



Research article

Self-reported reproductive morbidity and healthcare-seeking practices of adolescent girls in migrant Rohingya community in Bangladesh

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ABSTRACT

It is crucial to address the sexual and reproductive health (SRH) disparity of adolescent girls for better health outcomes and quality of life, particularly in humanitarian crises. Adolescent girls in the Rohingya refugee camp are particularly vulnerable to various health morbidities related to SRH. The study aims to assess the reproductive health morbidity and healthcare-seeking practices of adolescent girls in the Rohingya community. A total of 406 Rohingya adolescent girls in Ukhiya, Cox's Bazar, Bangladesh, were interviewed to collect relevant information. The respondents were asked to report their menstruation-related problems, morbidities, anemia signs, and healthcare-seeking behavior during these problems. Multivariate logistic regression analyses were performed to assess the association of socio-demographic variables with menstruation-related outcome variables and healthcare-seeking behavior. Among adolescent girls, 26.1 % experienced abnormal bleeding durations, 28.1 % reported irregular menstruation, 27.8 % faced menstruation-related morbidities, and 36 % showed signs of anemia. Almost half of the respondents (49.3 %) received healthcare from health professionals. The married adolescent girls were less likely to have an abnormal duration of bleeding (AOR: 0.38, 95 % CI: 0.19–0.74, $p = 0.004$) and irregular menstruation (AOR: 0.44, 95 % CI: 0.23–0.86, $p = 0.016$). The higher educational level of the adolescent girls contributed to the lower risk of abnormal duration of bleeding (AOR: 0.55, 95 % CI: 0.33–0.91, $p = 0.020$) and irregular menstruation (AOR: 0.61, 95 % CI: 0.37–1.00, $p = 0.049$). Those with abdominal and lower back pain were found more likely (AOR: 3.02, 95 % CI: 1.58–5.77, $p = 0.001$) to seek healthcare from qualified doctors. Moreover, educated adolescent girls were more likely (AOR: 1.81, 95 % CI: 1.09–3.02, $p = 0.023$) to seek treatment for reproductive problems from qualified doctors. Thus, the concerned authorities, non-government organizations (NGOs), and humanitarian organizations could take steps to reduce reproductive health morbidity and facilitate receiving medical care from a specialist.

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1. Introduction

Reproductive health refers to the rights of men and women to be informed and have access to safe, effective, affordable, and acceptable methods of fertility regulation of their choice and the rights of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth [1,2]. In short, reproductive health addresses the reproductive process, functions, and systems at all stages of life. The reproductive cycle is intimately related to nutritional status, notably undernutrition in females [1], which results in slow physical maturation and lengthened teenage growth. On the contrary, obesity and overweight have a deleterious influence on a variety of lifetime health outcomes, including sexual and reproductive health [3]. Adolescent health requirements are hardly ever met by healthcare systems in South Asian nations. Due to the fear of being criticized or penalized for engaging in sexual activity, young people are less likely to seek professional treatment for reproductive health problems [4]. Generally, girls are more susceptible to physical and social abuse than boys of their age. In addition, because of the male-dominated society's seclusion standards, girls have minimal access to or exposure to the outside world.

Adolescence is the period in human growth and development that occurs after childhood and before adulthood, from 10 to 19 years [5]. It represents one of the critical transitional phases in lifespan and is characterized by a tremendous pace of growth and change that is second only to infancy. This state of life is connected with unique health and developmental requirements and rights. Due to this reason, the facts that affect adolescents have long-term health and social exposition and need evident attention [6]. Due to the transition phase, they become more vulnerable to several problems, including psycho-social problems, general and reproductive health problems, and sexuality-related problems [7–9].

One of the largest displaced populations in the world, the Rohingya refugees are hosted by Bangladesh and are identified as Forcibly Displaced Myanmar Nationals (FDMNs) [10]. Bangladesh has a difficult situation as a host nation that must instantly react to the urgent need for food, shelter, clean water, and healthcare to cure wounds and traumas [11]. Evidence shows that women and teenage girls comprise about 52 % of the Rohingya population [12]. In times of crisis and tragedy, humanitarian assistance aims to offer relief support for the suffering people by attending to their basic needs in a thorough and organized way, prioritizing shelter, food, clean water, and medication. Nevertheless, during such catastrophes, reproductive healthcare management got less attention [12–16]. However, in humanitarian emergencies, it is crucial to address the sexual and reproductive health (SRH) disparity of adolescent girls for better health outcomes and quality of life [14,17]. Quite apart from the efforts of the “Sexual and Reproductive Health Working Group,” which is run by the United Nations Population Fund (UNFPA) and other partner organizations [15,16], very few programs support and educate vulnerable women and young adolescent groups on the knowledge, customs, and obstacles to sanitary menstruation practices. The Health Belief Model (HBM) also shows the importance of understanding the girls’ perception of reproductive problems and the healthcare-seeking behaviors of these girls [18,19]. This model provides a comprehensive lens for examining how beliefs, attitudes, and social factors shape healthcare behaviors. Thus, to promote integrated and sustainable health promotion, particularly regarding reproductive health, insights into the girls’ perception of the reproductive problems, understanding their severity, and practices of seeking healthcare are required.

A few studies highlighted the menstrual hygiene practices of adolescent girls from Refugee camps [12–16]. However, they overlooked reproductive health problems like irregular menstruation, excessive bleeding, abdominal pain, anaemia, etc. Moreover, how adolescent girls perceive their problems, their severity and whether they seek healthcare from qualified health professionals were unexplored. Therefore, the present study aimed to assess adolescent girls’ self-reported reproductive morbidity and healthcare-seeking practices in the Rohingya community. The present study’s findings would intrigue the concerned authorities, non-government organizations (NGOs), and humanitarian organizations to assess, monitor, and address reproductive health-related problems and foster treatment uptake from qualified health professionals.

2. Methodology

2.1. Study design and setting

A cross-sectional survey was conducted from February 2021 to March 2021 among the Rohingya community adolescent girls at refugee camps in Ukhiya, Cox’s Bazar, Bangladesh. In Ukhiya, the Rohingya community live in 45 camps. Among those 45 camps, two camps (camp-19 & camp-20 extension) were selected according to ethical permission to collect the data.

2.2. Sample size and sampling technique

In this study, 406 adolescent girls were interviewed to collect relevant information. Very little was known about these girls’ reproductive health behavior before the current study. Therefore, the sample size was calculated using Cochran’s formula with the following assumptions: unknown prevalence of reproductive morbidity, $p = 50\%$; margin of error, $d = 5\%$; at 95 % confidence interval (CI), $Z_{1-\alpha/2} = 1.96$.

$$\text{Cochran's formula : } n = z^2 p(1 - p) / d^2$$

Following this formula, the calculated sample size was 384, and assuming a 10 % non-response rate, we were to include 422 adolescent girls.

From the preselected camps, 422 adolescent girls were randomly selected for the interview. With the consent of the girls and their

parents, the enumerators interviewed them to collect relevant data. Finally, 406 respondents were interviewed for the current study, and 16 adolescent girls (approximately 4 %) declined to participate.

2.3. Data collection

A pre-tested structured questionnaire was used to gather information through face-to-face interviews. The questionnaire was developed to obtain relevant information regarding socio-demographic characteristics, self-reported reproductive health problems, and healthcare-seeking behavior. Extensive literature was searched prior to developing the questionnaire. Data were recorded in printed versions by experienced female enumerators who were volunteers of Social Assistance and Rehabilitation for the Physically Vulnerable (SARPV) and were fluent in the Rohingya language. Before the survey, the enumerators received in-depth training about data collection tools, techniques, and procedures. To ensure the contents of the questionnaire were consistent, the English version was first translated into Bengali and then translated back into English. The Bengali version was pre-tested among about 10 % of the total sample (40 adolescent girls) from Camp 24 to refine the language in the final version. The data was collected using the finalized questionnaire through in-person interviews with the participants.

2.4. Menstruation-related problems, morbidity, and healthcare-seeking behavior

Based on the Health Belief Model (HBM) [18] and several previous studies [7,20], the present study assessed the self-perception of menstruation-related problems, morbidity, and healthcare-seeking behavior. In this study, several components of the HBM were utilized to examine the healthcare-seeking behaviors of adolescent girls concerning reproductive morbidity. We explored key constructs from this theory, including perceived susceptibility (e.g., the perceived risk of experiencing conditions such as anaemia, irregular menstruation, or excessive bleeding), perceived severity (e.g., how serious the adolescents perceive these health issues to be), behavior toward seeking healthcare (e.g., personal beliefs about the benefits and necessity of consulting a healthcare provider). Additionally, sociodemographic factors such as age, marital status, education, etc., were potential moderators to better understand how these variables may influence adolescents' health problems and healthcare-seeking intentions. The respondents were asked to report their menstruation-related problems, morbidities, anaemia signs, and healthcare-seeking behavior during these problems. The questionnaire included a list of symptoms of morbidities and anaemia. They reported the symptoms/problems they suffered/experienced during the last 3 months before the survey. The symptoms/problems include as follows.

1. Menstruation-related problems: irregular menstruation, abnormal duration of menstrual bleeding
2. Menstruation-related morbidities: presence of abdominal and lower back pain
3. Anemia: feeling excessively weak and tired feeling of breathlessness during normal activities, dizziness, pale skin, convulsion, etc.

They also mentioned how they sought treatment for those problems. Their treatment-seeking behavior was classified as whether it was from a health professional.

2.5. Outcome variables

The outcome variables of the study were menstruation-related problems, morbidities, and treatment-seeking behavior.

1. Irregular menstruation (yes, no);
2. Abnormal duration of uterine bleeding (yes, no);
3. Presence of morbidities (yes, no);
4. Presence of anaemia signs (yes, no); and
5. Healthcare-seeking from a health professional (yes, no).

2.6. Predictor variables

Several background characteristics at the individual level were included in the analyses as potential factors identified from previous studies to be associated with reproductive health problems and healthcare-seeking behavior. The variables were the age of the adolescents (early adolescence, middle adolescence, late adolescence); marital status (married, unmarried); educational level (no formal education, primary/above); age at first menstruation; area of residence (camp-19, camp-20), type of menstrual hygiene material used (sanitary pad, clothes/others); and taking iron and folic acid (IFA) tablet (yes, no).

2.7. Statistical analyses

Socio-demographic characteristics and menstruation-related problems, morbidities, and healthcare-seeking behavior were summarized as frequency (percentage) and mean (Standard deviation, SD). Multivariate logistic regression analyses were performed to assess the association of socio-demographic variables with menstruation-related outcome variables and healthcare-seeking behavior. Five different logistic regression models were used for five different outcome variables of the study. The underlying assumption of the

logistic regression models was examined before the final model building in terms of multicollinearity and validity. Pearson's goodness of fit was used to assess the reliability of the regression model. The variance inflation factor (VIF) was used to test for multicollinearity in the model, and a VIF value larger than 2 was taken as proof of multicollinearity [21]. To evaluate whether a variable was statistically significant, p-values less than 0.05 were utilized. The stepwise forward entry method was used for the logistic regression, and the association was reported as an adjusted odds ratio (AOR) with a 95 % confidence interval (CI). The unadjusted/crude odds ratio (COR) with a 95 % CI was presented in the supplementary tables. All statistical analyses were performed using the IBM Statistical Package for Social Science (SPSS), version 25.

2.8. Ethical approval

The nature and goal of the study were thoroughly explained to the participants before the interview. Both oral and written informed consent were obtained from each study participant. For those below 18 years old, informed consent was also obtained from their parents. Ethical approval was obtained from the Institutional Review Board (IRB) of the Faculty of Biological Sciences, University of Dhaka (Ref. No. 215/Biol. Scs).

3. Results

3.1. Socio-demographic characteristics of the respondents

Socio-demographic characteristics of the adolescent girls have been presented in Table 1. About one-fifth (21.9 %) were in early adolescence, and two-fifths (40.9 %) were in late adolescence. Most of the girls (73.9 %) were unmarried, while the rest of them were found to be married. Around 37.7 % of the girls had no formal education, while 35 % had primary and 27.3 % had a secondary level of education. Regarding residence, around 54 % of the respondents were from camp-19, and the rest, 46 %, were from camp-20 extension. The mean age of first menstruation was found to be almost 12 years. The majority of the girls (89.2 %) claimed that they used cloth as a menstruation tool, while only a tiny percentage of girls used sanitary pads. Nearly two-thirds (61.3 %) of the adolescent girls received IFA tablets from the camp, and the rest did not.

3.2. Menstruation-related problems, morbidity, and healthcare-seeking behavior

Menstruation-related problems, morbidity, and healthcare-seeking practices of adolescent girls are presented in Fig. 1. About one-fourth (26.1 %) of the respondents experienced an abnormal duration of bleeding during menstruation, and 28.1 % of the girls had irregular menstruation. About 27.8 % of the girls claimed that they suffered from menstruation-related morbidity (abdominal and lower back pain). Among the adolescent girls, more than one-third (36 %) were found to have anaemia signs. In the case of healthcare-seeking practice, almost half of the respondents (49.3 %) sought healthcare from health professionals.

Table 1
Socio-demographic characteristics of the migrant Rohingya adolescent girls (N = 406).

Variables	n (%)
Age (years)	
10–13	89 (21.9)
14–16	151 (37.2)
17–19	166 (40.9)
Marital status	
Unmarried	300 (73.9)
Married	106 (26.1)
Educational Level	
No formal education	159 (39.2)
Primary/Secondary	247 (60.8)
Residence	
Camp-19	194 (47.8)
Camp-20	212 (52.2)
Age at first menstruation	
Mean (SD)	11.99 (0.58)
Type of menstrual tools used	
Cloth/others	362 (89.2)
Sanitary pad	44 (10.8)
Receive the IFA tablet from the camp	
Yes	249 (61.3)
No	157 (38.7)

*SD: Standard deviation; IFA: Iron and folic acid.

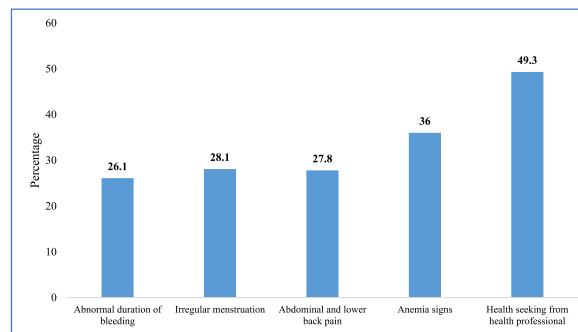


Fig. 1. Menstruation-related problems, morbidity, and healthcare-seeking practice of adolescent girls.

3.3. Association of socio-demographic variables with menstruation-related problems

The association of socio-demographic characteristics with abnormal duration of bleeding and irregular menstruation has been presented in Table 2. The adolescent girls' age, marital status, and educational level had significant associations with their abnormal duration of bleeding during the period. The respondents aged 14–16 years were more likely (AOR: 2.00, 95 % CI: 1.02–3.92, $p = 0.043$) to have an abnormal duration of bleeding during the menstrual period compared to those aged 10–14 years. The girls who were married had less chance (AOR: 0.38, 95 % CI: 0.19–0.74, $p = 0.004$) to have an abnormal duration of bleeding than those who were unmarried. The respondents with at least primary education had significantly lower odds (AOR: 0.55, 95 % CI: 0.33–0.91, $p = 0.02$) of having abnormal bleeding than those without formal education. Similarly, the marital status of the women had a significant association with their irregular menstruation. The respondents who were married were less likely (AOR: 0.44, 95 % CI: 0.23–0.86, $p = 0.016$) to have irregular menstruation than the unmarried girls. The girls with at least primary education had less chance (AOR: 0.61, 95 % CI: 0.37–1.00, $p = 0.049$) of having irregular menstruation than those without formal education. However, the association was marginally significant ($p = 0.049$). The unadjusted association of the socio-demographic characteristics with an abnormal duration of bleeding and irregular menstruation has been presented in Supplementary Table 1.

3.4. Association of socio-demographic variables with menstruation-related morbidities and presence of anaemia signs

The association of sociodemographic characteristics with menstruation-related morbidities and the presence of anaemia signs has been presented in Table 3. No sociodemographic variables had a statistically significant association with menstruation-related morbidities. On the other hand, anaemia signs among adolescent girls were significantly linked with their uptake of IFA tablets. The respondents who received the IFA tablet were less likely (AOR: 0.53, 95 % CI: 0.35–0.82, $p = 0.005$) to have anaemia signs than those

Table 2

Association of sociodemographic variables with menstruation-related problems of migrant Rohingya adolescent girls.

Variables	Abnormal duration of bleeding				Irregular menstruation			
	Yes n (%)	No n (%)	AOR (95 % CI)	P value	Yes n (%)	No n (%)	AOR (95 % CI)	P value
Age (years)								
10–13	16 (18)	73 (82)	1		21 (23.6)	68 (76.4)	1	
14–16	47 (31.1)	104 (68.9)	2.00 (1.02, 3.92)	0.043	51 (33.8)	100 (66.2)	1.56 (0.83, 2.91)	0.164
17–19	43 (25.9)	123 (74.1)	2.00 (0.93, 4.35)	0.077	42 (25.3)	124 (74.7)	1.24 (0.59, 2.60)	0.565
Marital status								
Unmarried	87 (29)	213 (71)	1		94 (31.3)	206 (68.7)	1	
Married	19 (17.9)	87 (82.1)	0.38 (0.19, 0.74)	0.004	20 (18.9)	86 (81.1)	0.44 (0.23, 0.86)	0.016
Educational Level								
No formal education	51 (32.1)	108 (67.9)	1		51 (32.1)	108 (67.9)	1	
Primary/secondary	55 (22.3)	192 (77.7)	0.55 (0.33, 0.91)	0.020	63 (25.5)	184 (74.5)	0.61 (0.37, 1.00)	0.049
Residence								
Camp-20	46 (21.7)	166 (78.3)	1		50 (23.6)	162 (76.4)	1	
Camp-19	60 (30.9)	134 (69.1)	0.67 (0.42, 1.07)	0.096	64 (33)	130 (67)	0.66 (0.42, 1.05)	0.078
Age at first menstruation (years)								
Mean (SD)	12.01 (0.56)	11.98 (0.58)	1.04 (0.69, 1.55)	0.865	12.02 (0.52)	11.98 (0.60)	1.14 (0.77, 1.68)	0.530
Type of menstrual tool used								
Sanitary pad	13 (29.5)	31 (70.5)	1		11 (25)	33 (75)	1	
Cloth/others	93 (25.7)	269 (74.3)	0.85 (0.42, 1.75)	0.665	103 (28.5)	259 (71.5)	1.28 (0.61, 2.70)	0.513
Receive IFA tablet from the camp								
No	39 (24.8)	118 (75.2)	1		42 (26.8)	115 (73.2)	1	
Yes	67 (26.9)	182 (73.1)	1.20 (0.74, 1.96)	0.461	72 (28.9)	177 (71.1)	1.26 (0.79, 2.03)	0.336

*SD: Standard deviation; IFA: Iron and folic acid; AOR: Adjusted odds ratio from logistic regression; CI: Confidence interval.

Table 3

Association of sociodemographic variables with menstruation-related morbidity and anaemia signs of migrant Rohingya adolescent girls.

Variables	Abdominal and lower back pain				Presence of anaemia signs			
	Yes n (%)	No n (%)	AOR (95 % CI)	P value	Yes n (%)	No n (%)	AOR (95 % CI)	P value
Age (years)								
10–13	24 (27)	65 (73)	1		38 (42.7)	51 (57.3)	1	
14–16	47 (31.1)	104 (68.9)	1.52 (0.82, 2.80)	0.184	58 (38.4)	93 (61.6)	0.93 (0.53, 1.63)	0.790
17–19	42 (25.3)	124 (74.7)	1.55 (0.75, 3.21)	0.233	50 (30.1)	116 (69.9)	0.85 (0.43, 1.67)	0.636
Marital status								
Unmarried	91 (30.3)	209 (69.7)	1		120 (40)	180 (60)	1	
Married	22 (20.8)	84 (79.2)	0.64 (0.33, 1.22)	0.175	26 (24.5)	80 (75.5)	0.55 (0.29, 1.02)	0.056
Educational Level								
No formal education	41 (25.8)	118 (74.2)	1		57 (35.8)	102 (64.2)	1	
Primary/Secondary	72 (29.1)	175 (70.9)	1.18 (0.72, 1.94)	0.514	89 (36)	158 (64)	0.83 (0.52, 1.32)	0.429
Residence								
Camp-20	50 (23.6)	162 (76.4)	1		72 (34)	140 (66)	1	
Camp-19	63 (32.5)	131 (67.5)	0.69 (0.44, 1.08)	0.104	74 (38.1)	120 (61.9)	0.96 (0.63, 1.48)	0.686
Age at first menstruation (years)								
Mean (SD)	11.94 (0.51)	12.01 (0.60)	0.80 (0.53, 1.19)	0.260	12.01 (0.53)	11.98 (0.60)	1.10 (0.76, 1.60)	0.618
Type of menstrual tools used								
Sanitary pad	16 (36.4)	28 (63.6)	1		17 (38.6)	27 (61.4)	1	
Cloth/others	97 (26.8)	265 (73.2)	0.66 (0.34, 1.29)	0.230	129 (35.6)	233 (64.4)	0.90 (0.46, 1.74)	0.747
Receive IFA tablet from the camp								
No	48 (30.6)	109 (69.4)	1		73 (46.5)	84 (53.5)	1	
Yes	65 (26.1)	184 (73.9)	0.80 (0.50, 1.27)	0.341	73 (29.3)	176 (70.7)	0.53 (0.35, 0.82)	0.005

*SD: Standard deviation; IFA: Iron and folic acid; AOR: Adjusted odds ratio from logistic regression; CI: Confidence interval.

Table 4

Association of sociodemographic variables with the healthcare-seeking practice of migrant Rohingya adolescent girls.

Variables	Healthcare-seeking from a health professional			
	Yes n (%)	No n (%)	AOR (95 % CI)	P value
Age (years)				
10–13	39 (43.8)	50 (56.2)	1	
14–16	79 (52.3)	72 (47.7)	1.40 (0.75, 2.61)	0.297
17–19	82 (49.4)	84 (50.6)	1.25 (0.59, 2.63)	0.562
Marital status				
Unmarried	145 (48.3)	155 (51.7)	1	
Married	55 (51.9)	51 (48.1)	1.35 (0.72, 2.56)	0.352
Educational Level				
No formal education	68 (42.8)	91 (57.2)	1	
Primary/Secondary	132 (53.4)	115 (46.6)	1.81 (1.09, 3.02)	0.023
Residence				
Camp-20	105 (49.5)	107 (50.5)	1	
Camp-19	95 (49)	99 (51)	1.01 (0.65, 1.59)	0.954
Age at first menstruation (years)				
Mean (SD)	11.94 (0.61)	12.04 (0.54)	0.79 (0.53, 1.17)	0.239
Type of menstrual tool used				
Sanitary pad	40 (90.9)	4 (9.1)	1	
Cloth/others	160 (44.2)	202 (55.8)	0.07 (0.02, 0.20)	<0.001
Receive IFA tablet from the camp				
No	56 (35.7)	101 (64.3)	1	
Yes	144 (57.8)	105 (42.2)	2.99 (1.83, 4.90)	<0.001
Abnormal duration of bleeding				
No	139 (46.3)	161 (53.7)	1	
Yes	61 (57.5)	45 (42.5)	1.04 (0.48, 2.25)	0.921
Irregular menstruation				
No	139 (47.6)	153 (52.4)	1	
Yes	61 (53.5)	53 (46.5)	0.77 (0.39, 1.55)	0.471
Abdominal and lower back pain				
No	127 (43.3)	166 (56.7)	1	
Yes	73 (64.6)	40 (35.4)	3.02 (1.58, 5.77)	0.001
Presence of anaemia signs				
No	28 (49.2)	132 (50.8)	1	
Yes	72 (49.3)	74 (50.7)	1.24 (0.78, 1.97)	0.368

*SD: Standard deviation; IFA: Iron and folic acid; AOR: Adjusted odds ratio from logistic regression, CI: Confidence interval.

who did not receive any IFA tablet. However, no other sociodemographic variables had a statistically significant association with the presence of anaemia signs. The unadjusted association of the socio-demographic characteristics with menstruation-related morbidities and anaemia signs has been presented in [Supplementary Table 2](#).

3.5. Association of socio-demographic variables and reproductive problems with healthcare-seeking behavior

The educational level of the respondents, type of menstrual hygiene material used, and uptake of IFA tablet were significantly associated with their healthcare-seeking behavior from a health professional ([Table 4](#)). The respondents with at least primary education had higher odds (AOR: 1.81, 95 % CI: 1.09–3.02, $p = 0.023$) of seeking healthcare from a health professional than those without formal education ([Table 4](#)). Similarly, the girls who received an IFA tablet were more likely (AOR: 2.99, 95 % CI: 1.83–4.90, $p < 0.001$) to seek healthcare from a health professional than those who did not receive any IFA tablet. On the other hand, the respondents who used cloth/others as menstrual hygiene materials were less likely (AOR: 0.07, 95 % CI: 0.02–0.20, $p < 0.001$) to seek healthcare from a health professional than those who used sanitary pads as their menstrual hygiene materials. Moreover, the girls having abdominal and lower back pain were more likely to seek healthcare from a qualified health professional compared to the girls not having such problems. The unadjusted association of the socio-demographic characteristics and reproductive problems with healthcare-seeking behaviour has been presented in [Supplementary Table 3](#).

4. Discussion

The present study explores menstruation-related problems, morbidity, and healthcare-seeking practices of adolescent girls of the migrant Rohingya community in Bangladesh. The study found that about one-fourth of adolescent girls had an abnormal duration of menstrual bleeding, had irregular menstruation, and suffered from menstruation-related morbidity. In contrast, one-third of them were found to have anaemia signs. Almost half of the respondents sought their healthcare from health professionals. In addition, the study also reveals the association of menstruation-related problems, morbidity, and healthcare-seeking practices of adolescent girls with their socio-demographic characteristics. The adolescent girls' age, marital status, and educational level had significant associations with their abnormal duration of menstrual bleeding and irregular menstruation. The presence of anaemia signs among the girls was significantly linked with their uptake of IFA tablets. On the other hand, the educational level, type of menstrual hygiene material used, menstruation-related morbidity, and uptake of IFA tablets were significantly associated with their healthcare-seeking from a health professional.

The present study revealed that about one-fourth of adolescent girls experienced an abnormal duration of uterine bleeding and irregular menstruation. Evidence shows that excessive uterine bleeding and irregular menstruation might cause irritation, bleeding-associated pain, self-consciousness about odor, social embarrassment, school missing, inconvenience, and ritual-like behavior [9, 22]. Thus, these adolescent girls are vulnerable to the above-mentioned health impacts due to abnormal duration of uterine bleeding and irregular menstruation. Moreover, the findings of our study highlighted that abnormal duration of uterine bleeding and irregular menstruation were significantly lower among married adolescent girls compared to unmarried. This finding was consistent with the previous study in India [7]. The unmarried girls might be less aware of their reproductive health issues, feel shy to discuss discomforts or other menstruation-related problems and seek little healthcare from the health professional [7,23]. Moreover, consistent with other studies, our study found that respondents with at least primary education were less likely to report abnormal uterine bleeding and irregular menstruation than those without formal education [7,23,24]. Hence, to avert the situation, these young adolescents should be educated on reproductive health issues. Moreover, culturally appropriate counselling on menstrual hygiene management and healthcare facilities in the refugee camps are also essential.

The present study found that one-third of Rohingya adolescent girls report having signs of anaemia. Recent studies also showed a higher prevalence of anaemia among adolescent girls in Bangladesh [25] and Myanmar [26]. These anaemic girls are at risk of reduced infection resistance, impaired physical and mental development, and decreased physical fitness, capacity to work, and academic performance [27,28]. In the current study, anaemia signs were lower among adolescent girls who reported uptake of IFA tablets. Evidence supports the findings, as IFA supplementation substantially reduces the occurrence of anemia [29–31]. Thus, school-based and community-based weekly IFA supplementation among the Rohingya adolescent girls could be a practical approach to improving haemoglobin and reducing the anaemia prevalence.

The study explored that half of the respondents did not seek healthcare from health professionals. Previous studies in humanitarian crisis areas also showed that a higher portion of girls/women did not receive healthcare facilities for reproductive problems [14,17]. Moreover, healthcare-seeking on reproductive health issues from a health professional was higher among those adolescent girls who had some formal education, used disposable menstrual hygiene materials, had abdominal and lower back pain, and took IFA tablets. Educated girls might be aware of health issues that intrigue them to use menstrual hygiene materials and to uptake healthcare upon the onset of reproductive health problems. In addition, IFA tablets are usually provided at the health facilities in the Rohingya community. Those who received IFA from the health facilities were also supposed to take healthcare services for reproductive problems there. Furthermore, among the reproductive health-related problems, only abdominal and lower back pain urged the girls to consult a health professional, and they somehow overlooked the abnormal duration of bleeding, irregular menstruation, and the presence of anaemia signs. Therefore, routine assessment and monitoring of reproductive health-related problems are necessary to address the problems and to facilitate healthcare uptake from qualified health professionals.

5. Limitations of the study

The study should be considered with certain limitations. No causal relationship can be made from this study because of its being a cross-sectional one. There might be self-reported bias since the study included participants' experiences with an abnormal duration of bleeding, irregular menstruation, physical problems, and anaemia signs. In addition, the reported symptoms could not be clinically confirmed, and occasionally some morbidities might have remained asymptomatic. However, the enumerators explained the abnormal duration of bleeding, irregular menstruation, physical problems, and anaemia signs to the respondents during data collection, which might enable the respondents to provide accurate information. Thus, further studies should consider the clinical identification of menstruation-related problems, morbidities, and anaemia to obtain more robust findings. Moreover, qualitative studies can be conducted to reveal the perceived barriers and beliefs to uptake reproductive healthcare from doctors.

6. Implications of the study findings

The study findings might have important policy implications for further improvement of menstruation-related issues and reproductive healthcare among migrant Rohingya adolescent girls. The use of menstrual hygiene materials by a few girls might make them vulnerable to infections and other reproductive tract problems. Counselling on the importance of using menstrual hygiene materials and providing hygiene materials free or at a lower cost might contribute to increasing the use of menstrual hygiene materials. Around one-fourth of the girls were found to have different forms of menstrual problems, morbidities, and anaemia. Hence, to address the problems of the Rohingya girls, it is imperative to assess, monitor, and address reproductive health-related problems and facilitate healthcare uptake from qualified health professionals. Youth-friendly sexual and reproductive health services with a focus on promoting sexual and health education, as well as iron supplementation programs, might contribute to ensuring a healthy reproductive life for adolescents. Moreover, the findings of the present study would intrigue the government authorities, NGOs, and humanitarian organizations to take effective steps to identify and resolve the reproductive health-related issues of adolescent girls.

7. Conclusion

The present study highlighted that about one-fourth of the Rohingya adolescent girls had an abnormal duration of menstrual bleeding, had irregular menstruation, and suffered from menstruation-related morbidity (abdominal and lower back pain). One-third of them were found to have anaemia signs. Only about half of the respondents sought their healthcare from health professionals. The adolescent girls' age, marital status, and educational level had significant associations with their abnormal duration of menstrual bleeding and irregular menstruation. The presence of anaemia signs among them was significantly linked with their uptake of IFA tablets. On the other hand, the educational level, type of menstrual hygiene material used, experience of abdominal and lower back pain, and uptake of IFA tablets were significantly associated with their healthcare-seeking behaviour from a health professional. The higher educational level of adolescent girls contributed to the lower risk of abnormal duration of bleeding and irregular menstruation. Moreover, educated adolescent girls were more likely to seek treatment for reproductive problems from qualified doctors. Counselling on the importance of using menstrual hygiene materials and providing hygiene materials free or at a lower cost, youth-friendly sexual and reproductive health services, as well as iron supplementation programs might contribute to ensuring the healthy reproductive life of adolescents. Moreover, government authorities, NGOs, and humanitarian organizations should take effective steps to identify and resolve the reproductive health-related issues of adolescent girls.

CRediT authorship contribution statement

Rejoana Karim: Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Rupam Mitra:** Writing – original draft, Methodology, Data curation, Conceptualization. **Md. Hafizul Islam:** Writing – original draft, Software, Methodology, Formal analysis, Conceptualization. **S.M. Symon Bappy:** Writing – original draft, Project administration, Data curation. **Khaleda Islam:** Writing – review & editing, Supervision, Conceptualization. **Md. Mohsin Hossain:** Writing – review & editing, Writing – original draft, Data curation.

Data availability statement

Data will be made available on request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2025.e41880>.

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