**Thesis Proposal**

**Prevalence of Reproductive Tract Infections Among Menstruating Individuals from Low-Income Communities in Cox’s Bazar, Bangladesh**

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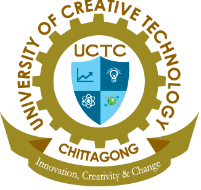
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**Semester:** 4th

**Batch:** 9th



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Submitted By: Nusrat Jafar Nisha

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Dear Sir,

I hope this letter finds you well. I am writing to formally submit the thesis protocol for my Master's degree and proposed thesis titled **“Prevalence of Reproductive Tract Infections Among Menstruating Individuals from Low-Income Communities in Cox’s Bazar, Bangladesh”.**

As per the guidelines of the University of Creative Technology Chittagong-UCTC, I am required to submit this protocol for your review and approval before conducting this study. The thesis protocol outlines the scope, objectives, methodology, and timeline of my research endeavor. It also includes details regarding the research questions, literature review, theoretical framework, and ethical considerations.

I have attached a copy of the thesis protocol for your perusal. I would be grateful if you could review it at your earliest convenience and provide any feedback or suggestions for improvement. Your expertise and guidance are invaluable to me, and I am eager to incorporate any recommendations you may have.

If you require any further information or clarification, please do not hesitate to contact me. I am available at your convenience for a meeting to discuss the protocol in more detail.

Thank you for your attention to this matter. I look forward to your feedback and approval so that I may proceed my research.

I kindly request your approval for this research proposal to proceed with my thesis work. Your support and guidance are highly valuable to me, and I am committed to conducting this study with diligence and integrity.

Sincerely,  
Submitted By: Nusrat Jafar Nisha

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Subject: Master of Public Health

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**Table of Contents**

**1 Introduction**

1.1 Introduction

1.2 Justification of the Study

1.3 Operational Definitions

1.4 Research Questions

**2 Literature Review**

**3 Research Methodology**

3.1 Study Objectives

3.2 Conceptual Framework

3.3 Study Design

3.4 Target Population & Sample Population

3.5 Study Site & Area

3.6 Study Period

3.7 Sample Size

3.8 Inclusion Criteria

3.9 Exclusion Criteria

3.10 Data Collection Tools

3.11 Data Management & Analysis Plan

3.12 Quality Control & Quality Assurance

3.13 Ethical Considerations

3.14 Expected Outcomes

3.15 Work Plan

**4 References**

**5 APPENDICES**

**CHAPTER I**

**INTRODUCTION**

**1.1 Introduction**

The reproductive tract infection (RTI) is one of the major health issues associated with menstrual hygiene management which often goes unnoticed and hence remains underdiagnosed and untreated, resulting in devastating health effects on women. It is estimated that every day nearly one million people globally acquire a new RTI17. For example, a study in urban and peri-urban areas of Delhi, India, highlighted the high prevalence of RTIs among married women in mid to low socioeconomic neighborhoods (Singh & Kushwaha, 2022).

The prevalence of RTI in Bangladesh is increasing according to a survey-based study in 2021, going from 11.1% in 2007 to 13.4% in 2014, only based on self-reported symptoms (Feng et al., 2021).

Access to menstrual hygiene products was a fundamental right that significantly impacted the health and well-being of menstruating individuals. However, in many low-income communities, period poverty remained a pervasive issue, contributing to adverse health outcomes such as Reproductive Tract Infections (RTIs). Despite the increasing awareness of menstrual health, limited research had focused on the intersection of socio-economic factors and reproductive health outcomes in Bangladesh. Existing studies indicated that a substantial proportion of menstruating women faced barriers to accessing sanitary products, which led to unhygienic practices and health complications.

Reproductive tract infections (RTIs) affect a substantial proportion of the world's population, with one-eighth of menstruating individuals experiencing RTIs. Addressing RTIs is crucial for sustainable development and is part of the Sustainable Development Goals. In developing countries, RTIs contribute to serious health issues, causing around one million deaths annually among women and children due to untreated complications, leading to conditions like cervical cancer and HIV/AIDS. The prevalence of RTIs in Bangladesh increased from 11.1% in 2007 to 13.4% in 2014 based on self-reported symptoms. Period poverty, defined by the American Medical Women’s Association as a lack of proper access to menstrual hygiene products and facilities, affects around 500 million females globally. Inequities in access, influenced by race, socioeconomic factors, and gender, deepen the complexity of period poverty, impacting health and human rights. Limited research and sociocultural stigma further obscure the issue, making it challenging for policymakers to address. In India, only 12% of menstruating individuals have adequate access to menstrual hygiene (Jaafar et al., 2023), with the non-binary population also experiencing high levels of period poverty and insufficient information on menstrual health.

In Bangladesh, data on period poverty is scarce, with no available information on the third gender population. Period poverty is not widely recognized by public health officials, despite reproductive health issues posing significant public health challenges. For instance, poor menstrual hygiene linked to period poverty can lead to infections like urogenital schistosomiasis, which often goes undiagnosed in primary healthcare due to insufficient research and gender inequities (Tomar et al., 2025).

A study conducted in 2021 used data from the Bangladesh Demographic and Health Survey from 2007, 2011, and 2014, collecting self-reported symptoms from 46,701 women aged 15–49 years. The prevalence of RTIs rose from 10.99% in 2007 to 14.39% in 2011 and decreased slightly to 13.94% in 2014, with higher rates observed in densely populated regions like Dhaka and Chattogram (BDHS, 2014). Another 2021 study across nine countries, including India and Ethiopia, showed that females from low-income households or with lower education levels are at greater risk of period poverty due to limited access to menstrual-friendly toilets and sanitary pads (Sahiledengle et al., 2022). The findings highlight that socioeconomic status, culture, and education significantly influence period poverty and, consequently, RTI prevalence.

In this context, our research aimed to fill the knowledge gap regarding the prevalence of RTIs in relation to period poverty, leveraging a community-based cross-sectional study design conducted between June and July 2023. This study investigated the prevalence of period poverty and its correlation with RTIs among menstruating individuals aged 15 to 49 in lower-income settlements of Cox’s Bazar, Bangladesh.

**1.2 Justification of the Study**

In Bangladesh, the public health sector is only at its developmental stage, it is still in the process of learning. The health policies and interventions mostly prioritize issues that affect all of the population or maternal and child health. However, menstruation is also a major part of the life of half of this population and menstrual health is of equal importance in public health. Menstrual hygiene management, period poverty and other menstrual issues are not only affecting women, but there are also other gendered humans such as non-binary, trans men, and other gender-diverse people who menstruate and suffer from lack of proper menstrual hygiene management facilities. Moreover, all females of reproductive age do not menstruate. Improper management of menstrual hygiene, which arises from period poverty increases the risk of reproductive tract infections in the menstruating population and it is a hidden epidemic which is still not recognized as a major public health concern for under-resourced countries like Bangladesh.

Reproductive tract infections in menstruating population of developing countries contribute significantly to the burden of gynecological morbidity as well as maternal mortality8. The existing crisis of period poverty and its contribution to burden of reproductive tract infections and diseases is underrated, and not emphasized as much as it should be in the national public health sector. The consequences of this burden of reproductive tract infections extend beyond the individual health, by reducing their potential and productivity, thus affecting the national economy as well as the development of the community (Ezeh et al., 2016).

The global pandemic for the last three years has only worsened the situation for those living in period poverty and the research is largely insufficient to shed light on the spread of the problem in Bangladesh. Since, most of the factors of period poverty are come with low socioeconomic status, this study aims to investigate the prevalence in lower income menstruating population. Due to the constraint of resources, the study is limited to slum area of Cox’s Bazar; although it can be assumed that the case would not differ widely in rural settings or other lower socioeconomic or underprivileged populations. The extent to which reproductive tract infections (RTIs) are associated with poor menstrual hygiene management (MHM) practices has not been extensively studied in Bangladesh. The findings aimed to inform policymakers, health practitioners, and NGOs about the pressing need for targeted interventions to address menstrual hygiene management and improve health outcomes in vulnerable populations.

**1.3 Operational Definitions**

**Menstrual Hygiene Management:**

MHM is the access to proper menstrual health and hygiene management, which includes “accurate and timely knowledge, available, safe, and affordable materials, informed and comfortable professionals, referral and access to health services, sanitation and washing facilities, positive social norms, safe and hygienic disposal and advocacy and policy” Guidance on Menstrual Health and Hygiene.

**Period Poverty:**

Period Poverty is defined as the absence of proper menstrual hygiene for a menstruating person should be “using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear” Menstrual Health and Hygiene. Period poverty stems from a lack of access to suitable menstrual products, WASH facilities, privacy &dignity, and education & information on menstrual hygiene (Jaafar et al., 2023).

**Reproductive Tract Infections:**

In this study, reproductive tract infections primarily refer to the infections in the reproductive tract caused by introduction of pathogens or by overgrowth of the existing microorganisms of the vulva or vagina, or in the cervix. It is characterized by vaginal discharge, dyspareunia (persistent or recurrent genital pain that occurs just before, during or after intercourse), itching and burning feeling with urination, vaginal inflammation, or rash, genital sore/ulcer (Meirik, 2007).

**Beliefs:**

The religious or traditional beliefs of the participants.

Authority of decision making:

The participant’s ability to make the decisions about their life and family, healthcare, etc.

For this study, the following signs & symptoms will be used to level the Reproductive Tract Infections of the participants:

Yeast Infection/ Fungal Infections:

Symptomatic definition would be presence of

* Itching and irritation in the vagina and vulva
* A burning sensation, especially during intercourse or while urinating
* Redness and swelling of the vulva.
* Vaginal pain and soreness
* Vaginal rash
* Thick, white, odor-free vaginal discharge with a cottage cheese appearance
* Watery vaginal discharge

Urinary Tract Infection:

Symptomatic definition would be presence of

* Pain or burning while urinating.
* Frequent urination.
* Feeling the need to urinate despite having an empty bladder.
* Bloody urine.
* Pressure or cramping in the groin or lower abdomen.

Bacterial Vaginosis:

Symptomatic definition would be presence of

* A thin white or gray vaginal discharge.
* Pain, itching, or burning in the vagina.
* A strong fish-like odor, especially after sex.
* Burning when peeing; and.
* Itching around the outside of the vagina.

**1.4 Research Question (s)**

The research questions this study aims to answer is:

What is the prevalence of reproductive tract infections and diseases in the menstruating population who are living in period poverty?

**CHAPTER II**

**LITERATURE REVIEW**

Even though reproductive tract infections do not concern every individual of the world, it does affect a major proportion of the world’s populating, specifically one eighth of the menstruating population suffer from RTI and ensuring prevention of RTI calls to be a priority issue.

Sexual and reproductive health and rights, is now on the Sustainable Development Goal agenda, are crucial for sustainable development. As Mao Zedong said: “Women hold up, half the sky;” their health is a significance matter. In developing countries, RTI is becoming a hidden epidemic with around one million women and children lost to complications resulting from RTI and untreated RTI giving way for other diseases such as cervical cancer, HIV AIDS, chronic abdominal pain, etc. The definition of ‘Period poverty’ by American Medical Women’s Association is lack of proper and sufficient access to menstrual hygiene management which includes sanitary materials, washing facilities, and waste management, etc. It may be a fairly novel phrase, but the issue has been present in the communities forever, only hidden owing to the stigma, lack of awareness and patriarchal societies deprioritizing women’s health issues.

In 2021, an estimated five hundred million females over the world shared that they do not have sufficient access to proper menstrual hygiene management. Even though menstrual equity is a matter of human rights as well as public health, inequalities based on race, socioeconomic conditions, and sex together increase the complexity of the structural barriers in access to proper menstrual hygiene management thus perpetuating period poverty. Furthermore, the limitation of data and research on this topic paired with the sociocultural stigma is shoving it under the rug, constantly away from those in the position of changing the gender as well as public health policies and interventions(Lwamba et al., 2022).

In our neighboring country India, which has a remarkably similar context as Bangladesh, only 12% of the menstruating population have adequate access to proper menstrual hygiene management. Moreover, the non-binary and third gender menstruating population face adverse case of period poverty including access to proper information regarding their menstrual health and hygiene management(Castro & Czura, 2025).

In Bangladesh, there is very scarce data and research on the situation of period poverty, and there no information on the cases for third gender or other gender menstruation people. The concept itself is not well known amongst the policy makers and public health professionals, and the very few studies conducted on the association between menstrual hygiene and health do not cover all aspects of period poverty.

Reproductive tract infections are made up a considerable proportion of the public health concerns all over the world, especially associated with menstruating population, but the shame and stigma associated with the topic keeps in hidden while the lack of resources and awareness push it down the priority list of national health policy makers. Bangladesh is a country with limited resources and has been listed as one of the least developed countries by the UN and is at an elevated risk for reproductive health issues in women.

Urogenital schistosomiasis is a parasitic infection associated with poor menstrual hygiene which is a direct outcome of period poverty. It is not yet well researched and often misdiagnosed during examination at primary healthcare facilities. Insufficiency of guiding information and gender inequity results in menstruating adolescents not being able to manage their menstruation properly and using poor blood management materials predispose them to various bacterial, fungal, and helminthic infections as well as viral diseases(Van ‘t Klooster et al., 2023).

The most recent study was conducted in 2021 based on Demographic and Health Survey data from 2007, 2011 and 2014 where women of reproductive age self-reported symptoms of RTI such as abnormal discharges or sore/ulcer experienced during the year prior to the survey. The aim of the study was to identify high-risk regions for RTI, through spatial-temporal analysis that can produce high resolution mapping of RTI critically useful in a resource-poor developing country like Bangladesh to guide public health strategies and interventions. Data was collected for 46,701 15-49 years old women who participated in the DHS demographics and health survey of whom 10,996 in 2007, 17,842 in 2011 and 17,863 in 2014.

The result of the study estimated higher prevalence in regions of high population density such as Dhaka and Chattogram, compared to other areas. The raw prevalence based on overall number of positive/total number of interviewed went from 10.99% in 2007 to 14.39% in 2011 to 13.94% in 2014, nationally. This study did not include the asymptomatic cases, and the included cases are not hospital diagnosed, and the study considered the symptomatic cases to be more severe than the asymptomatic cases which go undiagnosed. The study reconfirmed the negative relationship between socioeconomic status and the incidence of RTI amongst menstruating population, which is a factor contributing to period poverty(Rossouw & Ross, 2021).

Another study published in 2021, with data collected between 2016 to 2018 using a multi-stage cluster sampling design, from the Kinshasa (DRC), Ethiopia, Ghana, Kenya, Rajasthan (India), Indonesia, Nigeria and Uganda found that low-income household’s females and lower education levels, have higher possibility of period poverty with lacking access to menstruation-friendly toilets, with soap and water, privacy and safety and sanitary pads. The inequality of menstrual hygiene management facility is particularly prominent in Rajasthan (India), Ethiopia and Nigeria. Based on the previous studies it is evident that the culture, economic vulnerability, and education plays key role in occurrence of period poverty, thus prevalence of RTIs. The sample population for this study was aged between 15 – 49 years, and the questionnaire was administered by female enumerators ensuring informed consent and complete privacy for the respondent(Diamond-Smith et al., 2020).

**CHAPTER III**

**RESEARCH METHODOLOGY**

**3.1 Study Objectives**

**General Objective:** To investigate the prevalence of reproductive infections and infections due to period poverty in Bangladesh

**Specific Objectives:**

* To estimate the prevalence of reproductive infections in menstruating population in Bangladesh.
* To estimate the prevalence of RTI among the menstruating population living in period poverty.
* To investigate the relationship between socio- cultural factors and accessibility to menstrual hygiene and Reproductive tract infections.

**3.2 Conceptual Framework**

**Dependent Variable**

**Independent Variables**

Reproductive Tract Infections

Yeast Infection/ Fungal Infections

Urinary Tract Infection

Bacterial Vaginosis

**Socio-Demographic**

Socio-demographic variables:

Income level

Beliefs [Religious/Cultural]

Place of residence

Authority of decision-making/Choice

Access to menstrual hygiene (private clean safe toilets, sanitary napkins, soap, clean water, etc.) i.e., Period Poverty

**3.3 Study Design**

A Community Based Cross Sectional Study was conducted.

**3.4 Target Population & Sample Population**

In this particular study, the target population will encompass all women who have under two years age of children.

**3.5 Study Site & Area**

The study took place in lower-income settlements in Cox’s Bazar, with a population of menstruating individuals aged 15 to 49 years.

**3.6 Study Period**

The study was conducted from Jan 2025 to April 2025.

**3.7 Sampling technique& Sample size**

In Bangladesh, there is no national prevalence data on RTIs or STIs. However, limited studies have shown a high prevalence of infections among women. A 2014 study found a symptomatic prevalence of RTIs at 18.19%, with 23.09% having RTIs regardless of symptoms. An internal study by Square Toiletries Limited (STL) indicated that nearly 97% of women experience vaginitis due to unhygienic menstrual practices in Bangladesh. Another study on 3,000 women in Matlab Thana showed that 22% had RTI symptoms. Other studies suggest that only 14-23% of menstruating women have access to sanitary napkins. Based on this, a 75% prevalence rate for period poverty was used to calculate the sample size with the following formula:

d=.05, (1-α)=0.95,z = 1.96 for 95% confidence level

Using this formula, the required sample size was estimated to 288.

The selection began with a household near the approximate center of the area, with subsequent households chosen in an anti-clockwise direction. One eligible participant was selected from each household.

**3.8 Inclusion Criteria**

* 15 – 49 years of age
* Have menstruated in the last 3 months.

**3.9 Exclusion Criteria**

* Pregnant
* Have not menstruated in the last 3 months.

**3.10 Data Collection Tools**

A semi-structured questionnaire, mostly with close-ended questions, was used. It was translated into Bangla and reviewed by language and medical professionals. The questionnaire included socio-demographic variables, period poverty indicators, and RTI symptoms, and was pre-tested before deployment.

The survey questionnaire was administered by the research investigator after collecting signed informed consent for voluntary participation. Participants were informed about the sensitivity of the questions.

**3.11 Data Management & Analysis Plan**

Descriptive analysis was conducted to present the prevalence of period poverty and RTI among the menstruating population. Chi-square tests and regression analysis were conducted to determine the relationship between period poverty and RTI and to explore other predictors of period poverty.

**Data Preparation:** The data will be thoroughly cleaned and prepared for analysis, which includes the identification of missing values, outliers, and any other irregularities within the data.

**Descriptive Statistics:** Descriptive statistics will be calculated for the variables of interest. This will involve determining measures such as the mean, median, standard deviation, and frequency distribution. These calculations will provide insights into the data's distribution and facilitate the identification of outliers or unusual observations.

**Inferential Statistics:** Inferential statistical tests will be conducted to examine the study's hypotheses. These tests may include a chi-square test to assess the association between KAP on IYCF and various socioeconomic factors.

**Interpretation of Results:** The results of the statistical tests will be interpreted, taking into consideration elements such as p-values, effect sizes, and confidence intervals. Typically, a p-value below 0.05 is considered indicative of statistical significance, implying that there is less than a 5% probability that the results are due to random chance.

**3.12 Quality Control & Quality Assurance**

Before collecting data from the respondents, a friendly and welcoming environment was established, and the research objectives were clearly communicated to the participants. Throughout the data collection process, an effort was made to engage with the respondents in the local Bangla language.

**3.13 Ethical Considerations**

Ethical approval was obtained from the ethical review committee of the University. The study adhered to university ethical guidelines. Informed consent was obtained from participants after explaining the study’s objectives, ensuring their autonomy, privacy, and confidentiality.

**3.14 Expected Outcomes**

The study aims to determine the prevalence of reproductive tract infections (RTIs) among menstruating individuals from low-income communities in Cox’s Bazar, Bangladesh. It is expected to reveal a significant correlation between period poverty and increased RTI cases, highlighting how inadequate access to menstrual hygiene products, poor sanitation, and limited awareness contribute to adverse reproductive health outcomes. The research also seeks to understand the common menstrual hygiene practices in these communities, including the reuse of unsanitary materials and prolonged use of absorbents, which may increase susceptibility to infections. Furthermore, the study will explore participants’ levels of knowledge about menstruation and RTIs, identify social and economic barriers to menstrual product access, and assess the availability of clean, private, and functional sanitation facilities. It also aims to uncover the impact of educational background, cultural stigma, and gender norms on menstrual health management. Lastly, the findings are expected to inform policy and programmatic recommendations for improving menstrual hygiene education, increasing accessibility to affordable sanitary products, and strengthening healthcare support systems for vulnerable populations in Cox’s Bazar.

**3.15 Work Plan**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Activities** | **Jan**  **2025** | **Feb**  **2025** | **Mar**  **2025** | **Apr**  **2025** | **May**  **2025** | **Jun**  **2025** |
| **Designing the Study** |  |  |  |  |  |  |
| **Review of Literature** |  |  |  |  |  |  |
| **Development & approval of proposal** |  |  |  |  |  |  |
| **Development of Data Collection Tools** |  |  |  |  |  |  |
| **Pre-testing Questionnaire** |  |  |  |  |  |  |
| **Data Collection, Entry & Analysis** |  |  |  |  |  |  |
| **Report Writing** |  |  |  |  |  |  |
| **Submission & Approval of Thesis** |  |  |  |  |  |  |
| **Printing, Binding, and Submission** |  |  |  |  |  |  |

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**5 APPENDICES**

**APPENDIX-A**

**CONSENT FORM**

Hello, my name is (your name). We are surveying the “Evaluation of Knowledge, Attitudes, and Practices Regarding Infant and Young Child Feeding Among Mothers of Children Under Two at Cox's Bazar Sadar Hospital, Bangladesh”. I would like to talk to you about your IYCF practices and other topics. This interview usually takes about 45 minutes. All the information we obtain will remain strictly confidential and anonymous. If you wish not to answer a question or wish to stop the interview, please let me know. May I start now?

**APPENDIX-C**

**QUESTIONNAIRE**

**ABOUT YOU**

Before you begin, we would like to ask you to answer a few general questions about yourself: by circling the correct answer or by filling in the space provided.

**Menstrual Health and Hygiene Questionnaire**

**Section 1: Demographic Information**

1. What is your biological sex?
   * Male
   * Female
   * Other: \_\_\_\_\_\_\_\_\_
2. How old are you?
   * [Open-ended]
3. Do you feel part of any of these communities?
   * Yes
   * No
   * Specify: \_\_\_\_\_\_\_\_\_\_\_
4. Religion/Community:
   * [Open-ended]
5. What is your level of education?
   * No formal education
   * Primary
   * Secondary
   * Higher Secondary
   * Graduate
   * Postgraduate
6. Marital Status:
   * Single
   * Married
   * Divorced
   * Widowed
7. Occupation:
   * Student
   * Employed
   * Unemployed
   * Other: \_\_\_\_\_\_\_\_\_\_\_
8. Specify your occupation (if applicable):
   * [Open-ended]
9. Family monthly expenditure:
   * [Open-ended]
10. Family monthly income:

* [Open-ended]

1. Household size:

* [Open-ended]

**Section 6: Hygiene Management**

1. Where do you dry your reusable pads or underwear?

* Open sunlight
* Hidden place
* Under the mattress
* Inside a bag or cabinet
* Inside a plastic bag
* Other: \_\_\_\_\_\_\_\_\_\_\_

1. Are toilets at your school/workplace:

* In good working order? Yes / No
* Clean? Yes / No
* Have locks? Yes / No
* Have sanitary bins? Yes / No
* Are bins regularly cleaned? Yes / No
* Have hot water and soap? Yes / No
* Have toilet roll? Yes / No

1. Where do you store reusable products after washing?

* Hidden place
* Under mattress
* Inside bag/cabinet
* Inside plastic bag
* Other: \_\_\_\_\_\_\_\_\_\_\_

**Section 7: Privacy, Comfort, and Health**

1. Do you feel your privacy is maintained at school/workplace during menstruation?

* Yes
* No

1. If not, why? (Tick all that apply)

* Lack of toilet
* Common toilet for males and females
* No toilet door
* Lack of water
* Other: \_\_\_\_\_\_\_\_\_\_\_

1. Have you used menstrual products for longer than recommended due to lack of facilities?

* Yes
* No

1. Have you experienced any discomfort in the last 6 months? (Tick all that apply)

* Skin itching
* Urinary infections
* Other: \_\_\_\_\_\_\_\_\_\_\_
* None

1. Have you had any of the following in the last 6 months? (Tick all that apply)

* Genital rash
* Vaginal irritation
* Genital redness or inflammation
* Unusual discharge (color/odor)
* None
* Other: \_\_\_\_\_\_\_\_\_\_\_

1. If yes, did you talk to anyone?

* Yes
* No

1. If yes, did you get treatment?

* Yes
* No

**Enumerator’s Comments (if applicable):**

* [Open-ended]