

Health and Sanitation Condition of Pregnant Women: A Case of Arghakhanchi District

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Abstract

This paper aims to explore the situation of sanitation and changing the behaviour of married Nepalese women of reproductive age (15-49). A concurrent mixed-method (qual-quant) research design was employed in this research under the pragmatism worldview. The data are collected through a questionnaire survey, in-depth interviews, and a transect walk. Arghakhanchi district was selected purposively in this study. Diffusion of innovation theory was applied to understand the factors influencing sanitation and hygiene behavior change. The key research participants were the pregnant women of reproductive age (15-45) in the study. A thematic framework was used to analyze qualitative data, while bivariate analysis was performed to show the association between the background variables of sanitation and the health condition of pregnant women. It was found that most of the women used soap and water for hand washing before each meal and after the toilet. There is the provision of soap at hand washing stations and toilets among the study population. However, sufficient hand washing and toilet facilities were not available and 23% of the women reported being scratchy with the use of soap and water regularly.

Keywords: *Health, Hygiene, Pregnant Women, Sanitation*

Introduction

This study was conducted to promote healthy behaviors among the reproductive age group of women, considering the impact on human health due to a lack of personal hygiene. Pregnant women of the reproductive age group are the study population. As a researcher, I collaborated and coordinated with the women of the age group 15-49 years. This study focused on exploring hand-washing practices with soap and water. It was designed and conducted using a pragmatism worldview. Pommells et al., (2018) found that the situation of sanitation and hygiene issues globally is not satisfactory. Human populations are wholly dependent on healthy environments to survive and thrive worldwide. Chen, Bruning, Rubino, and Eder, (2017) stated that sanitation and hygiene are the fundamental human health and sustainable development requirements. Water,

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sanitation, and hygiene are one of the major areas of study in this paper. Water, sanitation, and hygiene are critical to health, survival, and development. Although the Sustainable Development Goals (SDGs, 2016-2030) include ensuring the availability and sustainable management of water and sanitation for all, improved sanitation, pure drinking water, and hygiene are still very precarious in Nepal. Many countries worldwide face challenges in providing adequate sanitation for the population, leaving people at risk for diseases related to water, sanitation, and hygiene. An estimated 3.6 billion people worldwide lack improved sanitation, including 1.9 billion people with basic sanitation (World Health Organization [WHO], 2021). The World Health Organization and UNICEF Joint Monitoring Program state that 54% of the global population access safely managed sanitation services while 24% with basic sanitation (United Nations International Children Emergency Fund [UNICEF], 2021). Data show that about 6.7 million deaths globally in 2019 were due to poor sanitation (UNICEF, 2021). Out of total deaths, 5% of deaths in low and middle-income countries result from unsafe sanitation (Sharma, & Adhikari, 2022).

Despite growing awareness of persistent gaps in sanitation access and the associated implications for society, progress to ensure access and use of safe sanitation has lagged compared to their development challenges, particularly in rural areas (Joshi, Fawcett, & Mannan, 2011). Further, seven out of ten women (71%) had basic hand washing facilities with soap and water. Noteworthy in the South Asian region, 69% of hand washing coverage was in 2015-2020. Similarly, on average only 17% wash their hands with soap before meals and after defecation. A smaller proportion do so before handling food (13%) and after toilet use (5%) globally (WHO, 2021). Diseases caused by unsafe water, sanitation, and hygiene are significant causes of mortality and morbidity (Sesay, Hakizimana, Elduma, & Gebru, 2022). Also, the lack of safe water services affects nutrition leading to pregnancy-related problems. Sanitation and hygiene have become a global concern and priority in research and international development (UNICEF, 2021). In many of the world's low and middle-income countries, and even in some developed areas, frequent outbreaks of water-borne diseases like diarrhea, gastrointestinal diseases, and other infectious diseases are still prevalent (Jubayer, Islam, & Nayan, 2022). Cholera epidemics have a recorded history in East Africa since the 1830s. A water supply and poor sanitation conditions were recognized in different parts of Nepal (Sharma, & Adhikari, 2022). Likewise, nearly 1.8 billion people in South Asia still lack access to proper sanitation (Sekine, & Roskosky, 2018). Despite the substantial progress in sanitation and hygiene sectors, 1.2 million people have been reached through hygiene promotion activities. Many people still lack awareness and access to clean water and soap. It enables women to correctly and consistently wash their hands before taking meals and after the use of the toilet. It affects the quality of health in Nepal (Dhital et al., 2022). Poor sanitation contributes to substantial morbidity and mortality globally.

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Furthermore, the death of a child every 20 seconds, including 88 % of the deaths caused by diarrheal disease and insufficient water sanitation (Renzaho et al, 2018). It also estimates good hygiene and a safe water supply could save 1.5 million children a year. Production and consumption of water contaminated with infectious agents and toxic chemicals increase public health and environmental hazards, particularly in low-income countries like Nepal. It has been shown that the global incidence of sanitation and hygiene-related illness, particularly diarrhoea, has increased by 13 % from 2000 to 2010 (Meierhofer et al., 2018). Also, approximately 8 % of diarrhoea in the last decade (Shrestha, Malla, & Kazama, 2022). Frequently, sanitation and hygiene-related illnesses result directly from excluding the urban poor in national sanitation policy, planning, and intervention.

In this context, sanitation and hygiene education is a must among the reproductive age group in Nepal. Hygiene generally refers to the practices concerned with protecting health and healthy living. It focuses mainly on personal hygiene, which looks at the cleanliness of the hands (Budhathoki, 2019).

Similarly, UNICEF and WHO define hygiene as the conditions and practices that help maintain health and prevent diseases, including hand washing, food hygiene, and menstrual hygiene management (WHO/UNICEF, 2020). Sanitation and hygiene education is a healthcare science, a broader school health education form. It is also a process to understand the factors influencing hygiene behaviours and identify hygiene-related problems, route causes, and preventive measures. One of the essential characteristics of hygiene education is that it builds on concepts, ideas, and practices which should be followed. Further to improve personal knowledge, skill, and practice that modifies women's healthy behaviour focus on hygiene education. Safe hygiene practice includes healthy behaviours before eating and using the toilet. Community health education concerns all activities promoting health and reducing health risks for reproductive-age women.

In the context of Nepal, sanitation and hygiene education primarily aims at changing the behaviour of women. It motivates community people towards safe practices concerning personal, water, food, and domestic and public hygiene. It also aims to protect poor hygiene and improve sanitation, particularly hand washing and personal sanitation. Sanitation and hygiene behaviour development can only be achieved if supported by community awareness programmes. Community sanitation programmes help to maintain hygiene education and can contribute to improving health through behaviour change. Community sanitation is an innovative sanitation programme that helps to control diseases in the community.

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The death rate of Nepalese women during the pregnancy period is 277 per ten million (Burlakoti et al., 2020). It shows that the condition of hygiene and sanitation in the Nepalese context is poor. So a large number of women are exposed to diseases and at risk of infections, which causes an increased death rate (Adhikari et al., 2020). Ensuring women's health is a must in this context. Community leaders should be aware women how to prevent diarrhoeal diseases and other sanitation-related illnesses. The widespread adoption of safe hygiene practices through an interactive, community-centred participatory approach builds life skills (WHO, 2021). It empowers women to make a good choice of lifestyle. It definitely leads to a happy and prosperous life for the women living in the villages in Nepal. So, this article explores the situation of women of reproductive age in Nepal.

Research Problem

Most of the places of Nepal now access improved sanitation in comparison to the past decades. The coverage of sanitation is 95% in all the provinces whereas it is below 90 % in province 2. Data shows that 10.8 million Nepalese people still do not have access to improved sanitation (WHO, 2021). The Government of Nepal has conducted many commencements regarding the health and sanitation of the people. It implemented policies from the policy level throughout the country. Community-based sanitation and hygiene programmes are also launched by the government. Similarly, the Department of Education Science and Technology and the Department of Water Supply and Sewerage, under the support of UNICEF, maintained some reforms (Tearne et al., 2021). Sanitation programmes constitute constructing toilets, hand washing stations, and sanitation awareness in schools and at the community level. Despite these efforts and initiatives, research shows that Nepalese people are facing numerous challenges related to sanitation and hygiene, especially for pregnant women. This clearly shows us that the use of toilets in communities is yet to be improved through community efforts to bring about desired and sustainable changes.

Behavioural promotion among the Nepalese people is a must at this time. Community sanitation helps people to gain good health by controlling water-borne diseases like diarrhoea and cholera. However, there was a lack of policy implementation and significant community transformation through community-based education. Likewise, the Sanitation and Hygiene Master Plan, 2011, and School Sector Reform Plan (SSRP 2009-2015) step forward to enhance capacity for sanitation and hygiene in the community. It initiated to use of local resources and reduced dependency on sanitation in community settings. But still, people are facing poor sanitation and hygiene practice that plays a crucial role in the community. Therefore, this study explores the situation of health and sanitation among the women of reproductive age in Arghakhanchi district, province 5 of

federal Nepal.

Literature Review

Gautam, and Curtis, (2021) highlight the importance of habit and emotional drivers for sustained hand washing. Further, Kuipers et al., (2021) focus on effective communication models for encouraging sanitation and hygiene behaviour. The theoretical models of IBM-WASH linked to behaviour change represented contextual factors like gender, and socio-economic condition. Also, it focused mainly on individual-level aspects rather than broader structures and social ecology (Robinson, Clifford, & Jewitt, 2022). Sanitation helps promote hygiene behaviour among the community people. Sanitation and hygiene promotion plays a crucial role in changing collective and individual behaviours. It fosters ownership and sustainable use of sanitation and hygiene knowledge, practice, and praxis (Thomas, & Ljung, 2021). To promote sanitation and hygiene, the management and use of the technology and services of the systems must be implemented correctly (WHO, 1996). It works on the premise of school and community to gain awareness of water, sanitation, and hygiene activities and develop and carry out a plan to improve the situation (De Angel et al., 2020). Along the same line, the Government of Nepal also incorporated health education under the education system in Nepal has started from (a) *Rastriya Sikchhya Samite* (National Education committee) (1954), including science and health education in the curriculum; (b) Health and Physical education included in secondary level as a separate subject from 1971, national education system plan (NESP); (c) Health and Physical education included in the primary and lower secondary level with 50 full marks since 1998 (GoN, 2007). The overarching goal of health education in Nepal is to improve living conditions and the overall health status of individuals and societies with skills, attitudes, and functional knowledge that support physical, emotional, and social well-being (Centre for Curriculum and Development, 2007). Similarly, the National Curriculum Framework of School Education (Basic Education grade 6-8), 2076, has been prepared. It is the updated version of the Basic Level Curriculum (6-8), 2069. Various contents have been included in this curriculum to raise health awareness by developing knowledge, attitudes, and skills related to Health and Physical Education among basic-level students.

Nepal has made considerable progress in improving fundamental sanitation administration, with inclusion multiplying to 62% in 2011 (Gautam, & Curtis, 2021). Coverage of basic sanitation facilities has now reached 81% of the population (De Angel et al., 2020). To accelerate the implementation of SDG 3 (Good health and well-being) and 6 (water and sanitation) to consolidate the country's far-reaching changes, Nepal has gained sanitation coverage to 99 %, targeted at 86.5 by 2019. The proportion of latrines people has increased from

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67.6 % in 2015 to 85 % in 2019 (National Planning Commission, [NPC], 2020). In the constitution of Nepal, access to safe water, sanitation, and hygiene is a fundamental right of human beings. Article 35 (4) Right to Health: Every citizen shall have the right to access safe sanitation and hygiene. Article 30, Right to clean environment: (a) Every person shall have the right to live in a healthy and clean environment, and (b) The victim of environmental pollution and degradation shall have the right to be compensated by the pollutant as provided by law. From 1992 to 1997, The Third Rural Water Supply and Sanitation Sector Project were implemented in the Far-Western and Eastern Development Regions (Raut et al., 2022).

In the Three-Year Interim Plan (2010/2011- 2012/2013), the government introduced the concept of one household-one toilet through the budget speech of 2066/67. Nepal National Sanitation Policy and Guidelines for Planning and Implementation of Sanitation Program 1994 formed a sanitation policy, coordinated with concerned agencies and budgetary provisions, and encouraged gender and social inclusion. Sanitation and Hygiene Master Plan 2011 was formulated to streamline the sanitation sector activities with a broader sectoral vision, innovative strategic orientation, multi-stakeholder collaboration, and locally managed financing modality to improve sanitation and hygiene. The Government of Nepal has developed the School Sector Development Plan (SSDP) for 2016-2023 to continue its efforts and ensure equitable access to quality education. SSDP expects to empower schools by providing health services, including school toilets and hand-washing facilities (GoN, 2016). Ministry of Health and Population, the Government of Nepal targeted to achieve SDG 3: Health (ensure healthy lives and promote well-being) for all at all ages and SDG 6: WASH (ensuring good sanitation) issue incorporated in National Standards for WASH in Health Care Facilities 2018 (GoN, 2018).

Methodology

A sequential mixed-method (QUAN-qual) research design is used in this study. Quantitative data were collected through the survey questionnaire from the forty women of reproductive age from the Sandhikharkha municipality of Arghakhanchi district. The data were analyzed by applying Statistical Package for Social Science (SPSS) software version 20. The collected quantitative data were analyzed and interpreted by the use of statistical tools like percentages, dependent variables, and bivariate analysis. The correlation coefficient and significant values by the use of Spearman's bivariate correlation were also calculated. The qualitative data were collected through in-depth interviews with five pregnant women from the study site. Five pregnant women were selected through purposive sampling for the qualitative part of this study. Qualitative data were analyzed through the verbatim and thematic method of data analysis. The findings

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of this study are linked with the Integrated Behavioral Model for WASH (IBM-WASH).

Result and Discussion

The findings of this study are both quantitative and qualitative. It has been found that pregnant women do not have good hygiene and sanitation conditions. By nature, they need to urinate more frequently, and holding urine is very difficult. It is also found that the necessary materials for pregnant women in the community are not adequate for sanitation and hygiene.

The sanitation facilities at the home of the sampled pregnant woman are not good. The response rate (Table 1) shows that less than fifty percent of the women do not have water latrine

Table 1: *Sanitation facilities at home*

Statements	Response Rate (%)
Hand washing facilities (n=40)	
Provision of regular running water at toilets	70
Provision of water seal toilets	24
Not using toilets	63
Use of bore hole toilets	61
Do not need to wait (more than 3 minutes) for toilet	21
Provision of child-friendly toilet	26
Faecal matters were found in toilets	31
Poor cleanliness and bad odours	58
Lack of safe drinking water at home	94
Clean toilets	23

Table 1 shows that the majority of the pregnant women in the study area were deprived of clean toilets (77%). Data shows that 94% of pregnant women lack drinking water at home, and they have to collect water from the pond. The culture of cleaning a toilet is not good. Only 31% of women have bad toilets, and the rest of the 69% of the women were facing using toilets with bad odours. It is good to say that 21% of the respondents do not need to wait for more than 3 minutes for the use of the toilet. The overall data shows that the situation of toilet facilities at home is not satisfactory (Table 1).

The knowledge of the importance of hand washing among the pregnant women in the study area is not well understood. A knowledge assessment of respondents about the importance of hand washing found that 61.1% of the respondents were aware that hand washing with soap was helping to prevent diseases. In

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comparison, 70% of participants had knowledge of the use of soap and water to keep the toilet clean. Twenty-six percent of pregnant women had no idea that clean hands with soap and water prevent diseases.

Table 2: *Knowledge of the importance of hand washing with soap*

Indicators	Responses (n= 40)	
	Yes (%)	No (%)
Kill germs	61.1	39.9
Keep clean	70	30
Prevents diseases	84	26

Table 2 shows the knowledge of sanitation and hygiene-related diseases in the study area. Participants were asked whether they knew of any hygiene-related diseases. Infectious diseases are caused by poor hygiene. More than half of survey participants (50%) said diarrhoea was caused by poor sanitation and hygiene. In contrast, participants answered malaria, skin diseases, typhoid, and worm infestations at 65%, 34%, 15%, and 24%, respectively. But the majority of participants in all cases were still unaware of the diseases caused by poor sanitation and hygiene.

Table 3: *Knowledge of hygiene-related diseases*

Hygiene related diseases	Responses (n=40)	
	Yes (%)	No (%)
Malaria	65.0	35.0
Typhoid	34.0	66.0
Diarrhoea	50.0	50.0
Worm Infestation	15.0	85.0
Skin diseases	24.0	76.0

It was found that knowledge of the required materials while washing hands is not adequate. When asked what materials should be used for hand washing, more than half (80%) of participants answered water only, whereas 34% reported water and soap.

Table 4: *Knowledge of washing hands*

Hand washing materials	Responses (%)
Water only	80.0
Water and Soap	34.0
Total	100.0

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The association between the demographic variables and the toilets at home is given (Tab. 3).

Table 5: Association between demographic variables and toilet at home

Variables	Use of Toilet at Home			χ^2	df	P-Value
	Yes (%)	No (%)	Total No			
Category						
Children	0.0	100.0	42	91.985	1	.000***
Pregnant women	79.6	20.4	167			
Caste/ethnicity						
Brahmin/Chhtri	55.6	44.4	54	2.399	2	.301
Janajati	67.9	32.1	112			
Lower caste	62.8	37.2	43			
Age (years)						
≤15	49.1	50.9	106	19.758	1	.000***
>15- 45	78.6	21.4	103			

***P<0.001

Association between socio-demographic variables and sanitation and hygiene-related knowledge. There was no statistically significant relationship between the demographic variable caste/ ethnicity and sanitation knowledge in terms of advantages of hand washing ($\chi^2 = 5.665$, $P = .462$). The association between socio-demographic variables (caste/ethnicity) and sanitation knowledge regarding the advantages of washing hands with soap.

In the same line, qualitative findings show that the condition of sanitation is not good in the study site. The menstrual discharge may clot in the toilet pan and is a disgusting matter. It is difficult for me to manage dirt during period. One of the women told: *We do not consider the use of toilet as a priority because no one is prepared to empty it. Sadly speaking, our community does not have such waste management places, and community people are not even interested in.*

Arguing the same finding, another woman said: *I think that everything at the beginning has a problem, using human waste management in the community was difficult, even eating vegetables will feel bad but as time goes on people will be used to this.* In the same line, one participant said: *According to our tradition, community people don't use soap and water for washing hands. People feel something terrible.* Likewise, others also see problems concerning reusing human waste for growing activities. This shows that negative cultural perception about

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reusing human waste is present and that people will find it hard to accept it initially since it is a new idea. According to our traditional belief, people do not like to eat something where their urine contaminates water. So people feel something terrible if they talk about the management of human urine and excreta. The participants expressed concerns about taking care of the waste. Proper education on the advantages of the sanitation support for management of human urine and feces.

One of the pregnant women said: *Educating community people would be a better method of teaching awareness to their parents. So, knowledge regarding the sanitation and its effectiveness needs to be shared with the children and they can then teach their parents.*

This finding shows that community consciousness programmes and the fallacies about sanitation and the management of human urine can be diminished. Additionally, altering insights and behaviours through a community awareness programme is a must. During sanitation and hygiene education teaching and learning, classroom-based participants' observations were made to identify the school's practises and the associated problems. The HSE situation of the school was determined by analysing the reflective observation note and teachers' and students' group discussion transcripts prepared based on the classroom observation. Motivation is a necessary construct to understand sanitation and hygiene. Community leaders are essential in motivating students on academic, hygiene, and sanitation behaviour. Nevertheless, it was not reflected in their day-to-day practise. Motivation focused on reading and writing instead of sanitation and hygiene. Women's motivation has not popped up to reduce family member confusion in terms of the advantages of sanitation. Knowledge, awareness, and practise of sanitation and hygiene were not good among students. So, awareness sessions among women need to be implemented, and regular monitoring and supervision of the hygiene and sanitary behaviour of the students need to be done. Also, we need to conduct women-led sanitation and hygiene activities in the community. Moreover, it needs to motivate other people in the community to be role models and help them with hand hygiene, school toilet cleanliness, and classroom cleanliness. In addition, the family needs to organise an interaction programme among representatives of the local government, parents, teachers, school administration, students' clubs, and representatives of other students to find sustainable solutions for soap management at school.

Conclusion

The findings of this study are in line with Adhikari et al.'s (2020) argument that lacking proper sanitation may cause poor health in people. Also, Burlakoti et al. (2020) said that sanitation is a must to control diseases among the community

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members. Dhital et al. (2020) found that the lack of effective sanitation affects water, sanitation, and hygiene (WASH) problems in Nepal. This research clearly argues that sanitation is one of the reasons for people's poor health. The study finding of this research is that most of the women of reproductive age (15–49) are not good due to a lack of soap and water facilities. And some of them do not have knowledge of good health.

Further, the research found that there is a good correlation between diseases like dysentery, diarrhoea, and worms and the facilities of soap and a regular supply of water. This finding is in line with research that found that maintaining good health needs soap and water (Joshi, Fawcett, & Mannan, 2011; Raut, 2022; Sharma & Adhikari, 2022; Yeasmin, 2021). It is also found that the menstrual discharge may glob in the toilet pan, which is a disgusting matter. Also, Kuipers et al. (2021) focus on effective communication models for encouraging sanitation and hygiene behaviour. The theoretical models of IBM-WASH are linked to change theory. Also, it focused mainly on individual-level aspects (Robinson, Clifford, & Jewitt, 2022). A large number of women are exposed to diseases and are at risk of infections, which causes an increased death rate (Adhikari et al., 2020). This research is in favour of the study findings that found the IBM-WASH connected to behavioural modification for appropriate influences like femininity and socio-economic condition.

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