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# Exploring the Impact of lack of Wash facilities on Girls' Education and Health in Higher Secondary Schools in Afghanistan

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Date: 12/May/2024

## **Abstract**

This study explores how the lack of WASH facilities affects girls's education and health in higher secondary schools in Afghanistan. The main object of this study is to explore the impact of WASH absence on girls' academic performance, attendance, dropout rates, and various diseases related to WASH. A mixed research method was applied to gather, analyze, and interpret survey data from 97 students and teachers in 49 schools in different provinces of Afghanistan.

Numerous participants stated that WASH services significantly impacted their educational achievement and health. They further said that a lack of WASH facilities not only affects their academic performance but also their motivation to study and concentration in the class. The study findings also show that inadequate water, sanitation, and hygiene services affect girls' health in terms of diseases related to poor sanitation, hygiene, and unsafe drinking water. The participants shared their concerns regarding the impact of a lack of WASH facilities on girls' health and said that improper toilets, a lack of handwashing facilities, and sanitation products also harm their health by causing various illnesses. Despite the many challenges girls encounter while attending their classes, they never give up their education. However, there are several obstacles, such as a lack of drinking water, toilets with running tap water, and the non-availability of sanitary pads and rest places for girls with periods in school during their menstrual cycles, which obliges them to miss their classes and become sick. Hence, further research is needed to address the other factors influencing girls educational outcomes and health in school in Afghanistan with long-term solutions.

Overall, policymakers, educators, researchers, and stakeholders must carry out more studies and add WASH to the curriculum to ensure that all girls in Afghanistan receive a quality and inclusive education with proper WASH facilities.

**Keywords-** WASH facilities, girl's education and health, educational progression, higher secondary school, menstruation, diseases, Afghanistan

## **Acknowledgement**

Primarily, I would like to extend my gratitude to my father (Agha Janm) and my mother (Madar Janm), who immensely motivated and inspired me with their unwavering support and unconditional love. I am truly grateful for their faith in my abilities and for encouraging me to study for my MA in education. Your faith in me pushed me forward whenever I felt like giving up. Also, a special thanks to my father (Research Assistant) again for helping me collect data in Kabul by visiting schools in different regions of Kabul. As my first teacher, he always guided me to find my way.

Secondly, I would like to thank my thesis supervisor, Sayed Mohammad Nazim Uddin, who inspired me to conduct research on a critical and important topic like WASH. Without his guidance, experience, knowledge, dedication, and time, it was impossible.

Also, I would like to thank the participants both students and teachers from different provinces of Afghanistan, particularly those who are now studying at Asian University, for taking part in the survey and helping me explore this issue more thoroughly. Hopefully, the insights from this study will help educators, researchers, and other stakeholders delve deeper into examining the impact of a lack of WASH facilities on girls education and health in higher secondary schools in Afghanistan.

Last but not least, I intend to thank my family, sisters, and friends for their spiritual support and belief in me throughout my journey. Your prayers have been a source of energy, and I am really blessed for your constant support and love.

## Table of Contents

<b>ABSTRACT .....</b>	<b>1</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>2</b>
<b>LIST OF FIGURES.....</b>	<b>4</b>
<b>LIST OF TABLES.....</b>	<b>4</b>
<b>CHAPTER 1: INTRODUCTION .....</b>	<b>5</b>
<b>1.1 BACKGROUND OF THE TOPIC .....</b>	<b>6</b>
<b>1.2 STATEMENT OF THE PROBLEM AND RESEARCH QUESTIONS.....</b>	<b>6</b>
<b>1.3 OBJECTIVES OF THE STUDY .....</b>	<b>7</b>
<b>1.4 SIGNIFICANCE OF THE STUDY .....</b>	<b>8</b>
<b>CHAPTER 2: LITERATURE REVIEW .....</b>	<b>9</b>
<b>2.1 WASH SYSTEM DEFINITION .....</b>	<b>10</b>
<b>2.2 ACCESS TO WASH FACILITIES IN SCHOOL .....</b>	<b>11</b>
<b>2.3 IMPACT OF WASH ON FEMALE STUDENT’S EDUCATION .....</b>	<b>11</b>
<b>2.3.1 Poor Attendance and Dropout rates .....</b>	<b>11</b>
<b>2.3.2 Academic Performance .....</b>	<b>13</b>
<b>2.4 IMPACT OF THE LACK OF A WASH FACILITIES ON FEMALE STUDENT’S ATTENDANCE, MOTIVATION, AND ACADEMIC PROGRESSION .....</b>	<b>14</b>
<b>2.5 IMPACT OF WASH ON FEMALE STUDENT’S HEALTH.....</b>	<b>15</b>
<b>2.5.1 Hygiene Related Illnesses.....</b>	<b>16</b>
<b>2.5.2 Health Concerns and Menstrual Diseases Affect Female Students .....</b>	<b>17</b>
<b>2.6 ACCESS TO WASH SERVICES IN AFGHAN HIGHER SECONDARY SCHOOLS AND ITS IMPACT ON FEMALE STUDENTS IN AFGHANISTAN .....</b>	<b>19</b>
<b>2.7 CHALLENGES TO FACILITATING THE WASH SERVICE IN AFGHANISTAN .....</b>	<b>20</b>
<b>2.8 GAPS AND SCOPE OF THE RESEARCH.....</b>	<b>21</b>
<b>CHAPTER 3: MATERIALS AND METHODOLOGY .....</b>	<b>22</b>
<b>3.1 RESEARCH LOCATION .....</b>	<b>23</b>
<b>3.2 PARTICIPANTS.....</b>	<b>24</b>
<b>3.3 DATA COLLECTION.....</b>	<b>28</b>
<b>3.4 DATA ANALYSIS .....</b>	<b>30</b>
<b>CHAPTER 4: RESULTS AND DISCUSSION.....</b>	<b>31</b>
<b>4.1 IMPACT OF WASH FACILITIES ABSENCE ON THE GIRLS' ACADEMIC PROGRESSION .....</b>	<b>32</b>
<b>4.1.1 Impact of Lack of WASH Facilities on Girls Attendance .....</b>	<b>33</b>
<b>4.1.2 Impact of Lack of WASH on Girls Academic Performance.....</b>	<b>36</b>
<b>4.1.3 Impact of Wash Facilities on Dropout rate of Girls from School.....</b>	<b>40</b>
<b>4.1.4 Section Conclusion.....</b>	<b>41</b>
<b>4.2 THE IMPACT OF INADEQUATE WASH FACILITIES ON GIRLS HEALTH.....</b>	<b>42</b>
<b>4.2.1 Girls Affected by Hygiene related illnesses.....</b>	<b>43</b>
<b>4.2.2 Female Students Thoughts on How the Absence of WASH Facilities Affects their Overall Health and Well-being .....</b>	<b>46</b>
<b>4.2.3 Section Conclusion.....</b>	<b>50</b>
<b>4.3 THE PERCEPTIONS AND VIEWS OF STUDENTS AND TEACHERS TOWARDS THE CHALLENGES AND APPROACHES TO MITIGATING WASH IMPACT IN AFGHAN SCHOOLS.....</b>	<b>52</b>
<b>4.3.1 The Students and Teachers Perceptions Towards Challenges Faced by Girls in Higher Secondary Schools.....</b>	<b>52</b>
<b>4.3.2 Recommendations to Improve the WASH Facilities in Schools for Student's Better Academic and Health Development.....</b>	<b>54</b>
<b>4.3.3 Section Conclusion.....</b>	<b>56</b>
<b>CHAPTER 5: CONCLUSION.....</b>	<b>57</b>
<b>REFERENCE .....</b>	<b>63</b>

## List of Figures

Figure 1 Thematic analysis process .....	31
Figure 2 Frequency and percentage of students missing school monthly due to unavailability of WASH.....	35
Figure 3 Wash and menstruation management and awareness impact on student's GPA, attendance and dropout .....	38
Figure 4 Experience health problems while attending school due to lack of WASH .....	45

## List of Tables

Table 1 list of participant's schools .....	28
Table 2 Frequency and percentage of students missing classes due to lack of WASH.....	34
Table 3 Represents the frequency and percentage of students missing school monthly due to unavailability of WASH.....	34
Table 4 Crosstabulation of students accessibility to clean drinking water at schools and separate toilets for girls .....	35
Table 5 Chi-square test results .....	36
Table 6 The time female students spent studying or completing homework weekly .....	37
Table 7 Frequency of student's GPA rate .....	37
Table 8 Crosstabulation of participants GPA rate and accessibility to clean water at school..	38
Table 9 WASH and menstruation management and awareness impact on student's GPA, attendance and dropout .....	38
Table 10 Effect of clean water and sanitation on students concentration in the class .....	39
Table 11 Represents the frequency of female students handwashing .....	44
Table 12 Experience health problems while attending school due to lack of WASH.....	44
Table 13 Students experiencing health problems due to a lack of WASH in schools.....	45
Table 14 Health problems faced by students in schools .....	46

## **Chapter 1: Introduction**

Education is a key element in shaping students' futures, both in terms of academic achievement and health. Many schools lack clean water sources, functional sanitation facilities, and adequate hygiene education (UNICEF, 2017). Female students in schools with proper WASH facilities tend to have better academic performance, higher attendance, and lower dropout rates. Furthermore, UNICEF (2016) reports that schools that have satisfactory WASH (water, sanitation, and hygiene) resources have sufficient amounts of gender-segregated toilets with running water and soap for hand washing and a curriculum that includes hygiene education. As a result, female students have a better GPA and attendance and encounter fewer health problems due to a lack of WASH in schools.

Several female students are affected by a lack of WASH facilities in schools, causing them poor academic achievement, lower attendance, more dropouts, WASH-related diseases, and poor menstruation management in Afghan schools. The most common health problems are diarrhea, infections, stomach issues, kidney issues, and so on. According to UNICEF Afghanistan (2024), about 58% of public schools don't have access to drinking water or places for handwashing, and there is typically only one working toilet for every 249 students in schools. Female students in low-income countries are likely to be influenced more than female students in high-income countries. The reason is that low-income countries don't have access to proper sanitation and hygiene facilities and safe and clean water, while female students in high-income countries are facilitated with all kinds of services associated with WASH in their schools.

There are numerous challenges to maintaining good hygiene and sanitation among girls in school, such as inadequate WASH and menstruation awareness and knowledge and a lack of resources and infrastructure. Thus, to explore, analyze, and discover the impact of a lack of

WASH facilities on girls education and health in higher secondary schools in Afghanistan, research is conducted with students and teachers from different provinces.

## **1.1 Background of the topic**

Afghanistan has faced numerous challenges in recent years, like COVID-19 and school bans on girls, but despite those challenges, girls still managed to continue their education. These obstacles caused female students to fall behind in their education, and schools almost forgot that students would come back to school one day. After COVID-19, schools struggled a lot to provide and maintain good sanitation and hygiene for students.

By exploring more into the issue, it is proven that many students, particularly girls, are affected by a lack of WASH in schools, in terms of both educational perspective and health. Students with adequate facilities have better educational outcomes, while others have poor academic performance; likewise, girls in schools with poor sanitation, hygiene, and low-quality drinking water are likely to get sick more and have poor academic performance. Students spend a long time in school; they need to drink enough water to stay hydrated and maintain their health, but when proper toilets with water or soap are not accessible, students hesitate to drink water or carry their own water bottles to school. The researcher could only find a few research papers about WASH-related issues in Afghanistan, which were not even fully focused on the impact of WASH on girls education and health. Therefore, a significant gap exists that needs scholars' attention.

## **1.2 Statement of the Problem and Research Questions**

The main objective of this research is to explore how the lack of WASH facilities affects girls' education and health in higher secondary schools in Afghanistan before school closure until 2021. In this study, students and teachers from different provinces of Afghanistan were surveyed to examine how the WASH service was before girls were banned from attending

schools in Afghanistan, whether schools were equipped with adequate or basic WASH facilities, or whether they had sufficient knowledge about the impact of WASH absence on their educational progression and health. Overall, to have a glance into students and teachers thoughts, perceptions, and experiences regarding the availability of WASH in their school and the potential recommendations and interventions to address the issue. Basically, this thesis answers the following research questions:

1. What is the relationship between girls' academic achievement (e.g., GPA, motivation, attendance, or dropouts from schools?) in higher secondary schools in Afghanistan and the availability of wash facilities?
2. How do inadequate wash facilities impact the number of health issues (e.g., infections, diarrhea, and menstruation related illnesses) among girls in higher secondary schools in Afghanistan?
3. How do students and teachers perceive and view the lack of WASH facilities and its challenges and approaches to mitigating its impact in higher secondary schools in Afghanistan?

### **1.3 Objectives of the Study**

The aim of this research is to delve into the significance of the impacts of wash facilities on the academic performance and health of girls in higher secondary schools before the Taliban took over in Afghanistan. The main objectives of this study are listed below.

1. To find out what the connection is between girls' academic performance (e.g., GPA, motivation, attendance, or dropouts from schools) and the availability of WASH facilities in higher secondary schools in Afghanistan.



2. To discover how inadequate wash facilities impact girl's health by getting affected by diseases (e.g., infections, diarrhea, menstruation-related illnesses) in higher secondary schools in Afghanistan
3. To determine how students and teachers perceive the lack of WASH facilities and its challenges and approaches to mitigating the WASH impact.

This research would provide awareness and grasp regarding the impact of WASH service on girls and will enhance the WASH facilities by exploring possible interventions and methods.

### **1.4 Significance of the Study**

This study's insight would add potential value and knowledge to both the education and health fields. They will benefit from this study because it investigates the WASH service situation in schools prior to school closures for girls, and it can also encourage scholars, researchers, and educators to explore the field more in the future.

Furthermore, there is negligible research conducted in this field that is not even focused on the impact of WASH on girls; one study was conducted before girls school bans and didn't cover the importance of WASH services in female student's lives. Thus, educators, researchers, and other stakeholders can utilize this study's results to design and suggest required solutions, policies, and interventions to alleviate the impact of WASH service absences in girls higher secondary schools in Afghanistan.

Moreover, this research will provide awareness and knowledge and build on resources that might assist in enhancing WASH programs in schools. Besides, the expertise and knowledge of WASH and its impact on girls education and health-associated diseases would help policymakers, curriculum developers, school administrators, principals, and other related actors formulate strategies and policies to efficiently support WASH programs. While the WASH system and facilities are being taken seriously in both developed and developing

countries, this issue has not been addressed or contemplated in the traditional context of Afghanistan. Thus, this study's central focus is to fill the gap of a lack of WASH and add knowledge to the present literature by different researchers. The results of this study will provide a deeper understanding of WASH services in girls schools and can be used in future research in different contexts and backgrounds.

This research will accommodate knowledge and expertise for future events by exploring and analyzing the perceptions and experiences gained from participants and their findings. In addition, this study may indicate alternative solutions for challenges highlighted in the field.

## **Chapter 2: Literature Review**

Education plays a significant role in shaping a child's life, and each and every child should have access to quality education in terms of both health and academic instruction to improve their daily lives. UNICEF (2023) reports that WASH (water, sanitation, and hygiene) services, which are a part of high-quality education, must be provided to all children during school hours. A lack of WASH services can result in students dropping out, having less interest in attending school and studying, and also leading to different detrimental diseases or diseases in connection with menstrual hygiene management among them. Mooijman (2012) reports that for children attending school to have access to a fundamental and pivotal education, there must be a safe and sufficient supply of water, as well as proper sanitation and hygiene in the classroom. Hence, water, sanitation, and hygiene (WASH) is one of the most crucial elements in educating the students in schools, particularly girls. Almost half of every student's day is dedicated to attending their classes in school, during which WASH facilities such as drinkable water, proper sanitation, and hygiene can have a great impact on their learning and health. According to UNICEF (2023), the WASH services' involvement in schools illustrates that ultimately it is becoming widely acknowledged, and that is among the most vital basis of a safe, non-violent,

comprehensive, and efficient learning space, which highlights the necessity for WASH accessibility outside of the house.

According to UNICEF Afghanistan (2024), about 58% of public schools don't have access to drinking water or places for handwashing, and there is typically only one working toilet for every 249 students in schools. It further adds that the students who are unable to wash their hands frequently are more likely to get infected than those who can, which increases the chances of them missing more school days due to different diseases. Moreover, the majority of schools in Afghanistan lack basic WASH services and awareness, which leads to the student's poor health and academic achievement. The inadequacy of proper WASH facilities in Afghan schools has a significant impact on the academic and health outcomes of female students. In addition, most girls' schools don't facilitate menstrual hygiene management or basic hygiene facilities so that girls can attend their classes without any hesitation or dropout.

This literature review provides a brief overview of this thesis's key terms and also reviews other researcher's literature about the impact of a lack of WASH systems on student's health and academic performance, particularly girls. How do girls view the lack of a wash system for water in schools, and what is the relationship between the factors that influence a female student's learning process and well-being before school closures in Afghanistan. Besides, both the educational and health impacts of the WASH system in higher secondary schools will be reviewed, the scope of the study will be defined, and possible future research will be highlighted within the field along with its challenges and practices.

## **2.1 WASH System Definition**

The term WASH is the short form of water, sanitation, hygiene, or sanitation for health, which was used from 1988 or early 1900 onwards for the project of the United States Agency for International Development. Moreover, water and sanitation are the core elements of

Sustainable Development Goal 6, which is ensuring access to water and sanitation for everyone (United Nations, 2023). Also, it adds that the most fundamental necessity for people's health and wellbeing is access to clean water, adequate sanitation, and hygiene.

## **2.2 Access to WASH Facilities in School**

In Afghanistan, children suffer greatly from various health problems; hence, they miss their classes due to chronic illnesses, which also make it difficult for them to focus and learn in class. A significant percentage of this disease is caused by unsafe water and is closely associated with poor personal hygiene and insufficient sanitation (JDA). Thus, the majority of the schools in Afghanistan don't have access to adequate WASH facilities, or even a number of them don't have basic WASH facilities, which is a fundamental right of every child to get access to them.

## **2.3 Impact of WASH on Female Student's Education**

Inadequate clean water, sanitation, and hygiene (WASH) services and awareness definitely impact the educational outcomes of the students in school. Since a lack of these facilities distracts and diverts the student's attention away from their studies, they must be equally approachable to all students. WHO (2024) states that safe and clean water, sanitation, and hygiene (WASH) services should be easily accessible, along with an appropriate learning environment for all students. It also adds that insufficient WASH facilities might have a detrimental effect on school attendance and the academic performance of students.

### **2.3.1 Poor Attendance and Dropout rates**

Poor attendance is defined as an unjustified or unexcused absence, whereas dropping out of school without a high school diploma or transcript is called a dropout, and it consists of several risk elements such as poor attitudes and difficulties in school (Gubbels et al., 2019). Furthermore, there is another definition by Atmoko et al. (2014): poor attendance means that students don't consistently show up for class, and a dropout occurs when a student no longer

attends classes and gets expelled from school because of lower attendance. It was illustrated in a few studies on high school dropouts that it has an effect on the educational growth of the students. As a result, there are numerous challenges and obstacles that girls have encountered during their school days, and WASH facilities are one of those key reasons for poor attendance and dropouts among girls. Human Rights Watch (2017) shared a report that states that 30% of public schools lack safe drinking water and 60 percent lack basic toilet facilities in Afghanistan, particularly for girls who start to menstruate, who are more affected by the improper toilet facilities. It further adds that they tend to stay at home during this time because of the non-availability of separate toilets with running water and other required facilities. Also, they face problems managing hygiene issues in schools, which causes interruptions in their attendance, eventually lowers their academic progress, and raises the possibility that they may drop out of school.

Furthermore, the absence of menstrual hygiene management (MHM) presents a supplementary learning obstacle for females, who frequently need basic WASH facilities since MHM is a prominent component of WASH (Crofts & Fisher 2012; Sommer et al. 2013; Alexander et al. 2014). According to studies conducted in Kenya and Uganda, girls were frequently absent throughout their menstrual period in the absence of proper WASH facilities (Crofts & Fisher, 2012; Sommer et al., 2013; Alexander et al., 2014). This is because there isn't enough space or privacy to change, clean, dry, or dispose of MHM materials, and there isn't enough water available for personal hygiene (Sommer et al. 2013). Moreover, the students with more days missing classes and less instruction during attending school are negatively impacted, particularly on their learning, resulting in a decrease in their exam scores, lower grades, and an increased possibility of dropping out of school before they graduate (Attendance Works, 2022). Baddianaah et al. (2023) declare that student's absenteeism increases due to insufficient WASH facilities, specifically among girls, because it results in affecting them in terms of challenges

with comfort, privacy, and management of the menstrual cycle and high health risks. Therefore, poor attendance and dropout rates increase when students are not provided with clean and safe drinking water, sanitation, and hygiene facilities. Students tend to avoid attending school or not drinking enough water, particularly girls, since schools don't supply them with menstrual hygiene products along with separate toilets with running water, they stay at home to avoid all those difficulties.

### **2.3.2 Academic Performance**

Academic achievement is defined as effective learning outcomes with a focus on student dedication and teacher creativity for better performance in a higher education context (Fernández, 2018). According to Kaur and Prajapati (2022), the term "academic achievement" or "performance" describes the learning objectives that students, instructors, or organizations have met. Cognitive talents have an impact on it, as demonstrated by the study conducted on secondary school students. On the other hand, the phrase "educational progression" refers to the process of progressing up to the next level and ultimately finishing school (Agol et al., 2017). Moreover, another definition indicates that higher exam scores and grades are called academic performance (Finn and Rock, 1997). Likewise, another study by Davison and Dustova (2017) & Yogendra & Adrew (2017) declares that GPA, or the grade point average of the courses taken by students during an academic year, is another indicator of a student's academic success. Furthermore, academic performance is defined by GPA, better grades, test scores, consistency, and regular attendance, as stated by Goldman & Widawski (1976). Furthermore, studies by Gershenson et al. (2017), Kirksey (2019), and Klein et al, (2022) demonstrated that a student's academic performance is significantly affected by not attending classes, even for a few days, regardless of the circumstances, because it decreases the hours of instruction, which ultimately leads to poorer academic progression. Also, another study in Nepal states that girls' participation and attendance at school is reportedly limited by inadequate

facilities for sanitation and hygiene, as well as limited access to water (Sharma and Adhikari, 2022). In addition, Sharma et al. (2022b) reveal that female students who fail to have necessary Menstruation Hygiene Management (MHM) items have been at greater risk compared to those who had to miss their classes at school, which eventually leads to their poor academic performance. Hence, academic performance plays a significant role in impacting students' interest and motivation towards studies, and it is the progression scale of student's learning during attending their classes. It includes good exam grades and scores, regular attendance, and persistence to obtain a better GPA.

## **2.4 Impact of the Lack of a WASH Facilities on female student's Attendance, Motivation, and Academic Progression**

The absence of water, sanitation, and hygiene services has a significant effect on female student's attendance, motivation, and academic progression. There have been numerous studies conducted that reveal that when girls are not provided with WASH services, including menstrual hygiene facilities, handwashing stations, and clean water, it causes health hazards, discomfort, embarrassment, and also affects their academic performance by forcing them to miss school or drop out due to poor attendance. For example, a study in Bangladesh states that a lack of WASH systems, especially inadequate menstrual hygiene implementations, causes dropouts from school among young girls, which has a detrimental effect on attendance, motivation, and academic development of students (Hasan et al., 2021). Another study in Ghana revealed that insufficient safe drinking water, poor sanitation, and hygiene problems negatively impact female students' motivation, attendance, and performance in school, highlighting the necessity for improved resources and instruction (Agbofa & Author\_Id, 2022).

Nevertheless, several studies have indicated that inadequate WASH facilities not only impact female student's attendance, motivation, and academic performance but also negatively affect

their health. For instance, according to McMichael (2019), the absence of WASH systems may result in girls getting sick, which could have a detrimental effect on their academic progress and motivation, which is why WASH initiatives in schools are essential. Furthermore, there is another aspect of WASH that influences girls' education and health while attending school, particularly during their periods, which is that a lack of hygiene management affects their motivation, attendance, and achievement in school because it can be difficult to change and discard menstruation materials (Oduor et al., 2015). Thus, when girls' health is affected by WASH in terms of poor menstrual hygiene management or any diseases like infections, diarrhea, or any other diseases that arise because of it, it results in girls discouragement in studying, a lack of enthusiasm, lower attendance, and finally dropout of school or a poorer learning outcome.

## **2.5 Impact of WASH on Female Student's Health**

According to studies by Mathegana et al. (2001) & Haines.; Rogers (2000), as cited in Jasper et al. (2012), a lack of proper water and sanitation facilities can have a negative impact on students' health and attendance in numerous schools in both developed and developing countries. Moreover, as reported by the World Health Organization (WHO), if sanitation is accessible in schools, 11% more girls attend their classes regularly. Furthermore, as per studies by Koopman (1978) cited in Jasper et al. (2012), due to illnesses students encounter at school, they miss their classes at school, both in developed and developing countries. Consequently, when the students health is affected by the absence of WASH in schools, inevitably their attendance, academic growth, and learning outcomes are also undermined by not being able to continue or complete their education consistently. As stated by Olukanni et al. (2014), female student's health is affected by a lack of WASH services since it makes it more difficult for them to get clean water, sanitary conditions, and good hygiene, which in turn affects their wellbeing and academic performance. For instance, when female students are in school, due to



a lack of clean and safe drinking water, they get sick from waterborne diseases since the water tanks and wells are not maintained and cleaned regularly or filtered, sufficient handwashing facilities are not available, or even boys and girls toilets are not gender segregated.

However, in some developed and developing countries, the health of students has significantly improved as a result of WASH services being made available in schools by INGOs, NGOs, or the schools themselves. These amenities include raising awareness, providing handwashing stations, suitable toilets with running water, safe and clean drinking water, and educating the teachers and other staff in schools.

### **2.5.1 Hygiene Related Illnesses**

The availability of WASH facilities in schools is essential to fostering healthy surroundings that can lessen the prevalence of WASH-related illnesses (UNICEF & WHO, 2018). Additionally, the World Bank (2018) adds that there was a substantial rise in educational attainment as well as health conditions following the implementation of WASH. Hence, the majority of infectious illness transmission occurs in schools due to improper water, sanitation, and hygiene. Furthermore, several schools in different countries represent areas where diseases are extremely common and arise from poor WASH services (WHO, 2010). Based on studies by Freeman (2011), as cited in Sharma et al. (2022), students dedicate a certain amount of time at school, where they gain knowledge and are inspired to engage in positive WASH behaviors and apply hygienic practices to their everyday lives. Based on Afghanistan Libre (2020), reports indicate that 30% of Afghan public schools lack clean drinking water and 60% are without toilets.

As cited in Sharma et al. (2022b), a study conducted in the United States of America found that the school WASH program may offer protection against diarrhea along with other WASH-related illnesses such as water-borne diseases. Likewise, another study in Myanmar by Weaver et al. (2016), as cited in Sharma et al. (2022b), highlighted how inadequate handwashing

facilities in schools raise the risk of vomiting and diarrhea in both students, teachers, and other staff in schools. Furthermore, approximately 75% of young children's lower attendance in school is due to illness, such as respiratory and gastrointestinal diseases (Joshi & Amadi, 2013). Besides, there is a strong correlation between a decrease in infections related to respiration and diarrhea and increasing WASH service in schools (Garn, Trinies, Toubkiss, & Freeman, 2017). Also, another aspect of WASH absence is that students get sick by consuming contaminated water, which ultimately leads to water-borne diseases, and water is the main source of spreading viruses for hepatitis A, E and other diseases. For example, the mitigation of water-borne illness and the overall health assurance of students depend on their accessibility to potable water and sanitary facilities. It further adds that waterborne illnesses and their avoidance depend heavily on the appropriate utilization of available water supplies, as well as observation and monitoring of the water's quality, which are essential for maintaining public health (Shayo et al., 2023). Thus, the absence of WASH in schools definitely affects the student's health by causing them different allergies, infections, diarrhea, waterborne diseases, and other diseases related to their menstrual cycle or periods.

Female students may avoid attending school when experiencing their menstrual cycle, not just because they lack a management approach but also because they lack sufficient services for trying to manage their menstrual cycle (Jasper, Le, and Bartram 2012). Hence, the required measures should be taken to avoid hygiene related diseases in schools among girls.

### **2.5.2 Health Concerns and Menstrual Diseases Affect Female Students**

The menstrual cycle is defined as girls experiencing a regular physiological process that lasts from adolescence until menopause and involves vaginal bleeding caused by uterine mucosa shedding every 28 days (Thiyagarajan et al., 2019a). In addition, adolescence starts with monthly periods in a girl's life, from the age of 9 to 15 years. According to Girigoswami et al.

(2023), menstrual hygiene refers to a specific type of healthcare required for women's periodic cycles of menstruation, and poor hygiene management throughout the menstrual cycle can lead to significant infections of the reproductive and urinary tracts. Female students are more vulnerable due to deficient WASH services, the spread of different illnesses and infections, and poor period hygiene, which can also cause health issues for them. Baddianaah et al. (2023) declare that student's absenteeism increases due to insufficient WASH facilities, specifically among girls, because it results in affecting them in terms of challenges with comfort, privacy, and management of the menstrual cycle, as well as severe health risks. Research by Tegegne & Sisay (2014), as cited in Sharma et al. (2022b), states that over fifty percent of the girls skipped school when they were menstruating because there were inadequate facilities for sanitation and hygiene, which subsequently affected their academic performance.

Along with diseases associated with a lack of WASH services in school, the girls are also influenced by poor menstruation diseases in schools like hepatitis B, urinary tract infections, itching or rashes in the perineal region, bad odor, and so forth. According to Shayo et al. (2023), adolescence in a girl's life starts with the female reproductive cycle; even though the menstrual cycle is a natural change, it is associated with a number of habits and myths that could have a negative impact on a girl's health. It further states that the majority of women and girls have encountered challenges throughout their menstrual cycle, such as headaches, breast pain, joint pain, and stomach pain, and most importantly, they lack knowledge about periods; hence, hygiene is a vital component of a woman's health education throughout her menstrual cycle.

However, in addition to greatly reducing the risk of illness and infection, good hygiene also keeps unpleasant odors away and improves the self-esteem and general well-being of women (Sivakumar, 2016). Furthermore, it is necessary to practice good hygiene during your monthly period and change your sanitary pads every 3-4 hours to prevent infections, undesired odors, itching, and rashes (Thiyagarajan et al., 2019b). Accordingly, when students in schools are

equipped with necessary sanitary and hygiene products such as sanitary pads, napkins, soap or hand washing liquids, and, most importantly, water during their period, the chance of them getting sick or infected declines significantly.

## **2.6 Access to WASH Services in Afghan Higher Secondary Schools and its Impact on Female Students in Afghanistan**

Since the Taliban took over Afghanistan in 2021, they have removed women and girls from society by banning higher secondary girls from attending school and causing a sudden drop in education quality throughout Afghanistan (Gonnella-Platts, 2022). Prior to government collapse, students in numerous higher secondary schools remained without sufficient WASH facilities, regardless of measures undertaken to improve water quality, sanitation, and hygiene services, which greatly impacted girls' access to obtain education and maintain their health in Afghanistan. Particularly in public and rural schools where school administrators, teachers, and students are not knowledgeable, there is an acute shortage of programs to educate them about WASH and the consequences of not maintaining it.

According to Behsoodi et al. (2023), there is a constraint in the availability of WASH services in schools in Afghanistan, which leads to students being affected by diseases and infections. It further adds that maintaining clean and safe environments helps the students learn and enhance their knowledge, which depends critically on the sustainability of WASH facilities. Hence, the findings of a study in the province of Nangarhar's Jalalabad carried out at six schools illustrate that different schools' WASH facilities are not all equally available and differ based on various regions (Behsoodi et al., 2023b). According to a study conducted in Afghanistan, children's health is extremely influenced by the absence of equitable access to drinking water and toilets, and it has also been established that poor sanitation facilities and limited access to clean drinking water are strongly linked to diarrhea (Malik & Akhtar, 2020). Another study conducted in Afghanistan on the sanitation system in a chronic emergency by Uddin et al.

(2019) states that sanitary measures, in both the short and long term, are needed to reduce the risk of illness and death. It further adds that there has been a tendency throughout the 20 years to regain nutrients and/or resources to stop the sanitation system's cycle.

However, it has been demonstrated that better WASH services in Kenyan schools lower the number of absentee females (Garn et al., 2014). By providing better WASH facilities in schools, student's health and educational outcomes might improve, and they may face fewer challenges while attending school. UNICEF collaborated with the Ministry of Education to provide schools in Afghanistan with water, separate toilets for boys and girls, menstrual hygiene management facilities, and basic hygiene facilities. UNICEF 2020 reports illustrate that more than 67% of Afghans now have clean drinking water from better drinking water sources that are kept safe from external contamination, a significant improvement from a decade ago when only 20% of people had access to it. Despite the fact that more than 80% of family members have toilet facilities or latrines, only around 43% are advanced and reliable, indicating they spotlessly distinguish human excreta from interaction with people.

## **2.7 Challenges to Facilitating the WASH Service in Afghanistan**

Despite the efforts made by different NGOs, INGOs, and schools, students still encounter challenges associated with WASH facilities in Afghanistan. Numerous organizations, including UNICEF, have initiated WASH facilities in schools in Afghanistan. They have equipped the schools with WASH awareness seminars, handwashing stations with soap and water, menstruation management, and diseases caused by inadequate WASH. The available WASH facilities at schools are not kept and utilized properly, which is why schools are lacking in WASH management. Mensah et al. (2022) argue that the main challenges associated with WASH services consist of a lack of budget, inadequate facilities, and an inefficient WASH board in schools, and these obstacles hamper water, sanitation, and hygiene initiatives. Another study by Bolatova et al. (2021) says that lack of gender-segregated restrooms, absence of soap,

locked toilets, irregular water access, poor water quality, and a shortage of drying products are the limitations in providing WASH services in schools.

Furthermore, unsatisfactory government funding support, infrastructure contrast between public and private schools, and the requirement for community involvement for long-term solutions are the fundamental obstacles to providing WASH services in schools (Wada et al., 2022), which also highlighted constant difficulties in reaching the aims of the Sustainable Development Goals.

The aforementioned limitations are considered the main challenges in Afghan schools.

Moreover, Afghan schools lack policy implementation and practices. For example, if relevant policies are designed by the Ministry of Education and Health to be executed in schools, they are not usually applied in schools due to teachers and other staff's lack of knowledge regarding WASH. Hence, WASH related policies are made and distributed among the schools, but they lack practice or are overshadowed by them.

In developing countries like Afghanistan, the fundamental obstacles to implementing and enhancing WASH are a lack of financial aid and government support, the necessity of social participation, the absence of separate toilets for girls and boys, a lack of soap, locked toilets, irregular water access, poor water quality, and poor menstrual management in schools.

## **2.8 Gaps and Scope of the Research**

Prior to the government collapse, the WASH services were improving and increasing in both public and private schools in Afghanistan. Several organizations were carrying out WASH awareness seminars in schools to boost the students as well as the teachers and other staff's knowledge. The literature above is to investigate the impact of a lack of wash facilities on girls' education and health in higher secondary schools in Afghanistan.

There has been very limited research conducted on WASH, which only includes assessments of the sustainability of WASH projects and sanitation and diarrheal morbidity but not on the

impacts of a lack of WASH facilities on girls education and health in Afghanistan. Therefore, this study would make it feasible to provide a suitable plan for embedding the WASH program within the country's educational policy and curriculum.

Furthermore, the current ban on girls' education beyond six grades in Afghanistan has tremendously changed everything overnight and forced all the girls to stay at home instead of being in class and pursue their dreams. However, this study explores the WASH facilities before the school's closure until 2021. According to Save the Children (2023), since the Taliban took power, over three million female students over six grades who had previously been enrolled in secondary school have been deprived of their right to an education.

There hasn't been any research carried out on the impact of WASH on female students education and health, and researchers haven't yet paid attention to the seriousness of the topic. Besides, this study will guide INGOs, schools, NGOs, policymakers, and other stakeholders to sustain WASH projects in schools and ensure safe water, adequate sanitation, and hygiene facilities are available, ultimately improving their health and academic performance. Studying this topic thoroughly is indeed required to promote WASH and help scholars utilize this research in the future. Thus, there is definitely a need to explore the impact of a lack of WASH facilities on girls' academic performance and health in higher secondary schools in Afghanistan to discover their perspectives and experiences with WASH.

### **Chapter 3: Materials and Methodology**

The study primarily focuses on exploring the impact of WASH facilities in girls higher secondary schools in Afghanistan. The research concentrated on collecting data from different provinces of Afghanistan to investigate the quality of WASH programs in schools. Furthermore, the main objective of this chapter is to illustrate the data collection procedure along with the data analysis methods used in the study. The data was collected in two forms; first, an online survey questionnaire using Google Forms to collect data on how the lack of

WASH facilities affects girl's education and health in higher secondary schools in Afghanistan before the girls school closure until August 2021. Second, a research assistant in Kabul Province, Afghanistan, visited a few schools and distributed the hard copies of questionnaires to collect data. This research goal was to collect data on WASH accessibility in schools, its impact on education, health, and girl's attendance, motivation, and academic development; diseases associated with a lack of WASH in schools; challenges to facilitating the WASH service in Afghanistan; and recommendations by students and teachers for further research along with their personal experience with WASH. SPSS version 23 was utilized for data analysis.

The methodology chapter offers a better comprehension of the research method applied to find answers to research questions and accomplish the study's primary purposes. This chapter provides information regarding the sampling methods, materials, research location, participants, data collection process, and data analysis software.

### **3.1 Research Location**

The research location is focused in Afghanistan, and data was collected from various provinces. The participants who responded were from Kabul, Ghazni, Bamyán, Daykundi, Kandahar, Samangan, Jowzjan, Mazari-e-Sharif, Ghor, Helmand, Herat, and Parwan provinces. The total number of schools in which students and teachers participated in this study is 49. The participants and schools were selected based on a convenience sampling method followed by a snowball or referral method to effectively collect data from participants from urban and rural regions of Afghanistan. Among all schools included in this study, the data was collected in person by a research assistant in Shahrak Omid-e-Girls High School, Shahrak Safa High School, Ummul Baneen High School, and Bibi Zainab Kubra High School, where the principals and head masters of the schools grant permission to teachers participation in this survey.



The data was gathered online through a Google Forms survey, and a research assistant in Kabul province visited a few schools to collect data by sharing the hard copy of the questionnaire with the participants since it was not possible to get access to data physically due to the researcher's limitation of living in Bangladesh, and participants were from different parts of Afghanistan.

### **3.2 Participants**

This study consists of participants from grades 9 to 12 graduates as well as undergraduate students who have experienced WASH in their schools while attending in previous years. Some of these participants haven't yet completed their schooling due to girls bans from attending schools in Afghanistan, and others were promoted from one grade to another before the Taliban took over Afghanistan. The participants' ages range from 13 to 55 years old. This research's target population is 100; however, due to the current situation in Afghanistan and participants' willingness to provide data, the total sample size is 97 (82 students and 15 teachers). The author approached numerous students and teachers in schools to request their participation in this study. The participants and school selection were based on a convenience sampling method followed by a snowball method, where the sample was taken based on convenience, networking, and referral through the researcher's social connections (Edgar & Manz, 2017; Parker. et al., 2019). The aim of the study was to effectively collect data from participants from urban and rural regions of Afghanistan.

The participants were recruited through convenience, a snowball sampling, and from different grades to make sure the sample was representative. This is due to the non-availability of female students in schools since all the secondary schools are closed to girls, but the schools remain open to students in grades 1-6. Thus, the sampling methods were selected based on the accessibility of the participants. Also, the participants who fulfilled the study requirement were invited through recommendation to take part. The participants included both students and

teachers who attended the schools until 2021 before school closure, and the teachers are still on duty in schools but in lower grades since students at higher levels are denied rights to education.

To conduct this study, the researcher reached out to the Afghan community at Asian University for Women (AUW), where almost 500 Afghan students are enrolled in pre-undergraduate and undergraduate programs. In addition, the author has contacted the Roshini-e-Omid Afghan online learning program coordinator to request the student's participation for Afghan girls in Kandahar, where Afghan curriculum and subjects are taught to girls virtually. Besides that, the researcher has studied a lot about different schools in Afghanistan to prepare for the data collection process. Ultimately, the author has requested that the friends and the aforementioned communities share the survey link with schools and their networks who are suitable for the study.

The participants and schools were given their consent and were promised the utmost confidentiality. However, the school staff has granted permission to release the names of schools, and the details about the participants will be kept confidential and anonymous. The schools in which the participants were studying or teaching are listed in the table below;

Sr.No	Name of School	Students	Teachers
1	Shahrak Omid-e-Sabz Girls high school	7	5
2	Bibi Zainab-e-Kobra high school	9	3
3	Mohammad Asif Mail high school	6	
4	Shahrak Safa high school	2	2
5	Ummul baneen Girls high school,	1	1

6	Afkar high school	1	
7	Almahdi high school	1	
8	Ariana high school,	1	
9	Chehel Dokhtaran high school	1	
10	Ganda Nayak high school	1	
11	Hotqoul Angori high school	2	
12	Malalai high school	4	
13	Koshan high school	3	
14	Nahid Shaheed high school,	1	
15	Marefat high school	3	
16	Behzad private school	1	
17	Nisvan Jebrail high school	1	
18	Shahid Mazari high school	1	
19	Sar Walang girls high school	1	
20	Sayedulshuhada high school	2	
21	Shahid Abdul Ahad Khan Karzai high school	1	
22	Sorkhdar Girls high school	1	

23	Sofia Ama Jana high school	1	
24	Sorya high school	2	
25	Tasaoud private high school	2	1
26	Twelve Imam high school	1	
27	Mirwais Mina girls high school,	3	
28	Basirat high school	1	
29	Setaragan-e-Tamadon high school	1	
30	Afghan Turk high school	2	
31	Hurrah Jalali high school	1	
32	Sofi Sahib girls high school	2	
33	Ayno high school	1	
34	No. 2 Ayno high school	2	
35	Qala-e- Bakhtiyar high school	1	
36	Fazilat Wahab Afghan Turk Foundation high school	1	
37	Habibia high school,	1	
38	Sultan Razia Ghorri high school	1	
39	Rabia Balkhi high school	1	

40	Foladi high school	1	
41	Maedan Tor high school	1	
42	Bini Gaw girls high school	1	
43	Sar Asiyab Girls high school	1	
44	Bamyan Center girls high school	1	
45	Mahd-e- Erfan School	1	
46	Shadman Private School	1	
47	Warzakh high school		1
48	Qorona Uolia high school		1
49	Shahrak-e-Mohammadia high school		1

*Table 1 list of participant's schools*

### **3.3 Data Collection**

In this study, mixed methods (quantitative and qualitative) were used. A structured questionnaire was used to collect data from the participants, both students and teachers, from different schools in Afghanistan. For further studies, the primary and secondary sources were analyzed, and the results were examined accordingly to look at the issue thoroughly. The main data collection methods used in this study are questionnaires, which include multiple choice questions, Likert scales, and open-ended questions. Since the researcher is located in Bangladesh, it was not possible to gather data in person, so based on research, it was decided that the most appropriate method was to collect the data through an online survey and research assistant. Accordingly, Google Forms and hard copies of questionnaires were used to collect

data, and the data were originally designed in English, but to make the participants more comfortable responding, they were translated into Dari (Persian).

Moreover, the students and teachers questionnaires were separate, and the questions were customized based on the students and teachers experiences with WASH facilities. The survey for students for quantitative data had 30 Likert scales and multiple-choice questions, and the teacher's questionnaire consisted of 19 questions. In addition, the questionnaire for qualitative data for students had 8 open-ended questions and for teachers 9 questions. The questionnaire's objective was to determine the teacher's and student's perceptions, perspectives, and experiences while dealing with the lack of WASH facilities in schools and to have a glance at the student's insight's consistency. The questionnaire includes different aspects of WASH, such as accessibility of WASH facilities in schools, its impact on girl's academic performance, health, and attendance, motivation, and academic development; diseases caused by a lack of WASH in schools; challenges to facilitating the WASH service in Afghanistan; and recommendations by students and teachers for future research.

Prior to carrying out this research, a pilot data collection was conducted with a few participants to ensure that the question's context was designed to be harm-free and suitable for Afghanistan's traditional context. After the pilot study, the questionnaire was resolved and enhanced based on the respondents' answers. Henceforth, the survey was distributed among chosen communities remotely as well as in person, and participants from those groups then sent the survey to recommended participants based on referral. Moreover, to make sure that the sample is representative, participants from different provinces of Afghanistan responded to the shared questionnaire. Furthermore, the participants were assured that their responses would remain anonymous and confidential, and only coded responses would be used further.

The data collection procedure for this study is as follows;

1. The ethical form was submitted and approved by the Ethical Review Committee (ERC) with Research Protocol #S2024\_10 on September 16, 2023, by the university.
2. Several existing pieces of literature from different authors in different counties were reviewed and synthesized.
3. The online survey questionnaire was designed according to the study using Google Forms.
4. The questionnaire was distributed for pilot study.
5. The data was collected through online surveys and in person.
6. The data was verified and then analyzed by SPSS version 23.

The data collection procedure continued for two weeks, and the data was verified, then translated from Dari to English to prepare it for analysis. However, the data was not possible to gather earlier because all the schools in Afghanistan were closed due to winter holidays; hence, the researcher was not able to collect data from teachers. Besides, many teachers and students refused to respond to questionnaires due to a lack of knowledge about academic research and surveys, and some weren't available during that time.

### **3.4 Data Analysis**

A mixed research method was used to collect data, and for quantitative data analysis, Statistical Package for the Social Sciences (SPSS) version 23 was employed, and for qualitative data, a thematic analysis was implemented. Braun and Clarke (2006) argue that the thematic analysis method is used to examine and interpret qualitative data that is patterned and structured in various datasets. Based on Braun and Clarke (2006) research, thematic analysis follows a six-step process to analyze the data. This study also follows their thematic analysis procedures to

explore and interpret the qualitative data. The thematic analysis process suggested by them is as follows;

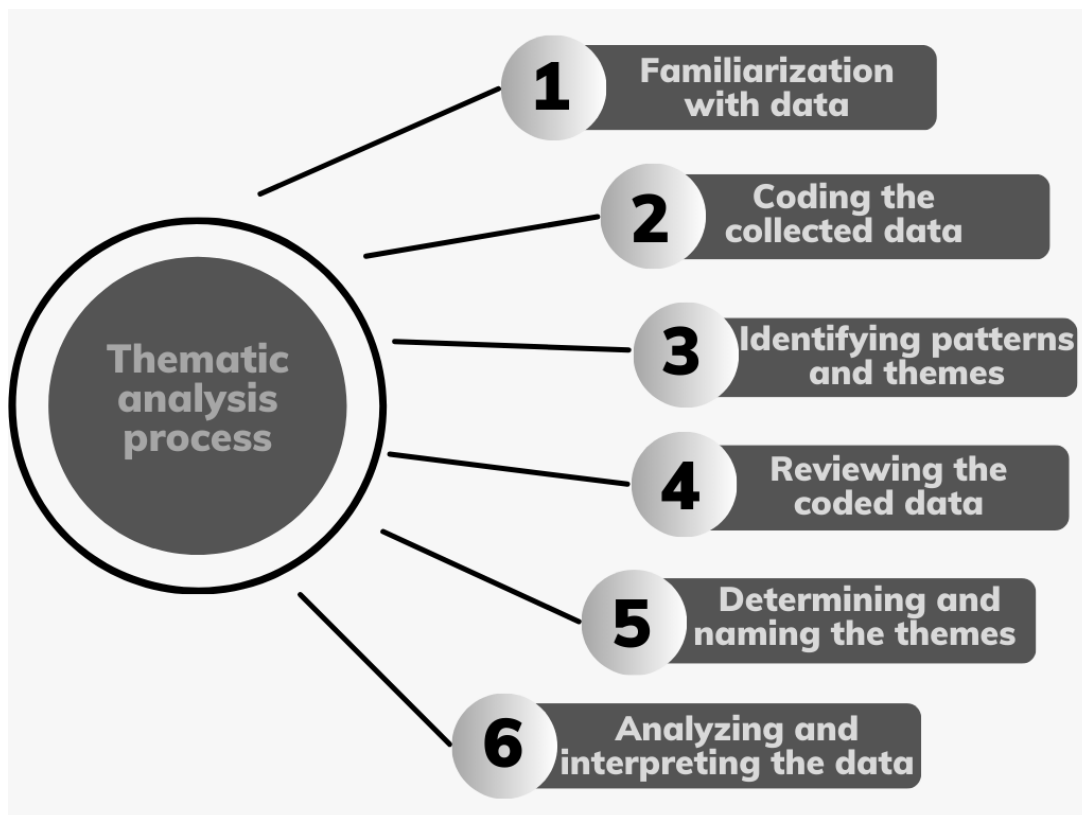


Figure 1 Thematic analysis process

## Chapter 4: Results and Discussion

This chapter includes both the findings and discussion of the study to provide a thorough and multifaceted analysis of the collected data since a mix of quantitative and qualitative research is used to answer the research questions. The purpose of this is to deliver a comprehensive, enriched, and nuanced interpretation and increase the validity of the research findings of the study by synthesizing diverse insights, evidence, and perceptions.

This chapter has been divided into three sections: 1) the relationship between girls' academic achievement (e.g., GPA, motivation, attendance, and dropouts) and the availability of wash facilities; 2) the impact of inadequate wash facilities on girls health (e.g., infections, diarrhea,



and menstruation related illnesses); and 3) the perceptions and views of students and teachers towards the challenges and approaches to mitigating WASH impact. The research questions are answered and analyzed separately in each section. Furthermore, each section presents first the interpretation of the quantitative analysis of the data, followed by the qualitative data to support it further. Hence, to propose concrete answers to the research questions, both quantitative and qualitative data were interpreted comprehensively to relate the differences and similarities in the analysis, as well as to present a more refined and in depth discussion of the findings for this study.

#### **4.1 Impact of WASH Facilities Absence on the Girls' Academic Progression**

This part highlights the first research question's answer in the research; What is the relationship between girls' academic achievement (e.g., GPA, attendance, or dropouts from schools) in higher secondary schools in Afghanistan and the lack of wash facilities? The results considerably illustrated that WASH significantly affects student progression, including poor attendance, a better GPA in recent years, and the fact that a lack of WASH increases dropout rates among female students in Afghanistan. Particularly when students' needs were not met at school, they either hesitated to go to school or changed schools to ones with a better learning environment and adequate WASH resources. This study has enhanced the participants' view and perspective towards having a better learning space with sufficient resources in terms of safe drinking water, sanitation, and hygiene services in schools for the future. The participants showed their interest in responding to the lack of WASH facilities impact on students' attendance, GPA, and dropout rates in school.

In the following section, quantitative findings unfold the impact of inadequate WASH on student attendance, GPA, and dropout rates in girls secondary schools, followed by qualitative analysis and interpretation to explore the main themes thoroughly in the study. According to

Sustainable Development Goal 4 (Education), Goal 6, clean water and sanitation play a vital role in girls accessing their basic rights, which include obtaining education with safe and clean water, basic sanitation needs, and hygiene services. It not only helps students maintain their wellbeing but also makes it easier for them to study, be motivated, and attend their classes regularly without missing classes or dropping out of school due to a lack of WASH facilities. Despite the challenges and difficulties faced by participants while attending school, they still managed to attend school with good attendance, a good GPA, and lower dropout rates in schools in Afghanistan. WASH service is a key component of each student's daily life; to have better functionality, they must acquire sufficient knowledge and awareness regarding how to deal with the consequences of WASH absence and use the opportunities in the most appropriate way.

#### **4.1.1 Impact of Lack of WASH Facilities on Girls Attendance**

There have been several studies conducted on the impact of a lack of WASH facilities on girls' attendance and how it causes poor attendance in schools, based on the literature reviewed in the previous section. The results show that the lack of WASH facilities significantly affects the student's attendance. The statistical analysis reveals that 34.1% of the students implied that they missed their classes specifically due to a lack of clean and safe water, sanitation, or hygiene facilities. 40.2% of the students didn't miss their classes, particularly due to inadequate WASH facilities. While 22% of the students were uncertain about whether they had adequate water, sanitation, and hygiene facilities in their schools or not. Hence, the majority of the students said that the lack of WASH facilities didn't affect their attendance at school or were uncertain whether WASH absence facilities impacted their attendance or not. However, despite the challenges, the female students managed to go to school and study.

**respondents missing classes specifically due to the lack of clean water, sanitation, or hygiene facilities**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	28	34.1	34.1	34.1
no	36	43.9	43.9	78.0
maybe	18	22.0	22.0	100.0
Total	82	100.0	100.0	

*Table 2 Frequency and percentage of students missing classes due to lack of WASH*

The following table shows that 57.3% of students missed attending school for 0 days in a month due to a lack of clean water and sanitation facilities in school. Whereas, 25.6% of the students implied that they have missed attending school for 1-2 days in a month due to the unavailability of clean water and sanitation facilities in school. 9.8% of the students said that they have missed attending their classes for 3-5 days due to a lack of water and sanitation in school. However, only 7.3% noted that they have missed their classes more than 5 days monthly because of the unavailability of clean and safe water in school. Thus, the result shows that the majority of students certainly didn't miss their classes monthly in school due to a lack of clean water and sanitation facilities.

**respondents responses about missing attending school in a month due to the unavailability of clean water or sanitation facilities**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0 days	47	57.3	57.3	57.3
1-2 days	21	25.6	25.6	82.9
3-5 days	8	9.8	9.8	92.7
more than 5 days	6	7.3	7.3	100.0
Total	82	100.0	100.0	

*Table 3 Represents the frequency and percentage of students missing school monthly due to unavailability of WASH*

**respondents responses about missing attending school in a month due to the unavailability of clean water or sanitation facilities**

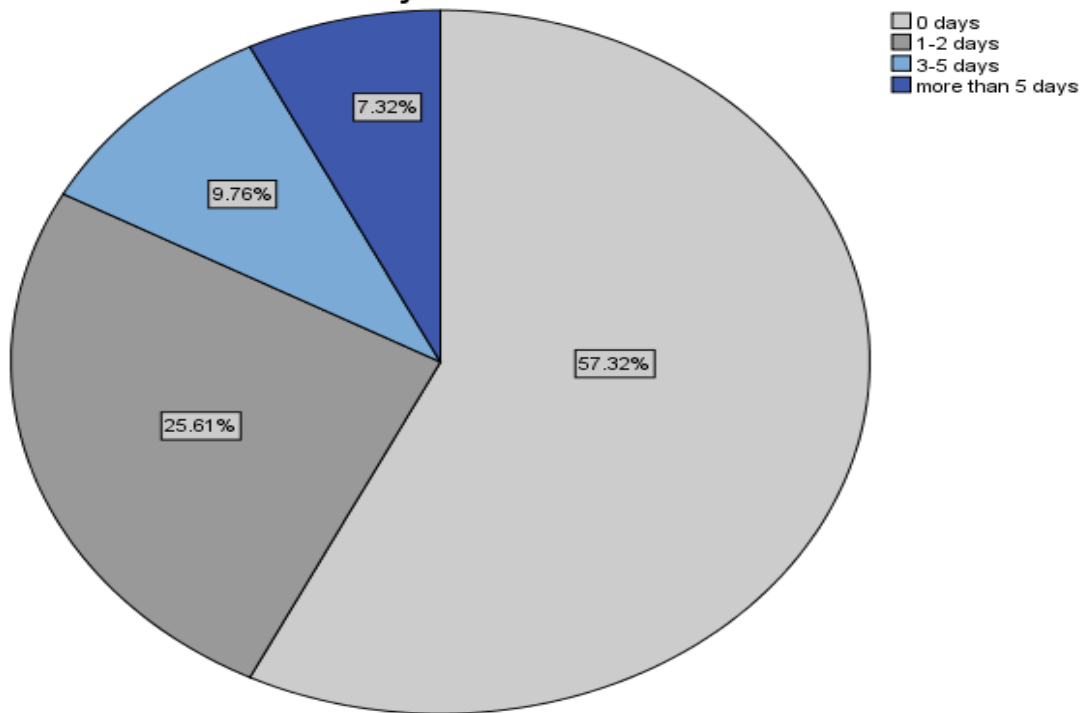


Figure 2 Frequency and percentage of students missing school monthly due to unavailability of WASH

**respondents accessibility to clean drinking water at school \* responses of respondents about separate toilet for girl Crosstabulation**

Count		responses of respondents about separate toilet for girl			Total
		yes	no	few toilets were available	
respondents accessibility to clean drinking water at school	yes	22	19	6	47
	no	7	2	9	18
	maybe	7	5	5	17
Total		36	26	20	82

Table 4 Crosstabulation of students accessibility to clean drinking water at schools and separate toilets for girls

The chi-square test reveals that students' accessibility to clean drinking water at schools has an association with girls having access to gender-segregated toilets at school. The Pearson chi-square is 11.405, with a p-value of 0.022. This leads to the rejection of the null hypothesis  $H_0$  and acceptance of the alternative hypothesis, which means that there is a significant association between students' accessibility to clean drinking water at schools and girls having access to

gender-segregated toilets at school. Thus, it illustrates that female students do prefer gender-segregated toilets at their schools to have a better learning outcome and better attendance.

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.405 <sup>a</sup>	4	.022
Likelihood Ratio	11.534	4	.021
Linear-by-Linear Association	1.917	1	.166
N of Valid Cases	82		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 4.15.

*Table 5 Chi-square test results*

The students stated that when separate toilets and clean drinking water are available for them in their schools, they tend to attend more classes because they can drink more water to stay hydrated. It helps them to enhance their attendance with any concerns about having no toilets or safe and clean drinking water. Hence, students' attendance is definitely affected by the lack of WASH facilities in schools

### **4.1.2 Impact of Lack of WASH on Girls Academic Performance**

The academic performance of female students is certainly affected by a lack of WASH facilities, which might lead to poor academic performance and low motivation and encouragement for the girls to focus on their educational progression.

Table 6 illustrates that out of 82 female students, 40.2% (33 female students) spend 6-10 hours per week to study and complete their homework assigned by their teachers, and 30.5% (25 female students) spend more than 10 hours per week to study and do their homework assigned in school. While 20.7% (17 female students) allocate 3-5 hours per week to complete their

homework, 8.5% (7 female students) dedicate only 1-2 hours per week to learn their lessons and do homework.

**respondents spend time studying/doing homework weekly**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-2 hours/week	7	8.5	8.5	8.5
3-5 hours/week	17	20.7	20.7	29.3
6-10 hours/week	33	40.2	40.2	69.5
more than 10 hours/week	25	30.5	30.5	100.0
Total	82	100.0	100.0	

*Table 6 The time female students spent studying or completing homework weekly*

According to Table 7, 23 female students out of 82 stated that their GPA was very good in their last year of attending school. 21 female students declared that they were very good in their last year of school, and overall, 61 female students said that they had a good GPA in their last year of school. While 17 female students had a good GPA, 11 female students had a fair GPA rate, and only 10 students had poor academic performance or a very low GPA. Before the school's closure in Afghanistan, the WASH facilities were improving day by day, so the participants' GPAs also increased in their last year of attending school, and most of the female students surveyed attended this school in recent years.

**respondents (GPA) rate over the last year of attending school**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid poor	10	12.2	12.2	12.2
fair	11	13.4	13.4	25.6
good	17	20.7	20.7	46.3
very good	23	28.0	28.0	74.4
excellent	21	25.6	25.6	100.0
Total	82	100.0	100.0	

*Table 7 Frequency of student's GPA rate*

**Crosstab**

Count		respondents accessibility to clean drinking water at school			Total
		yes	no	maybe	
respondents (GPA) rate over the last year of attending school	poor	5	3	2	10
	fair	6	3	2	11
	good	9	5	3	17
	very good	14	3	6	23
	excellent	13	4	4	21
Total		47	18	17	82

Table 8 Crosstabulation of participants GPA rate and accessibility to clean water at school.

**respondents responses about wash and menstruation management and awareness impact on students GPA, attendance, and dropout**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no affect	12	14.6	14.6	14.6
	minor affect	19	23.2	23.2	37.8
	netural	11	13.4	13.4	51.2
	moderate affect	31	37.8	37.8	89.0
	major affect	9	11.0	11.0	100.0
	Total	82	100.0	100.0	

Table 9 WASH and menstruation management and awareness impact on student's GPA, attendance and dropout

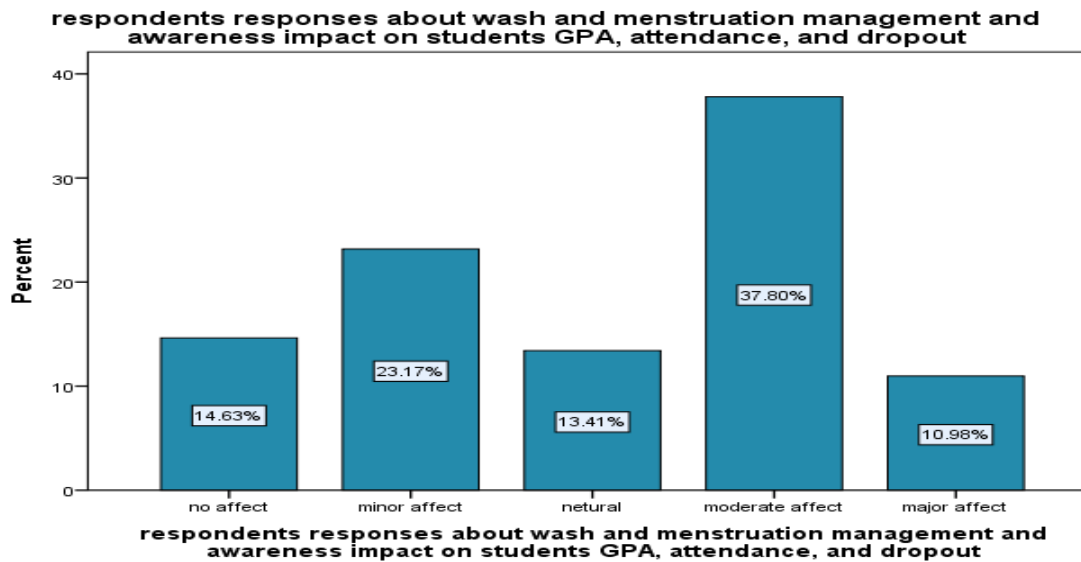


Figure 3 Wash and menstruation management and awareness impact on student's GPA, attendance and dropout

Based on table 9, out of 82 female students, 31 female students said that WASH and menstruation management awareness impacted their GPA moderately, attendance, and dropout

rate from school. 19 students agreed that it has a minor effect on their academic progression; 12 students declared that it has no effect on their GPA, attendance, or dropout rate; and 11 female students mentioned that WASH and menstruation management have a neutral effect on their academic development. Finally, nine female students said that it had a major impact on their academic development. However, it concluded that the majority of female students agreed that WASH and menstruation awareness definitely have an impact on their GPA, attendance, and dropout rate from school.

**respondents responses about affect of clean water and sanitation facilities on their concentration in class**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid not at all	20	24.4	24.4	24.4
no	14	17.1	17.1	41.5
unsure	21	25.6	25.6	67.1
very	13	15.9	15.9	82.9
extremely	14	17.1	17.1	100.0
Total	82	100.0	100.0	

*Table 10 Effect of clean water and sanitation on students concentration in the class*

Furthermore, concentration in class plays a key role in shaping and improving the academic performance of female students. In table 10, it shows that 25.6 (21) female students are uncertain about whether clean water and sanitation facilities affect their concentration in the class or not. However, 24.4% (20) of students declared that the cleanliness of the water and sanitation service does not affect their concentration in the class. In addition, 17.1% (14) of the students stated that it extremely affects their concentration in the class, and 17.1% (14) of the students mentioned it has no affect on their concentration in the class. Finally, 15.9% (13) of the students stated that it affects their concentration in the class a lot. Since concentration and academic performance have a direct connection, hence, 33 % declared that it affected their concentration in the class.



The sections below illustrate findings from both perspectives based on a thematic analysis, which is already explained in the methodology chapter..

### **4.1.3 Impact of Wash Facilities on Dropout rate of Girls from School**

Dropout rates in schools increase when schools don't provide basic and adequate facilities, and WASH service can be one of the fundamental needs of every girl in school. The participants declared that the day they have water or the toilets are clean , their concerns are lessened than on days when there is no water, toilets, or any other facilities. Participants gave various reasons behind students dropping out of school, of which inadequate WASH facilities are one of the most crucial parts of female students' worries in schools.

One of the students asserted:

“Not fully dropout, but some students couldn't come to school on the first days of their periods. Though my school was only for girls, there wasn't proper hygiene or facilities provided for girls' menstruation.”

Another student said:

“Unfortunately, yes. Because they left our school to change to a better school that has more opportunities for the wash system.”

Several participants noted that the presence of WASH in their school plays an important role in their attending school or feeling motivated to study and concentrate in the class. They considered that inadequate WASH can result in students dropping out of school, which is the main reason for some of them to change or transfer from one school to another to have access to better and improved water quality, sanitation needs, and hygiene services.

Surprisingly, some students declared that the school staff locks the toilets because those toilets are either for teachers or because the school itself doesn't have cleaner staff to maintain and

clean them regularly. For that reason, they lock the toilets so that the students can not use them or mess them up after use.

A student commented that:

“Yes, because there was not enough staff to clean the toilets and washrooms.”

While another student commented that:

“They never locked a toilet in school, but there was one toilet that school cleaners were cleaning daily, and that was only for teachers' use.”

Therefore, the presence of WASH significantly affects students either staying at school or dropping out of school to have better water quality, sanitation, and hygiene services. The majority of students shared their concerns about cleanliness, handwashing products, and running water in toilets in schools. These are the basic needs of students who spend several hours in school. To stay hydrated and avoid unnecessary absenteeism, they must have those needs met in school.

#### **4.1.4 Section Conclusion**

The findings of this section illustrate that female students' academic progression (attendance, GPA, and dropout rate ) was certainly affected by the lack of WASH facilities in schools. The statistical analysis reveals that 34.1% of the students implied that they missed their classes specifically due to a lack of clean and safe water, sanitation, or hygiene facilities. The results imply that the female students with, to some extent, or no facilities missed their classes more than students who had better WASH facilities in their schools. Hence, WASH negatively impacts students' education progression in schools.

Furthermore, the chi-square test result reveals that students' accessibility to clean drinking water at schools has an association with girls having access to gender-segregated toilets at school. The participants shared their concerns about not having separate toilets in schools. For example, in some schools, if girls have classes in morning shifts, the boys will have classes in

afternoon shifts, and they use the same toilets. When girls come to school the next day, the toilets are not cleaned yet, and there is no dustbin for sanitary pad disposal, or if there is, it is not emptied regularly. Hence, girls hesitate to attend their classes regularly, particularly during their periods.

The recent generations who graduated or attended school before school closures acknowledge that schools were improving their WASH facilities day by day. The result shows that 23 female students out of 82 stated that their GPA was very good in their last year of attending school. 21 female students declared that they were very good in their last year of school, and overall, 44 female students said that they had a very good GPA in their last year of school. Overall, 40% of female students agreed that WASH and menstruation awareness definitely have an impact on their GPA, attendance, and dropout rate from school.

Overall, the findings of this section illustrate that inadequate WASH facilities certainly affected female students attendance, GPA, and dropout rate in schools. An increase in WASH facilities in schools decreases students' concerns regarding having access to good quality drinking water, sanitation, and hygiene practices, which eventually leads to better attendance, a higher GPA, and lower dropout rates in girls schools. However, to facilitate higher-quality education, student's necessities, such as proper sanitation and hygiene and safe and clean drinking water, should be addressed and improved.

## **4.2 The Impact of Inadequate WASH Facilities on Girls Health**

This part of the research discusses, analyzes, and interprets the finding for the second research question: How do inadequate wash facilities impact the number of health issues (e.g., infections, diarrhea, and menstruation-related illnesses) among girls in higher secondary schools in Afghanistan? The results will elaborate on the main themes of the research questions: that a lack of WASH facilities in schools immensely impacts students' well-being

and causes them various health issues such as diarrhea, infections, and menstrual diseases. The findings illustrate that female students experienced different illnesses due to consuming unfiltered and clean water and the non-availability of sanitation products and hygiene materials in school. The results also demonstrate that schools with proper sanitation, safe drinking water, and hygiene materials are likely to have better student wellbeing and face fewer diseases.

#### **4.2.1 Girls Affected by Hygiene related illnesses**

Inadequate hygiene facilities tremendously affect the health of female students. If these basic needs are accessible in school, more girls tend to attend their classes, and ultimately the rate of attendance, students academic performance, and dropout rates would decrease significantly. Menstruation diseases in schools like hepatitis B, urinary tract infections, itching or rashes in the perineal region, bad odor, and so forth are caused by a lack of proper sanitation and hygiene, toilets without running water, napkins, and other related facilities. Hence, the majority of infectious illness transmission occurs in schools due to improper water, sanitation, and hygiene (World Bank, 2018). Female students are greatly affected by those illnesses in schools, which leads them to miss more classes and lose interest in studying anymore.

In Table 11, the results display the findings for the survey question, “I always wash my hands after handling garbage, visiting the toilet, playing with friends, and before and after eating with soap.” 56.1% (46 female students) strongly agreed that they always wash their hands after certain activities with water, but with or without soap. 25.6% (21) of female students agreed that they also wash their hands with handwashing facilities they have access to, and 8.5% (7) of female student’s responses are either neutral or disagree with the statement, which means that they didn't have access to handwashing facilities such as water or soap. While only 1.2% (1) participated strongly disagreed with the statement, which implies that the participants didn't have access to any kind of handwashing facilities in her school, overall 8 female students

disagreed that neither water nor soap were available in her school to wash their hands after those certain activities.

**respondents reasons to always wash hands after handling garbage, visiting toilet, playing with friends, before and after eating with soap.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid strongly agree	46	56.1	56.1	56.1
agree	21	25.6	25.6	81.7
netural	7	8.5	8.5	90.2
disagree	7	8.5	8.5	98.8
strongly disagree	1	1.2	1.2	100.0
Total	82	100.0	100.0	

*Table 11 Represents the frequency of female students handwashing*

As presented in Figure 12, 30 female students indicated that they rarely experienced health problems due to a lack of WASH facilities in school, and 26 of them stated that they have faced health problems sometimes. Meanwhile, 15 female students said they often encountered health issues due to a lack of WASH facilities and knowledge in schools, and only 11 students said they always faced one or more kinds of health problems while attending school due to insufficient WASH practices. Thus, over 50% of female students faced health problems in schools due to inadequate WASH.

**respondents experience health problems while attending school due to a lack of WASH facilities and awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid always	11	13.4	13.4	13.4
often	15	18.3	18.3	31.7
sometimes	26	31.7	31.7	63.4
rarely	30	36.6	36.6	100.0
Total	82	100.0	100.0	

*Table 12 Experience health problems while attending school due to lack of WASH*

**respondents experience health problems while attending school due to a lack of WASH facilities and awareness**

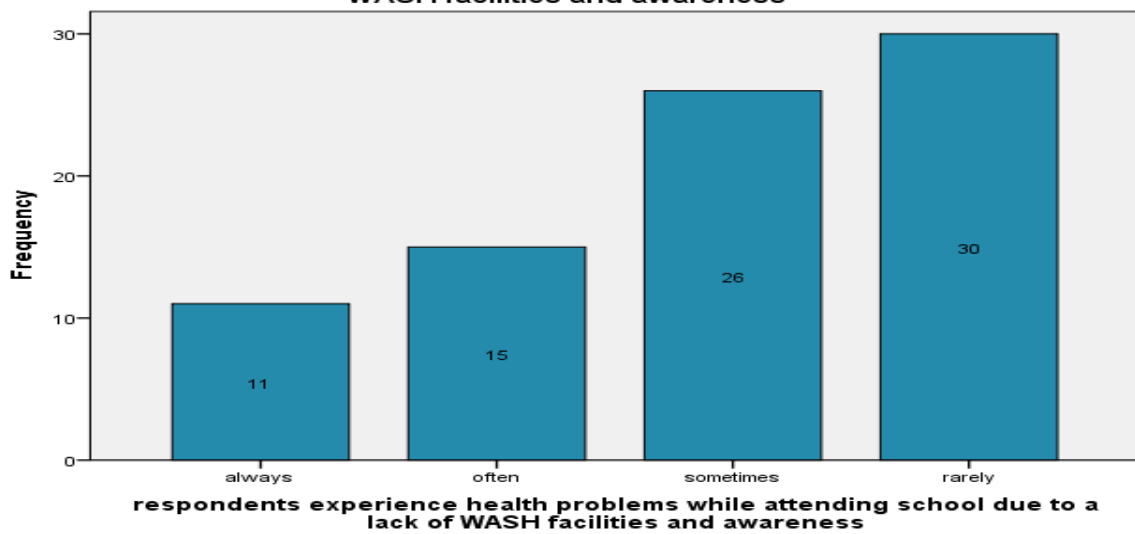


Figure 4 Experience health problems while attending school due to lack of WASH

**respondents noticed students experiencing health problems while attending school due to a lack of WASH facilities and awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid always	5	33.3	33.3	33.3
sometimes	7	46.7	46.7	80.0
often	2	13.3	13.3	93.3
rarely	1	6.7	6.7	100.0
Total	15	100.0	100.0	

Table 13 Students experiencing health problems due to a lack of WASH in schools

Meanwhile, Table 13 illustrates the teacher responses regarding students experiencing health problems due to a lack of WASH in schools. It indicates that a large number of female students faced health problems in school due to insufficient WASH facilities and awareness. As a result, the teacher's responses also demonstrate that the majority of female students experienced health issues due to a lack of WASH services.

**respondents answers on health problems faced at school due to a lack of WASH facilities and awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid diarrhea	29	35.4	35.4	35.4
cholera	5	6.1	6.1	41.5
skin problem	16	19.5	19.5	61.0
infections	18	22.0	22.0	82.9
other	14	17.1	17.1	100.0
Total	82	100.0	100.0	

*Table 14 Health problems faced by students in schools*

According to table 14, 29 (35.4%) of female students experienced diarrhea, 18 (22%) were affected by infections, 16 (19.5%) faced skin problems, 14 (17.1%) experienced other WASH-related diseases, which were caused by the inaccessibility of WASH in schools, and finally, 5 (6.1%) of female students encountered cholera because of inadequate WASH facilities and awareness.

#### **4.2.2 Female Students Thoughts on How the Absence of WASH Facilities Affects their Overall Health and Well-being**

The statements of the female students indicate that a lack of WASH significantly affects their health in terms of different diseases and infections, such as diarrhea. skin problems, infections, and so forth. The fundamental themes and patterns regarding the participants' views on the absence of WASH services and their impact on female students' health are detailed below.

Numerous participants highlighted and shared their perspectives and experiences on how a lack of WASH can affect their health and how important WASH availability is in schools. Besides, female students can continue their education once the schools resume and provide basic and adequate drinking water, sanitation, and hygiene services to assist students in maintaining their well-being.

One of the female students stated that:

“I think its really important because if people don't have clean water, they may use dirty water for washing hands or cooking, so it's a cause of sickness like diarrhea. And if people don't have any toilet's, they are going to an open area, so that will be the reason for spreading disease.”

Another female student noted that:

“Since I was used to the lack of wash facilities, I usually brought my own water bottle and bought a box of wet tissue. However, I think having proper wash facilities will help students to present all day and be comfortable with having facilities.”

The majority of schools, particularly public schools, don't provide fundamental WASH services like clean and safe drinking water, hand washing facilities, and gender-segregated toilets for girls with running water for girls. The students felt obliged to carry their own bottled water, and the ones who couldn't bring their own bottle water had to skip drinking water, which caused many students to fall sick due to dehydration. It leads students to not be able to maintain sanitation and hygiene and eventually fall sick. To comprehend the significance of WASH thoroughly, female students must be trained and educated regarding the consequences of not managing their hygiene in school. WASH is critical for students' health and overall well-being and their presence helps them perform better in their daily lives, including in educational and health aspects.

A female student commented that:

“The absence of proper WASH (Water, Sanitation, and Hygiene) facilities can significantly impact overall health and well-being. Without access to clean water, sanitation, and hygiene resources, individuals are at higher risk of contracting waterborne diseases and infections and experiencing poor hygiene-related health



outcomes. Additionally, inadequate WASH facilities can lead to challenges in maintaining personal hygiene, impacting self-esteem and mental well-being. Overall, proper WASH facilities are essential for promoting good health, preventing disease transmission, and supporting overall well-being.”

The female students encountered many health issues in schools; several participants declared that a lack of WASH services immensely influenced not only their health but also their motivation to study and attend school. Hence, the existence of WASH services is essential for female students to maintain their health and address other issues associated with a lack of WASH in their schools.

A female student wrote that:

“The lack of clean water in school exactly affects students health and attendance, as we have a very primary toilet in our school that has no tap water for washing hands. Would you believe I had never used the school toilet during the six years that I was studying there? Our school is just for girls, but there are no facilities for our basic necessities.”

The students felt disappointed about not having access to proper toilet facilities in their schools. The majority of the students don't use toilets because they are not being cleaned or even don't exist in their schools. When schools are equipped with proper toilets, students drink more water and stay healthy. However, if the schools don't have toilets or are not kept clean, they don't drink water during the 4-6 hours they attend school, which evidently causes them to face health problems afterwards.

While another student stated:

“Obviously, the lack of wash facilities can negatively affect our lives in terms of getting sick, skin problems, and mental disorders that all lead to an unhealthy life and illnesses.”

Shockingly, some students stated that a lack of WASH facilities doesn't only harm their health but also their mental wellbeing. Students who don't have access to these facilities are likely to get distracted more in the class and lack concentration and motivation to study.

A student noted that:

“Unfortunately, due to a lack of clean water, we couldn't reach the water for drinking, which made it tough to stand a regular day at school since we couldn't stay hydrated. Which leads to a shortage of water in our bodies. Also, due to a lack of clean water and washrooms, I rarely couldn't use the bathroom, which also caused some kidney problems.”

Insufficient water, sanitation, and hygiene services distress their bodies due to a lack of water. Unexpectedly, a few students also shared their experiences with kidney problems, which also demonstrates that diarrhea, infection, and menstrual diseases weren't the only health issues faced by female students; there were also different types of health problems, like kidney problems.

A teacher stated that:

“Most of the students faced digestive problems, and infectious diseases such as diarrhea.”

While another teacher wrote that:

“The most common health issues faced by girls in our school are uterine, kidney, and bladder infections, which female students usually complain about. Also, once in a while, students are water poisoned.

Numerous schools in Afghanistan use their drinking water by using school tap water, which is assured whether it is filtered water or even the Ministry of Health checks it before the students start using it. Students in some schools are water poisoned, which is mainly due to the uncleanness of water tanks on a regular basis. A total of 29 (35.4%) out of 82 female students experienced diarrhea while attending school because of inadequate WASH facilities or non-availability of basic sanitation and hygiene in schools. The teachers stated that the common health problems that students experience in school are menstruation diseases, colds and diarrhea, digestive problems, and stomach problems. The Ministry of Education and Health needs to focus more on improving the quality of drinking water, sanitation, and hygiene to abstain from any health issues among girls in school.

### **4.2.3 Section Conclusion**

The results illustrate that a lack of clean drinking water, sanitation, and hygiene services affects female students with a variety of health issues, such as menstruation diseases, colds, diarrhea, digestive problems, stomach problems, kidney problems, and different kinds of infections.

The findings show that 56.1% (46 female students) strongly agreed that they always wash their hands after certain activities with water, but with or without soap. 25.6% (21) of female students agreed that they also wash their hands with handwashing facilities they have access to, and 8.5% (7) of female student's responses are either neutral or disagree with the statement, which means that they didn't have access to handwashing facilities such as water or soap. While

only 1.2% (1) participants strongly disagreed with the statement, which implies that the participants didn't have access to any kind of handwashing facilities in her school, overall 8 female students disagreed that neither water nor soap were available in her school to wash their hands after those certain activities.

26 of them stated that they have faced health problems sometimes. Meanwhile, 15 female students said they often encountered health issues due to a lack of WASH facilities and knowledge in schools, and only 11 students said they always faced one or more kinds of health problems while attending school due to insufficient WASH practices. Thus, over 50% of female students faced health problems in schools due to inadequate WASH. While 29 (35.4%) of female students experienced diarrhea, 18 (22%) were affected by infections, 16 (19.5%) faced skin problems, 14 (17.1%) experienced other WASH-related diseases, which were caused by the inaccessibility of WASH in schools, and finally, 5 (6.1%) of female students encountered cholera because of inadequate WASH facilities and awareness.

The total number of participants is 97 (82 students, 15 teachers), of whom the majority shared their concerns about inadequate WASH and how it threatened their health with different diseases caused by it. As a result, it forces the female students to not carry their own bottles of water, not use toilets frequently, and miss their classes during their period due to the non-availability of clean drinking water, sanitation, and hygiene equipment in schools. The teacher also further stated that health problems that students experience in school are menstruation diseases, colds and diarrhea, digestive problems, and stomach problems.

### **4.3 The Perceptions and Views of Students and Teachers Towards the Challenges and Approaches to Mitigating WASH Impact in Afghan Schools**

This section addresses the third research question: how do students and teachers perceive and view the lack of WASH facilities and its challenges and approaches to mitigating WASH impact in higher secondary schools in Afghanistan? There are several challenges to facilitating the WASH service in Afghan schools. The results reveal that the components that play a substantial role in maintaining and practicing WASH, including safe drinking water, sanitation, hygiene management, and accessible resources, are supported as the most appropriate practices by both female students and teachers in schools.

#### **4.3.1 The Students and Teachers Perceptions Towards Challenges Faced by Girls in Higher Secondary Schools**

To investigate the major challenges faced by female students in higher secondary schools in Afghanistan, they were asked to share their perspectives on challenges faced by them due to a lack of WASH facilities. The majority of the participants, both students and teachers, declared that female students faced numerous obstacles while in school due to insufficient WASH services.

A student noted that:

“Yeah. We have never been provided with sanitary napkins, which was a big hindrance whenever we would get our period. We had to leave the classes and go back to our homes.”

While another student commented that:

“ There was no clean toilet and no safe door, so we couldn’t feel better when we went to the toilet at school.”

Despite the facilities provided by different NGOs, INGOs, and schools, students still face challenges associated with WASH facilities in Afghanistan. Numerous organizations, including UNICEF, have initiated WASH programs in schools in Afghanistan. They have equipped the schools with WASH awareness seminars, handwashing stations with soap and water, and menstruation management. Nevertheless, students still encounter various difficulties in schools because, when the schools are equipped with those facilities, female students are encouraged to attend their classes, but once the services are finished or terminated, all the obstacles come to the students again. Hence, certain schools were not able to provide students with toilet paper, sanitary napkins, hand washing soap, and other materials. In addition, these schools are mainly public schools, and there aren't many sponsors or donors who could assist schools in supplying students with basic WASH needs. While some other schools don't have appropriate infrastructure and buildings, it makes it more challenging for students to deal with the non-availability of toilets, water, and sanitation facilities.

A student stated that:

“In our school, there was not any clean water or toilets. The water tap was next to the toilets, and it was so dirty. So because of that, I always took a bottle of water from my home.”

The challenges faced by female students were significant in schools, however, it decreased slightly in recent years.

“Yes, because the school bathroom was not clean, I didn't use the school bathroom as much as possible. And once I got home and went to the bathroom, the area below my belly button hurt a lot.”

The deficiency in bathrooms and toilets in public schools was comparatively greater than in private schools. The public schools don't have financial support from the government. They also don't pay attention to the facilities schools provide for students. However, this research doesn't only focus on the public schools but generally, considering the situation in Afghanistan. Furthermore, the teachers also discussed the challenges faced by students in schools. They said the most common obstacles are not knowing about menstruation, a lack of soap and toilets, a deficiency in environmental health and hygiene, and a lack of awareness and knowledge about maintaining health and taking care of it.

### **4.3.2 Recommendations to Improve the WASH Facilities in Schools for Student's Better Academic and Health Development**

Most of the teachers suggested solutions to improve the drinking water facilities in girls schools to enhance their academic performance and health.

A teacher declared that:

“The girls should be provided with proper toilets, a place to wash their hands, and a peaceful place to rest for girls who are getting their periods at school.”

Another teacher stated that.

”Educating girls about how to maintain their health and maintain sanitation is also essential for girls.”

While a few teachers shared their views on how to improve the WASH facilities to obtain better educational and health outcomes. The majority suggested that providing social services like seminars or workshops, proper drinking water, activating health centers in schools, and

educating girls on how to control the consequences of it are the most appropriate measures to improve female students education and health.

A student suggested that:

“The government should take the required steps and pay attention, especially in public schools. The effects of lack of knowledge and awareness is much more dangerous than lack of facilities. Parents and school teachers should consider it.”

Another wrote that:

“To mitigate the impact of the lack of WASH services in schools, prioritize infrastructure improvements, provide education on hygiene practices, and involve stakeholders in sustainable solutions.”

The government doesn't focus on public schools, and to resolve the issue, they must follow up with schools closely. The reason for their not paying attention can be inadequate financial support and aid for schools. The governments need to seek help from NGOs and INGOs to equip schools with basic WASH facilities such as toilets, hand washing facilities, potable water, sanitation, and hygiene services to boost students motivation, concentration, and overall academic performance and health.

A student noted that:

“Washing facilities were not only a problem; we had not even clean water for drinking. My mother was always telling me, Don't use the school tap water for drinking; take water from home to school for yourself.”



Whereas, a number of participants suggested that to upgrade the WASH system in schools, the government must provide monthly visits and services for the schools, invest in infrastructure, educate on hygiene, engage communities, support policies, and monitor progress to mitigate the impact of the lack of WASH services in schools in Afghanistan.

Many teachers mentioned that a lack of WASH can impact students' health and cause them diarrhea and cholera, as well as transferring viral diseases to their family members. Moreover, the teacher responses illustrate that there were no policies regarding maintaining WASH facilities, and schools should consider the needs of both girls and boys without discrimination. They have not noticed any policy implementation regarding quality water, sanitation, and hygiene services in school.

### **4.3.3 Section Conclusion**

The results in this section imply that there are several challenges and alternative solutions to improve and mitigate the WASH-related issues in higher secondary schools in Afghanistan. The challenges participants experienced in school were the nonavailability of sanitary pads, toilet papers, gender-segregated toilets, and not using toilets in school. Moreover, the teachers elaborated that the most common obstacles are not knowing about menstruation, a lack of soap and toilets, a deficiency in environmental health and hygiene, and a lack of awareness and knowledge about maintaining health and taking care of it.

Furthermore, the participants recommended that the government pay attention to and focus on infrastructure, providing social services like seminars or workshops, providing proper drinking water, activating health centers, and upgrading the WASH system in schools are some of the best solutions. Also, the government must provide monthly visits and services for the schools, invest in infrastructure, and monitor progress to mitigate the impact of the lack of WASH services in schools in Afghanistan. These suggestions are elements that might

positively impact water quality, accessibility to sanitation, and hygiene. The teachers also stated that the schools don't have any policies regarding maintaining WASH facilities, and schools should consider the needs of both girls and boys without discrimination. Also, they have not noticed any policy implementation regarding quality water, sanitation, and hygiene services in school.

Finally, access to proper sanitation, hygiene, and potable water are the fundamental rights of all the students in school and influence the girls daily lives remarkably. Despite all the challenges faced by girls in schools, the lack of WASH facilities can be mitigated by the recommendations made by the participants after examining, evaluating, and planning strategies to implement them in girls schools in the future in Afghanistan.

## **Chapter 5: Conclusion**

This research explored the impact of WASH facility absence on the girls' academic progression, such as attendance, academic performance, and dropout rates in higher secondary schools in Afghanistan. Furthermore, it also examined the impact of inadequate wash facilities on girls' health and the perceptions and views of students and teachers towards the challenges and approaches to mitigating the WASH impact in Afghan schools. The findings illustrate that WASH facilities have a great impact on girls, education, and health, as well as that the students experienced inadequate WASH facilities in almost all schools in Afghanistan.

The finding represents that the statistical analysis of the data reveals that 34.1% of the students implied that they missed their classes specifically due to a lack of clean and safe water, sanitation, or hygiene facilities. Besides, the chi-square test reveals that students' accessibility to clean drinking water at schools has an association with girls having access to gender-segregated toilets at school. The Pearson chi-square is 11.405, with a p-value of 0.022, which

means that there is a significant association between students' accessibility to clean drinking water at schools and girls having access to gender-segregated toilets at school.

Moreover, another finding shows that of the 82 female students, 40.2% (33 female students) spend 6-10 hours per week to study and complete their assigned homework by their teachers, and 30.5% (25 female students) spend more than 10 hours per week to study and work on their homework. While 20.7% (17 female students) allocate 3-5 hours per week to complete their homework, 8.5% (7 female students) dedicate only 1-2 hours per week to learn their lessons and do homework. Thus, 94% of female students dedicate more than 3 hours to studying and complete their assignments weekly. Consequently, overall, 61 female students said that they had a good GPA in their last year of school, which is because the WASH facilities were improving. As a result, participants' GPAs also increased in their last year of attending school. Participants stated that the dropout rate increases in schools when the school is not equipped with enough facilities for girls. As a result, some students drop out of school or transfer to a different school with better facilities. In addition, several participants noted that the presence of WASH in their school plays an important role in their attending school or feeling motivated to study and concentrate in the class. While some female students mentioned that the school staff locks the toilets because those toilets are either for teachers or aren't cleaned regularly. However, in order to ensure higher quality education with better academic achievement, it is necessary to look into and enhance student needs, such as adequate drinking water, sanitation, and hygiene.

Furthermore, inadequate water, sanitation, and hygiene facilities significantly impacted girls' health in schools, causing them to suffer from different types of diseases such as diarrhea, infections, cholera, and menstruation related illnesses. Besides, 56.1% (46 female students) strongly agreed that they always wash their hands after certain activities with water, but with or without soap. 25.6% (21) of female students agreed that they also wash their hands with

handwashing facilities they have access to, and 8.5% (7) of female student's responses are either neutral or disagree with the statement, which means that they didn't have access to handwashing facilities such as water or soap. While only 1.2% (1) participated strongly disagreed with the statement, which implies that the participants didn't have access to any kind of handwashing facilities in her school, overall 8 female students disagreed that neither water nor soap were available in her school to wash their hands after those certain activities.

Based on the findings, over 50% of female students faced health problems in schools due to inadequate WASH. In addition, the teacher stated that a large number of female students faced health problems in school due to insufficient WASH facilities and awareness. As a result, the teacher's responses also demonstrate that the majority of female students experienced health issues due to a lack of WASH services. Also, 29 (35.4%) of female students experienced diarrhea, 18 (22%) were affected by infections, 16 (19.5%) faced skin problems, 14 (17.1%) experienced other WASH related diseases, which were caused by the inaccessibility of WASH in schools, and finally, 5 (6.1%) of female students encountered cholera because of inadequate WASH facilities and awareness.

The majority of schools, particularly public schools, don't provide basic WASH services like clean and safe drinking water, hand washing facilities, and gender-segregated toilets with running water for girls. The students felt obliged to carry their own bottle water, and the ones who couldn't bring their own bottle water had to skip drinking water, which caused many students to fall sick due to dehydration. Most of the girls faced different health issues in schools; the majority of participants said that a lack of WASH services immensely influenced not only their health but also their motivation to study and attend school. Also, unexpectedly, some students noted that inadequate WASH facilities don't only cause them health problems but also their mental wellbeing. In addition, the teacher also further demonstrated that the

health problems that students experience in school are menstruation diseases, colds and diarrhea, digestive problems, and stomach problems.

The results show that some schools were unable to provide girls with toilet paper, sanitary napkins, handwashing soap, and other materials in school. In addition, public schools don't have many sponsors or donors who could help them financially. Meanwhile, several schools don't have access to suitable buildings, making it more challenging for students to deal with the non-availability of toilets, water, and sanitation facilities. The result further revealed that the deficiency in bathrooms and toilets in public schools was comparatively more prominent than in private schools.

On the other hand, a few participants proposed that in order to improve the WASH system in schools, the government should visit schools monthly, invest in infrastructure, promote hygiene, involve the community, support policies, and keep an eye on the progress made in order to lessen the negative effects of Afghanistan's lack of WASH services in schools. Moreover, answers from the teachers show that there were no policies specifically designed to provide sustainable WASH facilities and that schools ought to treat boys and girls equally in terms of their needs. Regarding the provision of hygienic services, clean water, and proper sanitation in schools, they have not observed any policy implementation.

Regardless of all the difficulties that girls in schools encounter, the absence of WASH facilities can be lessened by the suggestions put into practice by the participants following their analysis, assessment, and planning of ways to introduce them in Afghani girls' schools in the future. Also, despite not having access, girls in Afghanistan still managed to cope with the lack of WASH facilities and continued to learn.

There are considerable constraints on this research. The sample size was small due to time, location, and population limitations while collecting data, and in the future, the sample size

could be expanded further, including more key stakeholders and actors associated with WASH like the ministry of education, the ministry of health, schools, principals, headmasters, and parents from different provinces of Afghanistan. The time was limited for the study, while the research's primary focus was on collecting data earlier than expected. Since all the schools in Afghanistan have been closed since the Taliban took over Afghanistan, however, those schools are open just for girls below six grades, and the higher secondary teachers are now assigned to teach elementary students. So it was very challenging and tough to find teachers with teaching experience with high school girls.

Also, due to winter vacation, the author was restricted from gathering data earlier, resulting in collecting less data than aimed for. Another limitation was that the researcher did not have access to students in all provinces of Afghanistan, and the researcher is based in Bangladesh. To visit schools and get the school principal's consent to allow teachers to participate in the study, in Kabul, the researcher had to assign a research assistant to help her collect significant data. As a result, the researcher noticed while conducting and collecting data that the students and teachers aren't familiar with research or academic surveys; hence, this issue made the data collection process even more difficult.

This study first focused on the impact of a lack of WASH facilities on female students' education and health. However, by carrying out the study, the researcher found out that inadequate WASH service not only affects the students academically or health but also impacts their mental well-being, motivation to study, and loss of interest. Although the study did not delve into its infrastructure, gender disparities, social and cultural barriers, parental involvement, or mental health from the participant responses, it was clear that it impacts a girl's life in different aspects. Further research is required to assess various aspects and impacts of WASH on girls in higher secondary schools in Afghanistan. Thus, there is a lack of research on the impact of a lack of WASH facilities on a high school girl's education and health in

Afghanistan. Educators, researchers, and scholars are highly encouraged to conduct studies in this area, especially focusing on girls menstruation management, awareness, and related diseases. Therefore, further research is essential and recommended to explore thoroughly the policies, strategies, policy implementations, and different factors that influenced girls education, health, and mental wellbeing.

Currently, all female students beyond six grades are deprived of obtaining education and are completely eliminated from society; hence, it is suggested to conduct research on the impact of inadequate WASH services on students' education progress, health, and the mental health associated with it. It should be assessed how a lack of WASH affects girls mental health and what are solutions to mitigate the impact.

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