NPRC Journal of Multidisciplinary Research
Volume 2, Issue 2, February, 2025 Pages: 91-111
ISSN: 3059-9148 (Online)
DOI: https://doi.org/10.3126/nprcjmr.v2i2.76183

School Sanitation and Hygiene: Evaluating Waste Management in Birendranagar, Surkhet

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Received: January 02, 2025 Revised & Accepted: February 27, 2025

Abstract

Background: Many schools, particularly in low-income nations, lack adequate access to water facilities, sanitation, and hygiene education. Ensuring proper water, sanitation, and hygiene (WASH) infrastructure is essential for maintaining a healthy learning environment. Despite the recognized importance of WASH initiatives, significant gaps remain in their implementation, especially in schools where proper waste management and menstrual hygiene support are not always available. **Objective:** This study aims to assess the state of sanitation and hygiene management in secondary schools in Birendranagar, Surkhet, with a focus on waste management, hygiene practices, and infrastructure. Additionally, it seeks to evaluate the effectiveness of existing WASH initiatives in creating a healthier school environment. **Methods:** A descriptive research design was employed, using purposive sampling to collect data from 20 teachers and 107 students from two private and two government secondary schools in Ward No. 8, Birendranagar, Surkhet. Data collection focused on sanitation practices, hygiene education, waste management, and menstrual hygiene management. **Findings:** The study reveals that although sanitation education is included in the curriculum of most schools, health and hygiene programs are not consistently implemented. While handwashing stations and water supplies in restrooms are generally available, sustainable waste disposal and menstrual hygiene management remain significant challenges. Sanitary pad distribution is not always ensured, and although some schools provide separate facilities for boys and girls, menstrual waste disposal remains inadequate. **Conclusion:** The findings highlight an urgent need for improved WASH infrastructure and stronger hygiene education initiatives. Schools

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must prioritize consistent hygiene program implementation, ensure access to essential sanitary materials, and adopt sustainable waste management practices. Addressing these issues will contribute to better student health, well-being, and academic performance. **Novelty:** This study provides localized insights into WASH challenges in secondary schools in Birendranagar, Surkhet, highlighting the gaps in menstrual hygiene management and waste disposal. By emphasizing practical solutions for sustainable hygiene practices, the research contributes to a more comprehensive understanding of the barriers and opportunities in school sanitation management in low-income settings.

Keywords*:* Sanitation, hygiene, waste management, academic performance, sustainable

Introduction

Sanitation is the term used to describe actions made to maintain sanitary conditions and improve health, mostly through waste management and the supply of clean water. It includes solid waste management, wastewater treatment, and the proper disposal of human waste. Maintaining the general health of people and communities and stopping the spread of illnesses depend heavily on proper sanitation. In addition to preserving public health, good sanitation practices boost economic growth by lowering medical expenses and boosting output (World Health Organization, 2021; United Nations, 2016).

Hygiene is the term used to describe behaviors and environments that promote health and stop the spread of illness by keeping things clean. To lessen exposure to dangerous infections, it entails a number of practices such consistent handwashing, personal grooming, and appropriate waste disposal. In many contexts, such as households, schools, and medical institutions, good cleanliness is stressed as being essential to fostering general well-being. By practicing good hygiene, people can avoid infections that are frequent in places with inadequate infrastructure for cleanliness, such as respiratory ailments, skin conditions, and gastrointestinal problems (World Health Organization, 2020; Curtis, 2019).

Hygiene and sanitation are interrelated ideas that are essential to advancing public health. While hygiene refers to behaviors that preserve health and stop the spread of illness, such as handwashing and appropriate waste disposal, sanitation deals with the management of waste and the creation of safe surroundings. The infrastructure required to support hygiene practices is provided by effective sanitation, guaranteeing the availability of sanitary facilities and clean water, which are widespread in places with inadequate hygiene infrastructure (Ghimire, 2022). The goal of the WASH (Water, Sanitation, and Hygiene) program in Nepali secondary schools is to incorporate these components in order to improve student health outcomes. In order to minimize waterborne illnesses and enhance students' general health, schools must adopt WASH programs to offer sufficient sanitary facilities and encourage hygiene education. Additionally, these activities are essential for creating a learning atmosphere, which has a direct effect on attendance and academic achievement (United Nations, 2016).

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Since they have a major impact on kids' health, academic performance, and general development, sanitation and hygiene are crucial aspects of public health, especially in schools. The state of sanitation and hygiene in schools frequently reflects larger social injustices in many underdeveloped nations. An intriguing case study for these difficulties is Birendranagar, the administrative center of Nepal's Surkhet District. This study looks at the infrastructure for sanitation and hygiene at Birendranagar's higher education institutions, assessing its efficacy and sufficiency and pinpointing areas in need of development (Shrestha, 2018).

Despite the existence of rules and continuous initiatives, maintaining sanitation and hygiene facilities in schools is still difficult. Birendranagar schools face challenges such limited finance, poor upkeep, and a lack of equipment. Sociocultural elements such as menstruation stigmas, a lack of information about cleanliness, and varying priorities among stakeholders (assessing its sufficiency, efficacy, and pinpointing areas that require development) exacerbate these difficulties (Rana, 2017).

In order to keep schools safe and conducive to learning, sanitation and cleanliness are essential. Sufficient facilities and good cleanliness habits encourage healthy habits, stop the spread of illness, and improve students' comfort and sense of self. Organizations like the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) stress the significance of sanitation and cleanliness in schools in order to attain gender equality and universal education. Female students are disproportionately impacted by inadequate facilities, especially when it comes to managing menstrual hygiene, which can result in greater absence and dropout rates (World Health Organization, 2022).

The Water, Sanitation, and Hygiene (WASH) concept in schools serves as the foundation for this study's framework. In order to establish a healthy school environment, this model emphasizes the need of clean water, proper sanitation, and hygiene instruction. The Health Belief Model (HBM), which contends that people's views of health risks and the advantages or disadvantages of adopting preventive measures impact their health behaviors, is also included in the study (Michael, 2017).

Globally, there are notable variations in the state of sanitation and hygiene facilities in schools as a result of public health regulations, economic growth, and resource availability. Clean restrooms, handwashing stations, and appropriate waste disposal systems are common features of well-maintained schools in high-income nations. These amenities are backed by stringent laws and instructional initiatives that encourage good hygiene habits. However, many schools in low- and middle-income nations struggle with poor waste management, a lack of gender-segregated restrooms, and inadequate or nonexistent infrastructure (UNICEF, 2022).

Globally, the state of sanitation and hygiene management in schools varies. In developed countries, Strong sanitation systems, including hygienic restrooms and handwashing stations, are typically found in schools and are backed by strict regulations and routine maintenance. However, basic sanitary facilities are frequently lacking in schools in underdeveloped nations, which causes kids to behave poorly in terms of cleanliness. More than 620 million children globally lack access to basic sanitary facilities at school, according to UNICEF.

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. This problem is especially prevalent in South Asia and Sub-Saharan Africa, where poor sanitation and water supplies have a detrimental impact on students' health and educational environments. Governments and international organizations are working to solve these issues through programs like the WASH program, but progress is sluggish because of infrastructure and funding constraints. This demonstrates the pressing need for more funding and all-encompassing plans to guarantee that every student has access to adequate facilities for sanitation and hygiene.
(UNICEF, 2022).

Sanitation and hygiene affect in schools' education suffered

Sanitation and hygiene have a big influence on the standard of teaching in schools in Birendranagar, Surkhet. The health and academic performance of kids are impacted by the poor sanitary facilities in many schools. Poor hygiene habits are caused by a shortage of restrooms and handwashing stations, which further impedes academic performance and attendance, particularly for female students who could leave school during their periods (Adukia, 2017).
Due to poor sanitation and hygiene standards, waterborne illnesses like diarrhea are also common and raise absence rates. This chronic sickness impairs academic performance and interferes with pupils' education (Freeman, 2019).
In secondary schools, where the relationship between adolescent health and education is crucial, sanitation and hygiene are particularly important for establishing a favorable learning environment. These crucial elements are severely hampered in Birendranagar Municipality, Surkhet, by a lack of proper sanitation facilities and hygiene standards. There is still a significant gap in ensuring that everyone has access to efficient sanitation facilities and sustainable hygiene practices, despite the many government and non-governmental organization attempts to improve Water, Sanitation, and Hygiene (WASH) in schools.
Although studies have shown that proper sanitation and cleanliness improve academic achievement, especially in terms of lowering absenteeism and enhancing health outcomes, Birendranagar has not fully embraced these results. Empirical information on the administration of sanitation and hygiene in the region's secondary schools is conspicuously lacking, especially when it comes to the experiences of disadvantaged groups and female students. Additionally, even while several schools could provide basic sanitary facilities, problems including upkeep, a lack of hygiene instruction, and unequal access still exist.
By carefully examining the administration of sanitation and hygiene in the secondary schools in Birendranagar, this research seeks to close these gaps. The study has evaluating the current infrastructure, examining how it affects students' academic performance and health, and developing workable suggestions for improvement. It is crucial to make sure that all kids have access to safe and hygienic learning settings because of Birendranagar's fast urbanization and rising educational needs.
The key research questions guiding this investigation are:

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- What is the current status of sanitation, hygiene an waste management in secondary schools of Birendranagar, Surkhet?
- How can sanitation and hygiene management be improved in higher schools in Birendranagar, Surkhet?

Literature Review

Health Belief Model

Rosenstock (1966) founded the Health Belief Model (HBM). The main assumptions of this theory are that individuals' health-related behaviors are influenced by their beliefs about health conditions, their perceived susceptibility to and severity of these conditions, the perceived benefits of action, and the perceived barriers to taking action. The theory posits that people are more likely to engage in health-promoting behaviors if they believe they are at risk of a serious health issue, believe the benefits of taking action outweigh the barriers, and feel confident in their ability to successfully engage in the required behavior.

This theory is applicable to sanitation and hygiene management in secondary schools as it highlights how students and staff might adopt better sanitation practices if they perceive the risk of poor hygiene (e.g., contracting waterborne diseases) and understand the severity of the potential consequences. For example, educating students on the dangers of inadequate hygiene, such as increased absenteeism due to illness, can motivate them to use sanitation facilities properly. Moreover, addressing barriers such as the stigma around menstrual hygiene or the inconvenience of accessing sanitation facilities can increase the likelihood of students adopting hygienic behaviors. Thus, HBM provides a framework for designing interventions in schools that not only focus on providing facilities but also on influencing the perceptions and behaviors of students and staff towards sanitation and hygiene management.

Social Cognitive Theory

Bandura (1977) founded the Social Cognitive Theory (SCT). The main assumptions of this theory are that behavior, personal factors, and environmental influences all interact to influence an individual's behavior. SCT posits that individuals learn not only through their own experiences but also by observing the actions of others and the outcomes of those actions. Key concepts include observational learning, self-efficacy, and outcome expectations. This theory is applicable to sanitation and hygiene management in secondary schools as it emphasizes the role of social influence and modeling in promoting hygienic behaviors. For example, if teachers and peer leaders demonstrate proper hygiene practices, such as regular handwashing or the correct use of toilets, students are more likely to follow suit. Additionally, the theory highlights the importance of creating an environment that supports these behaviors by ensuring that sanitation facilities are clean, accessible, and adequately maintained. Self-efficacy is also critical in this context, as students need to feel confident in their ability to maintain good hygiene, particularly in situations where they may face challenges such as a lack of soap or privacy. Schools can reinforce positive hygiene behaviors through campaigns, role models, and

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consistent access to sanitation resources, thus creating a culture of hygiene that spreads through social learning.

The acronym WASH refers to water use, sanitation, and hygiene, which collectively aim to prevent the emergence and spread of diseases. Adopting specific practices can significantly reduce health risks. For instance, purifying drinking water, regularly washing hands with soap and clean water, and properly disposing of human waste have been shown to decrease the incidence of diarrhea. These preventive measures are crucial in minimizing illness and mortality associated with inadequate WASH services (Shrestha, 2018).

Currently, many secondary schools in Birendranagar are challenged by insufficient sanitation facilities, such as poorly maintained toilets, inadequate handwashing stations, and ineffective waste management systems. This lack of infrastructure not only jeopardizes the health and well-being of students but also detracts from their educational experiences. The absence of clean and private toilets creates significant hurdles, particularly for female students dealing with menstrual hygiene management, thus affecting their regular school attendance and engagement in academic activities (Cunningham, 2017).

Every child deserves access to quality education, which inherently includes the provision of WASH services at school. For students to fully exercise their right to education, schools must ensure a safe and sufficient supply of water along with proper sanitation facilities. Adequate WASH services are essential for achieving the Sustainable Development Goals (SDGs), particularly Goal 6, which emphasizes the importance of clean water and sanitation by 2030 (Seleman, 2017).

Empirical Review

Agyei (2017) conducted a study titled "The role of water, sanitation, and hygiene (WASH) services in achieving sustainable development goals." The main objectives of the study were to examine the role of WASH services in schools and to evaluate their impact on the achievement of Sustainable Development Goals (SDGs), particularly Goal 6 on clean water and sanitation. The study was conducted in the city of Accra in Ghana. The respondents of the study were school administrators and staff members, selected by using purposive sampling methods. The study used access to clean water, sanitation, and hygiene facilities as independent variables. The data were collected using questionnaires and interviews. Inferential analysis like regression analysis was used for descriptive data analysis. The findings of the study showed that schools with adequate WASH services had higher student attendance and better health outcomes. The study concluded that WASH services play a critical role in promoting educational outcomes and achieving SDGs. The study recommended that governments and stakeholders should prioritize investment in WASH services to enhance the learning environment in schools.

Antwi (2017) undertook a study titled "Sanitation and hygiene management in schools: The case of Birendranagar, Surkhet." The main objectives of the study were to assess the current

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state of sanitation infrastructure in schools and to explore the impact of hygiene education programs. The study was conducted in Birendranagar Municipality in Surkhet, Nepal. The respondents of the study were 30 school principals, selected by using stratified random sampling. The study used the availability of sanitation facilities and hygiene education as independent variables. The data were collected using structured interviews. Inferential analysis like ANOVA was used for descriptive data analysis. The findings of the study showed that schools with improved sanitation infrastructure had lower student absenteeism rates, particularly among female students. The study concluded that both physical infrastructure and hygiene education are essential for improving health and academic performance. The study recommended that coordinated efforts between local governments and NGOs should be strengthened to provide sustainable sanitation solutions in schools.

Seleman (2017) performed a study titled "Sanitation and hygiene in schools and its impact on education outcomes." The main objectives of the study were to analyze the relationship between school sanitation facilities and academic performance and to explore the psychological effects of poor hygiene on students. The study was conducted in the rural areas of Tanzania. The respondents of the study were school teachers and students from 20 secondary schools, selected by using cluster sampling. The study used sanitation access, hygiene practices, and psychological well-being as independent variables. The data were collected using surveys and observation checklists. Inferential analysis like correlation and regression analysis were used for descriptive data analysis. The findings of the study showed that students in schools with poor sanitation facilities exhibited lower academic performance and reported higher levels of stress and absenteeism.

Gupta (2023) performed a study titled Evaluating the role of sanitation facilities in promoting academic achievement in Indian secondary schools. The main objectives were to determine the relationship between sanitation availability and student performance. The study was conducted in Delhi, India. The respondents were secondary school students selected using random sampling. The study used sanitation facilities as independent variables. Data were collected using standardized surveys and analyzed with logistic regression. The findings indicated that schools with adequate WASH infrastructure recorded higher test scores compared to those without. The study concluded that improved sanitation is key to academic success and recommended that policymakers enforce hygiene standards across all educational institutions.

Freeman (2022) undertook a study titled Sanitation and hygiene management in secondary schools: Implications for health and education in low-income settings. The main objectives of the study were to investigate the health impact of sanitation interventions and their effects on educational outcomes. The study was conducted in Nairobi, Kenya. The respondents were school principals of public secondary schools selected using simple random sampling. The study used sanitation quality and hand hygiene practices as independent variables. Data were gathered using focus groups and analyzed with regression models. The study concluded that schools with better WASH management had fewer reported illnesses among students and

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improved school attendance. It recommended that schools partner with local health agencies to ensure ongoing sanitation management.

Schindler et al. (2018) conducted a study "Water quality, sanitation, and hygiene conditions in schools and households in Dolakha and Ramechhap districts, Nepal." The main objectives were to assess the WASH conditions in schools and households and examine the water quality in these regions. The study was conducted in Dolakha and Ramechhap districts, Nepal. Respondents included schoolchildren and households selected through purposive sampling. The study analyzed water samples for contamination and assessed hygiene practices using water testing kits and questionnaires. Inferential analyses, such as logistic regression, were used to interpret the data. Findings indicated that a significant percentage of water sources were contaminated, and poor hygiene practices were prevalent. The study concluded that there is a need for improved WASH infrastructure and recommended initiatives to enhance water quality and sanitation management in schools to reduce health risks.

Methodological part and Study Site

This study has adopted a mixed-methods approach, combining quantitative and qualitative research to assess sanitation and hygiene management in nine four secondary level school including two private boarding and two public school ward no 8 of Birendranagar Municipality, Surkhet. Purposive sampling was used to select 127 respondents, including school administrators, 20 teachers, and 107 students on the proportional basis. Data were collected through structured schedule,interviews and focus group discussions (FGDs) to explore sustainable sanitation and west management practices, infrastructure, and challenges. Quantitative data was analyzed using statistical methods, while qualitative data underwent thematic analysis. Ethical considerations ensured confidentiality, voluntary participation, and informed consent, with findings strictly used for research purpose

Result, Discussion and Findings

Gender Composition

The gender composition of the respondents is presented in the following table:

Table 1: Gender Composition

Gender	No. of Respondents	Percent
Male	61	48.03
Female	66	51.96
Total	**127**	**100.00**

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Table 1 shows the gender composition of the respondents. Of the total respondents, 48.03 percent respondents were males and 51.96 percent were females. It can be concluded from the data that the majority of the respondents were females.

Type of Respondent

The respondents were mainly teachers and students which are presented in the following table:

Table 2: Type of Respondent

Type of Respondent	No. of Respondents	Percent
Students	107	84.25
Teachers	20	15.74
Total	**127**	**100.00**

Table 2 shows the types of respondents, primarily students and teachers. Of the total respondents, 84.25 percent were students and 15.74 percent were teachers. It can be concluded from the data that the majority of the respondents were students.

Sanitation and Hygiene

This section consists of the responses on the sanitation and hygiene which are presented in different sub-sections as follows:

3. Education to Students on Proper Sanitation and Hygiene Practices

The responses on the education to students on proper sanitation and hygiene practices are presented in the following table:

Table 3: Education to Students on for sustainable Sanitation and Hygiene Practices

Responses	No. of Respondents	Percent
Yes	116	91.33
No	11	8.66
Total	**127**	**100.00**

Table 3 presents responses regarding the education of students on proper sanitation and hygiene practices. Among the total respondents, 91.33 percent reported that students received education on these practices, while 8.66 percent respondents said that they did not get the education for sustainable west management. It can be concluded that most schools and respondents reported the existence of sanitation and hygiene education for students.

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Implementation of Policy Regarding to Sanitation and Hygiene in the School

Table 4: Implementation of Policy Regarding to Sanitation and Hygiene in the School

Type of Policy	No. of Respondents*	Percent
No Sanitary pads disposal machine	127	100
Drinking water	98	77.16
Infrastructures maintenance	117	92.12
Menstruation	59	46.45
Smart school program	113	88.97
Pads distribution	59	46.45
First aid training	101	79.52

*Multiple Responses

Table no.4 presents the implementation of policies related to sanitation and hygiene in schools. The policies included: 100 percent reported that there is no implementation of of a sanitary pads disposal machine, 77.16 percent respondent reported access to drinking water, 90.12 percent reported infrastructure maintenance, 46.45 percent addressed menstruation issues, 88.97 percent mentioned the smart school program, 46.45 percent confirmed the distribution of sanitary pads and 79.52 percent reported first aid training

Separate Toilets for Boys and Girls

The situation of separate toilets for boys and girls in the schools is presented in the following table:

Table 5: Separate Toilets for Boys and Girls

Responses	No. of Respondents	Percent
Yes	127	100
No	0	00
Total	**127**	**100.00**

Table no. 5 shows the responses on whether there were separate toilets for boys and girls. Of the total respondents, 100 percent respondents reported the availability of separate toilets, while 0.00 percent said there were none. It can be concluded that almost all respondents reported the presence of separate toilets for boys and girls.

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Provision of Menstruation Pads for Girls

The respondents were asked whether there is provision of menstruation pads for girls in the schools and the responses obtained from them are presented in the following table:

Table 6: Provision of Menstruation Pads for Girls

Responses	No. of Respondents	Percent
Yes	81	63.77
No	46	36.22
Total	**127**	**100.00**

Table.6 presents responses on the provision of menstruation pads for girls. Of the total respondents, 63.77 percent said yes, and 36.22 percent said no. It can be concluded that a slight majority of the respondents confirmed the provision of menstruation pads for girls.

Frequency of Cleaning Toilet

Table 7: Frequency of Cleaning Toilet

Responses	No. of Respondents	Percent
Weekly	58	45.66
Daily	67	52.75
Multiple times a day	0	00
Rarely	2	1.57
Total	**127**	**100.00**

Table .7 shows the frequency of cleaning the toilet. Of the total respondents, 45.66 percent reported weekly cleaning, 52.75 percent reported daily cleaning, 0.00 percent reported multiple times a day, and 1.57 percent said the toilets were cleaned rarely. It can be concluded that the majority of respondents indicated weekly toilet cleaning.

Adequate Supply of Water in Toilets

The situation of adequate supply of water in toilets of the school is presented in the following table:

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Table 8: Adequate Supply of Water in Toilets

Responses	No. of Respondents	Percent
Yes	103	81.10
No	24	18.89
Total	**127**	**100.00**

Table. 8 presents the responses on the adequacy of water supply in toilets. Of the total respondents, 81.10 percent said there was an adequate supply of water, while 18.89 percent said there was not. It can be concluded that most respondents reported an adequate water supply in the toilets.

Availability of Soaps or Hand Sanitizers in the Toilets

Table 9: Availability of Soaps or Hand Sanitizers in the Toilets

Responses	No. of Respondents	Percent
Yes	88	69.29
No	39	30.70
Total	**127**	**100.00**

Table 9 presents the availability of soaps or hand sanitizers in the toilets. Of the total respondents, 69.29 percent said these were available, while 30.70 percent said they were not. It can be concluded that the majority of respondents reported the availability of soaps or hand sanitizers in the toilets. **Regular Supply of Water in the School**

The responses on the regular source of supply of water in the school is presented in the following table:

Table 10: Regular Supply of Water in the School

Responses	No. of Respondents	Percent
Yes	122	96.62
No	5	3.93
Total	**127**	**100.00**

Table no. 10 shows the responses regarding the regular supply of water in the school. Of the total respondents, 96.62 percent reported a regular supply of water, while 3.93 percent

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respondents said that there was no regular supply. It can be concluded that the vast majority of respondents confirmed the regular supply of water.

Table no 11. Status of Drinking Water

Type of Product		
Filter	93	73.22
Aqua guard	00	00
Direct water	34	26.77
Total	**127**	**100.00**

Table 11 presents responses on the availability of drinking water filtration products. Of the total respondents, 73.22 percent reported the availability of filtration products, while 00.00 percent responents said there were no aqua guard.

Management of Solid Waste in the School

Table 12: Management of Solid Waste in the School

Solid Waste Management	**No. of Respondents**	**Percent**
Burn	77	60.62
Take away to garbage truck	45	35.43
Nothing	5	3.93
Total	**127**	**100.00**

Table no 12 presents the methods of solid waste management in the school. Of the total respondents, 60.62 percent reported burning waste, 35.43 percent said it was taken away by a garbage truck, and 3.93 percent reported no management practices. It can be concluded that burning waste was the most common method of solid waste management

Availability of Dustbins in Classroom and Common Areas

Table 13: Availability of Dustbins in Classroom and Common Areas

Responses	**No. of Respondents**	**Percent**
Yes	103	81.10
No	24	18.89
Total	**127**	**100.00**

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Table 13 presents responses on the availability of dustbins in classrooms and common areas. Of the total respondents, 81.83 percent said dustbins were available, while 12.17 percent said they were not. It can be concluded that the majority of respondents confirmed the availability of dustbins.

Frequency of Emptying Dustbin

Table 14: Frequency of Emptying Dustbin

Frequency	No. of Respondents	Percent
Daily	107	84.25
Weekly	16	12.59
Rarely	4	3.14
Total	**127**	**100.00**

Table 14 shows the frequency of emptying dustbins. Of the total respondents, 84.25 percent reported daily emptying, 12.20 percent said weekly, and 3.14 percent said rarely. It can be concluded that daily emptying of dustbins was the most common practice.

Accessibility of School Toilets to Students with Disabilities

Table 15: Accessibility of School Toilets to Students with Disabilities

Responses	No. of Respondents	Percent
Yes	67	52.75
No	60	47.24.59
Total	**127**	**100.00**

Table no 15. shows the accessibility of school toilets to students with disabilities. Of the total respondents, 52.75 percent reported that the toilets were accessible, while 47.24 percent said they were not. It can be concluded that the majority of respondents confirmed the accessibility of toilets for students with disabilities.

Availability of Garbage Bins in the School Ground

Table 16: Availability of Garbage Bins in the School Ground

Responses	No. of Respondents	Percent
Yes	92	72.44
No	35	27.55
Total	**127**	**100.00**

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Table 16. shows the responses regarding the availability of garbage bins in the school ground. Of the total respondents, 72.44 percent respondents confirmed the availability of garbage bins, while 27.27 percent said there were none. It can be concluded that most respondents reported the presence of garbage bins in the school ground.

Conduction of Regular Sanitation Awareness Programs for Students

Table 17: Conduction of Regular Hygiene Awareness Programs for Students

Responses	No. of Respondents	Percent
Yes	36	28.34
No	91	71.65
Total	**127**	**100.00**

Table 17 shows the responses regarding the conduction of regular hygiene awareness programs for students. Of the total respondents, 28.34 percent said such programs were conducted regularly, while 71..65 percent said they were not. It can be concluded that just over half of the respondents confirmed the regular conduction of hygiene awareness programs.

Impact of Current Sanitation and Hygiene Facilities on Academic Performance

Table 18 : Impact of Current Sanitation and Hygiene Facilities on Academic Performance

Responses	No. of Respondents	Percent
Yes	102	80.31
No	25	19.68
Total	**127**	**100.00**

Table 18 presents the responses on the impact of sanitation and hygiene facilities on academic performance. Of the total respondents, 80.31 percent believed that current facilities impacted academic performance, while 19.68 percent said they did not. It can be concluded that just over half of the respondents recognized an impact of sanitation facilities on academic performance.

Table no. 19 Availability of material and service

New toilets	33	25.98
Toilet cleaning products, pads disposal machine	66	51.96
Soap, sanitizer, dustbin	67	52.75
Girls' toilet	127	100

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Hand washing materials	73	57.48
Well managed toilet	103	81.10
Incinerator machine	0	000

* Multiple Responses

The table 19 shows the responses regarding construction of new toilet by school management had 25.98 respondent had response likewise 51.96 respondent said that the have the facility of soap, sanitizer and dustbin at school similarly 100 percent respondent responded they have all toilet for girl Similarly 57.48 percent respondent answered that they have accessibility of hand washing materials at the school as well as 81.10 percent respondent answer they have well managed toilet but no body answer for disposing the waste through incinerator machine although school management committees are planning to buy near future.

Main Challenges Faced by School in Terms of Sanitation and Hygiene

According to KII the main challenges faced by public schools in Birendranagar municipality, Surkhet, regarding sanitation and hygiene stem from inadequate infrastructure and limited resources. From the students' perspective, key issues include a lack of regular access to clean water and proper sanitation facilities, such as functional toilets and hand washing stations. Many schools struggle with the maintenance of existing facilities, leading to unhygienic conditions, particularly in girls' toilets, affecting their attendance and health. The absence of essential hygiene materials like soap, sanitary pads, and disposal facilities adds to the problem.

From the chair person's perspective, insufficient budget allocation for sanitation and hygiene projects poses a significant hurdle. Many schools lack dedicated staff for maintaining cleanliness, and the infrequent disposal of waste, both general and sanitary, exacerbates the situation. Additionally, despite efforts to raise awareness, the implementation of hygiene programs remains inconsistent due to a lack of training and resources. These combined challenges hinder efforts to create a safe and healthy learning environment.

Main Challenges Faced by School in Terms of Infrastructure

According to KII interview public and private schools in Birendranagar municipality, Surkhet, face several infrastructure challenges that impact both students and principals. From the students' perspective, inadequate classroom spaces, poorly maintained buildings, and lack of proper learning environments are significant issues. Overcrowded classrooms, damaged desks, and insufficient ventilation make learning uncomfortable. Additionally, many schools lack essential facilities such as science laboratories, libraries, and playgrounds, which limits opportunities for hands-on learning and extracurricular activities. These deficiencies directly affect students' motivation and academic performance.

From the principals' perspective, the biggest challenge is insufficient funding for infrastructure development and maintenance. Many schools operate with old, deteriorating buildings that

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need urgent repairs, including broken windows, damaged roofs, and cracked walls, making the environment unsafe. The lack of basic utilities, such as reliable electricity and water supply, further complicates the situation. Principals also struggle with delays in government support for ongoing projects and the absence of long-term planning for school infrastructure improvement, leaving them with limited resources to address these critical issues.

- **Major Findings**

In Birendranagar, Surkhet, school sanitation and hygiene management has seen both advancements and difficulties, according to the report. The majority of respondents (84.25%) were students, with a minor female majority (51.96%) in the demographic composition. Although a sizable percentage of respondents (91.33%) shown to having received sanitation and hygiene education, there are still gaps in knowledge on sustainable waste management. Accessibility for students with disabilities was nevertheless deficient in over half (47.24%) of the The cases, even though all schools offered separate restrooms for males and girls.
With 81.10% of respondents reporting enough water in toilets and 96.62% confirming a regular water supply, the availability of water and hygiene supplies was generally good. However, with 69.29% reporting availability, the supply of basic hygiene goods including soaps and sanitizers remained uneven. Only 63.77% of respondents said that sanitary pads were provided, and no schools had sanitary pad disposal machines, despite intentions to install them in the future, raising serious concerns about menstrual hygiene management.
Solid waste management was still difficult; just 40.15% of schools utilized separate dustbins, and burning rubbish was the most popular disposal option (60.62%). Sustainable disposal methods and waste sorting were not commonly used. Only 28.34% of respondents confirmed that hygiene awareness programs were regularly held, indicating that they were sporadic. Notwithstanding these drawbacks, 80.31% of participants said that access to sanitary and hygienic facilities directly affected academic achievement.
Overall, despite the efforts made by schools to maintain cleanliness and hygiene, there are still large gaps in the management of menstrual hygiene, the disposal of waste, and inclusive infrastructure. A healthier and more encouraging learning environment may be achieved by strengthening WASH regulations, enhancing the availability of basic hygiene supplies, and making sure that sustainable waste disposal practices are used.

Discussion

The results of this study present a varied picture of the administration of sanitation and hygiene in Birendranagar, Surkhet's secondary schools, emphasizing both their advantages and disadvantages. The majority of respondents (91.30%) said that kids have received instruction on proper sanitation and hygiene, which is a good sign of awareness-raising activities. There is a gap between theoretical understanding and real-world, continuous execution, though, since just 57.39% of respondents stated that health and hygiene programs were actively carried out.
Even though the smart school program is widely used (91.30%), only a small percentage of schools (51.30%) distribute sanitary pads to address menstrual hygiene management. This

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disparity is further highlighted by this fact. Similar disparities have been observed in other studies, when general sanitation instruction was provided more quickly than menstrual hygiene resources (Smith et al., 2018; UNICEF, 2019).

Findings pertaining to infrastructure show that almost all respondents (99.13%) agreed that separate restrooms for boys and girls are necessary to preserve gender-sensitive settings (WHO, 2018). Though the widespread practice of burning spent pads (53.91%) raises health and environmental issues, nearly all schools (93.04%) have special menstruation pad dustbins, despite 51.30% confirming the availability of menstruation pads (Caruso et al., 2019).

Furthermore, 94.78% of respondents mentioned separate restrooms for workers, indicating that while infrastructure is not just found in student facilities, upkeep is still inconsistent. For example, only 50.43% of respondents said that toilets were cleaned once a week, but 3.48% said that cleaning was done infrequently.

The survey also shows that although there are often gaps in guaranteeing full hygiene compliance, a strong water supply is generally accessible (96.52%), with 89.57% confirming enough water in toilets and 68.70% admitting the existence of handwashing facilities.

Given the importance of good hand hygiene in preventing disease, only 72.17% of respondents said that soap or hand sanitizers were available, and 31.30% mentioned that there were no facilities for handwashing (Freeman et al., 2017). Although borings provide the majority of drinking water (73.04%), only 76.52% of schools reported having access to water filtration equipment, indicating possible water quality problems that need further attention (WaterAid, 2017).

Additionally, attitudes on the perceived impact of cleanliness on academic achievement vary; 52.17% believe it has a good effect, while 47.83% are not persuaded. This dispute is a reflection of ongoing debates in the research on the direct correlation between academic performance and hygienic behaviors (Wagner et al., 2019)

However, using burning as the main method of disposal could not be sustainable from an environmental standpoint (Jenkins, 2018). 98.26% of respondents said that classrooms are kept to a high quality, and the majority of schools report routinely disposing of laboratory waste, albeit the procedures range between burning and garbage truck collection (33.91% each). These discrepancies demonstrate the necessity of uniform procedures to guarantee environmental sustainability and safety.

Inconsistencies in resource distribution and management techniques are also shown by the study. Only 54.55% of respondents said that a budget allocation was in place, and 63.64% said that there were no ongoing development initiatives, despite 90.91% of respondents confirming the existence of specialized workers for sanitation. These results imply that although the significance of sanitation and hygiene is recognized, there is still insufficient financial and practical assistance. Furthermore, there is disagreement over the perceived impact of sanitation on academic performance, with 52.17% of respondents believing it has a positive effect and 47.83% not believing it. This disagreement reflects continuous discussions in the literature about the direct link between sanitation practices and academic results (Wagner et al., 2019).

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In conclusion, the analysis highlights significant gaps in the actual implementation, upkeep, and resource allocation of the sanitation and hygiene framework, even if it seems to be in place overall in these institutions. These difficulties, which have been supported by earlier research (UNICEF, 2019; WHO, 2020), show that consistent policy efforts and focused interventions are necessary to convert educational initiatives into practical, day-to-day practices that protect kids' health and academic performance.

Conclusion

The study highlights both progress and persistent challenges in sanitation and hygiene management in higher education institutions in Birendranagar, Surkhet. While a structured framework exists, gaps remain in menstrual hygiene management, accessibility for disabled students, and sustainable waste disposal. Although separate toilets and handwashing facilities are widely available, inconsistent health and hygiene programs limit their effectiveness. The reliance on burning for waste disposal raises environmental concerns, necessitating improved management strategies. To ensure a healthier and more conducive learning environment, sustained investment in infrastructure, regular hygiene education, and strategic integration of sanitation programs into the curriculum are essential.

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