers, sisters, female friends, or teachers (Coast, Lattof, & Strong, 2019).

Practices of Young Girls Regarding Menstrual Hygiene

The current study found that the majority of the participants were using reusable cloth/towel as menstrual absorbent and a lesser proportion of participants (30.7%) were using disposable pads. This could be due to financial issues, less awareness, less availability of disposable pads, shyness to buy them from the market, and issues of disposal. These findings are not consistent with other studies, including those conducted in Pakistan, where the maximum number of girls were using disposable pads (Bhatt & Kadam, 2020; Bhusal, 2020; Dwivedi et al., 2020; Habtegiorgis et al., 2021; Michael et al., 2020; UNICEF, 2018; Usman et al., 2020). Moreover, those who used disposable material, most of them burned it. The reason is that in Gilgit there are no proper waste management systems, or a concept of garbage collector and girls are supposed to burn the used pads at night.

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This study also found good practices that were followed by many of the participants, such as the use of soap and water to wash the reusable cloth/towel and drying them in the sunlight. The possible reason could be the easy availability of water and soap in school and at home. These findings concur with other studies (Jyothi & Hurakadli, 2019; Poudel & Gautam, 2020; Shah et al., 2019; UNICEF, 2018; Usman et al., 2020). Whereas, one study from Pakistan contradicts the current study's finding, as it found that the majority of the girls dried the reusable pads in dark and hidden places (Z. Mumtaz, Sivananthajothy, Bhatti, & Sommer, 2019). The present study also found that nearly all young girls stored the clean material in closed places (box/drawer/closet/clean bag). The findings from a few studies are similar to the current study (Enzler, 2019; Usman et al., 2020).

Literature has mentioned that a greater proportion of girls changed the soaked pads twice a day (Bhatt & Kadam, 2020; Michael et al., 2020; Poudel & Gautam, 2020). These results are in alignment with the current the study, where the majority of the study participants changed the pads twice a day. Studies in other parts of Pakistan have documented that the majority of the girls clean their genitals with water only (Michael et al., 2020; Usman et al., 2020). However, the current study revealed encouraging findings where almost equal number of girls used water and soap to clean their genitals. This could be attributed to the fact that few participants from high school received awareness sessions on menstrual hygiene from health care workers, so they might have learnt this practice from them. This study also investigated the bathing practices of young girls during menstruation, and a major proportion of girls (59.3%) bathed/washed their body when the periods were over. This can be because of social taboos attached to menstruation, cold weather of Gilgit, and unavailability of warm water all the time. These findings are supported by a few studies from Pakistan and other countries (Michael et al., 2020; Rastogi, Khanna, & Mathur, 2019; Rizvi & Ali, 2016); however, a systematic review of LMICs concluded that girls from Turkey, Nigeria, Kenya, Iran, and Egypt take a bath daily (Chandra-Mouli & Patel, 2017).

Present study also found that the majority of the participants avoided working outside the home and avoided taking a bath or washing the body when menstruating, while a few participants (19.8%) avoided exercise. This can be due to restrictions of the society related to myths that during menstruation girls are more vulnerable to evil spirits, diseases, and they can bring embarrassment to the family if the menstruation blood stains 66 are found on their clothes. These finding are also reported in studies from Pakistan (Z. Mumtaz et al., 2019; Rizvi & Ali, 2016), India (Vashisht, Pathak, Agarwalla, Patavegar, & Panda, 2018), Nepal (Morrison et al., 2018), and Saudi Arabia (Al Mutairi & Jahan, 2021).

Strengths, limitations, and future research

The findings of this study have provided baseline data in the context of Gilgit, about the knowledge, attitude, and practices regarding menstrual hygiene, which can be used for future studies and to the best of the researcher's knowledge, this could be the first study that has been conducted in Gilgit, Pakistan. Besides, one of the limitations is that, due to time constraints, and limited budget this study was conducted only in one district of Gilgit.

The findings of this study can be used to assess the KAP of young girls who do not go to any school or who are studying in private institutions. Furthermore, an interventional study should be conducted to assess the results of educational programs on knowledge, attitude, and practices regarding menstrual hygiene. Nurses and lady health workers can play a central role in providing up-to-date and reliable information through their outreach programs. This will help in improving the sexual and reproductive health of adolescents and young girls, as well as the whole community.

Conclusion

This study concluded that menstrual hygiene was a great challenge for young girls residing in the rural areas. The study findings shows that girls had poor level of knowledge, attitude and practices on menstrual hygiene. Health sector and school authorities should play their role in creating awareness about menstrual hygiene.

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