



*Original Research Article*

# Sanitation and hygiene status among school students: A micro study on some selective schools of North Dumdum municipality area, West Bengal

Received 29 July, 2019

Revised 30 August, 2019

Accepted 9 September, 2019

Published 24 September, 2019

**Lopamudra Ganguly\*<sup>1</sup>,  
and  
Lakshminarayan Satpati<sup>1</sup>**

<sup>1</sup>Department of Geography,  
University of Calcutta. 35,  
ballygunge circular rd, Ballygunge,  
Kolkata, West Bengal 700019

\*Corresponding Author Email:  
[lopamudra.g1984@gmail.com](mailto:lopamudra.g1984@gmail.com)

Poor school sanitation and hygiene is a major problem in developing countries. It ruins the health condition of the child. This high risk phenomenon is very common among primary schools. The aim of this study is to assess the factors influencing hygiene performance among school children in primary level and also analyse the teachers' condition regarding in this issue. A cross-sectional study with multi-stage purposive sampling process was employed for selection of the primary schools in North Dumdum area for the survey. 15 primary schools in North Dumdum municipality area and total 90 students among these schools were selected for the study. The research was carried out from June -October (2018). Results showed that the numbers of toilets in the selected primary schools are inadequate and no separate toilets for students and teachers are there. In addition, the girls and boys shared the same toilets. Lack of knowledge and awareness of water handling and hand wash habit were maintained which leads towards poor hygiene behaviour. Lacks of required number of toilets in schools create the situation more complex.

**Key words:** Awareness, hygiene, sanitation, school children.

## INTRODUCTION

A toilet is part of personal hygiene, which is a crucial chapter in the history of human civilization, and it cannot be isolated or accorded as an inferior position. Toilet is critically linked with good and bad environment. According to 'World Health Organization' sanitation considers as a provision of facilities and services for the safe disposal of human urine and faeces (World Health Organization, 2018). Inadequate and unclean sanitation is significant cause of the disease in the society. According to World Health Organization contaminated water and poor sanitations are responsible for over 50 % of persistent diarrheal and/or in malnutrition (Prüss-Üstün et al., 2008).

### Background of the study

In the global scenario sanitation and hygiene matter in

school level creates a great impact. On the other hand, developing countries like India, poor school sanitation condition is significantly associated with the health problems, which are directly linked with the hygiene related issues among the school children (Sarkar, 2013).

A study was conducted in Raffles girls' school (Singapore) in 2003, where some stringing facts revealed. About 36 % to 40 % of the students suffered from sanitation-related disease. These diseases mostly spread through the dirty school toilets, because all the students were using the same school toilets daily without proper cleaning. On the other hand, wet floors of toilets have created another difficulty which encouraged bacterial growth. Shallow sinks areas do not allowed water to be splashed out of the sink quickly and the areas became unhygienic (Jung et al., 2003). A descriptive cross-sectional study was also carried out in 20 public primary

schools situated in small urban and rural areas in Kajiado Central District, Kenya. This study shows that 55% of schools have designated hand washing points; half of the designated hand washing points do not have water flow (Gisore, 2013). In the year 2016, a study was conducted in 19 urban and sub-urban, primary and secondary schools in Jessore district (Bangladesh), in this survey, an important fact came into light that the ratio of schools toilets varies from 71:1 in urban to 103:1 in suburban areas (Jahan et al., 2016).

In the ground of Indian societal structure, no one is eager to talk about 'Health and sanitation' related issue and problems which are facing by people in their daily life. In India per day, 900 million litres of urine and 135 million kilograms of faecal matters are disposed of in the environment, but the inadequate system of its collection is the main issue in this ground (History of Toilets). The societies are constantly facing threat of health hazards and epidemics. Moreover, India carried very stunning historical evidence where sanitation system and hygiene was laid one side of a coin. In the period Indus valley civilization, a place named 'Lothal' (62 Kilometres from the city of Ahmedabad, Western India), the people, had water borne toilets in each house which was linked with drains covered with burnt clay bricks (2500 BC). This architectural planning showed the world a proper scientific sewerage system, which proved that ancient society, was concerned about the health and sanitation related issues (Iravatham, 2011). In the first five-year plan (1951-1956, India) the main thrust was given to the sanitation-related issues in different section of the society (Five Years Plan of India). Investments in the sanitation-related matters were also increased in subsequent plans. In "National Policy" guideline India's approach towards water supply and sanitation in the Eighth, Ninth and the Tenth Plan were broadly guided by New Delhi declaration, which was adopted by the 'United Nations General Assembly' (Bhodiakhera, 2015). The 'School Sanitation and Hygiene Education' (SSHE) project was launched in India in the year 1992. Now SSE covers over 1600 schools in eight districts state in southern India. The SSHE Programme aims to promote sanitation and hygiene education in schools and through behavioural change, which would generate an enduring impact (Towards Total Sanitation and Hygiene, 2003). SSHE under 'Total Sanitation Campaign' (TSC) (launched in 1999) was given significant priority in the following areas:

- Water and sanitation facilities must be provided in the schools for generating good habit among the students.
- Generate the ideas for the usage of toilets/urinals among school students, hand washing at proper times, and sharing tasks, i.e., collecting water and cleaning toilet by boys and girls equally within the school hours so that hygienic behaviour can be spread among the students.
- To promote behavioural change through health and hygiene education not only in the school premises but also in the community.
- A system must be introduced within the schools so that schools can maintain their sanitation infrastructure

without any external support.

- To build a rapport among the stakeholders, especially teachers, PTA, PRI, etc. to ensure sustainable development (School Sanitation and Hygiene Education in India, 2004).

Total Sanitation Campaign (TSC) was launched on 1st April 1999. The main focus of that program was to promote toilet resources in an affordable range. For urban poor or slum populations, a new scheme VAMPY – (Valmiki Ambedkar Awas Yojana) was introduced for community pay-and-use toilet complexes (Sanitation-Government policies and Scheme, 2004), but it's suffering from various obstacles and in 2012 this program newly launched as 'Nirmal Bharat Abhiyan' and renamed as 'Swachh Bharat Abhiyan' in 2014. 'Nirmal Vidyalaya Saptaha' (School Hygiene Week) is one of the most effective interventions under the 'Nirmal Vidyalaya Abhiyan' (NVA) launched in 2012, the purpose for the organizing of 'Nirmal Vidyalaya Saptaha' is to trigger a positive behavioral change communication process by engaging children as advocates for good practices in school premises (Nirmal, 2019).

### Sanitation System and School

Roots and wings are the two precious gifts a kid can have. Schools are considered the place where nurturing the roots, means the continuous learning process and wings, means the everlasting practice. School is not only an institute, but it is a journey where every person spends specific period in his life and cherishes its memory lifelong. Therefore, problems related to schools, can be understood by a person from the core of his heart. The most critical problems that are being faced by the school students in various part of the world is 'Water-Sanitation and Health' related difficulties. About 60,700 children (age 1 to 10 years) died annually due to improper sanitation in India (Banega Swachh India). Sanitation is the core of human dignity. Progress of human civilization is based on the right to use clean sanitary toilets. It does not only ensure the dignity of the individual but also has a positive impact on health, well-being, and it reduces drop-out rates and encourages regular attendance in schools.

Different national and international studies have shown that lack of adequate sanitation facilities in primary schools leads to high rates of absence and poor academic performance. Under the poor, inadequate, unhygienic toilet conditions, children become most vulnerable to health hazards, and high reluctance to school attendance. According to the 'World Health Organization,' the school with proper sanitation system may increase the chances of girls attending the school by 11 % (The World Health Report, 2002). In addition, the study of schools' sanitation hygiene and clean drinking water facility creates a significant footprint not only in the social structural scenario but also in the broader economic arena. This research will open a new horizon of research where not only the problem will be discussed, but also the remedial methods can be highlighted in the context of

developing country.

### Study Area

The vivid study was carried out in North dum Dum Municipality (22°37'23"N to 22°41'00"N & 88°23'30"E to 88°27'15"E) in North 24 Parganas district. This area comes under Barrackpore sub-division, and a part of Kolkata Metropolitan Development Authority (West Bengal, India). Under north Dum Dum municipality, there are 31 wards, and the total number of government-aided primary schools is 23.

### METHODOLOGY

A cross-sectional study with multi-stage purposive sampling process with three stages was used to select for the participated schools. The research was carried out from June –October (2018). 15 primary schools in North Dum Dum municipality area were selected, among the schools total 90 students were considered for the research purpose. In each school 6 students were selected among them 3 were boys and 3 were girls. The pre-tested structured questionnaire was prepared, which were carried out for both boys and girls, respectively (age:8 to 10 years). 1 male and 1 female teacher in each school were also included in the study. Separate questionnaire were prepared for the teachers to fulfil the purpose. North Dum Dum municipality → total number of government /government aided schools→ selection of the government-aided primary schools →select 3 boys and 3 girls students (age between 8-10 years)→select 1 male and 1 female teacher.

### RESULTS

#### Available of Sanitary Facilities

The study is based on the information related to the availability of sanitary facilities which influence on the participation of the students in their schools (Table 1). On the other hand, teachers' participation is also measured (Table 2).

### DISCUSSION

Children are the "pillars of change" in their family and within the society. In this context, the determinants of hygiene behaviours of school children are considered in the study area. There are some specific factors which may determine hygiene practice among the school children. These are multifarious, interlinked, and some are difficult to determine in the context of socio-economic structure. This study is presenting the sanitation and hygiene behaviour in a very analytical point of view and also interpreted the findings by comparing a critical

representation among school children and teachers. Knowledge and awareness are the way of direction or the two sides of a coin which are thought to be on the important pathway towards the hygienic behavioural practice. According to the present study, knowledge of students' towards positive hygiene behaviour was restricted because of the unavailability of adequate resources. So the improvement in knowledge level, respondent's exhibit better hygiene practices may improve the present situation but on the other hand the available resources are constraints. Awareness of health and hygiene towards the sanitation behaviour is vital because it determines the degree of sustainability of the intervention in the environmental perspective. In this study, certain considerable gap has been observed:

1) The ratio of toilets in the primary schools is inadequate and did not meet the numbers, recommended by the ministry of education (1:40) (Ministry of human resource development).

2) The toilets are not adequately clean, and students suffer from lousy odour though there is enough water flow from the tap. Most of the taps are broken.

3) There are no separate toilets for girls' and boys' students. Only compartment toilet facilities are available for them. This is against the children's dignity, safety, and health-related issues.

4) Waiting time for the toilet is 3 to 5 min, and students are also avoiding going to the toilet because of water stagnant on the floor of the toilets. Proper drainage systems are not accessible in the schools' toilet and outside drains are not regularly clean.

5) There are no separate toilets for male and female students that create an awkward situation among students. Though teachers generally have gender specific separate toilets, but students do not have permission to use it in any emergency situations.

6) It is also found that 100% of the school students have the basic knowledge of hand washing in proper time with soap but due to unclean basins and soggy basin area this good behavioural practice hampered often.

### Suggested Solutions

The study found that knowledge and awareness of water handling and hand washing are significantly associated with hygiene performance status. The study is carried out to assess the factors influencing hygiene actions. If the awareness programs among the students are vividly spread out and the required facilities are given to the students like, required- secure and gender specific toilets, it may minimize the problems. If the recurring "health and hygiene" related training for students as well as for the teachers will be conducted in the school premises that will be a remedial step for these difficulty. This study also revealed that, there is a constrained in the availability of resources in this section and economical obligation are also a crucial barrier, so to overcome these hurdle it is important to manage the accessible resources in a

**Table 1.** This hygienic parameter data is based on the survey of 90 students in 15 primary schools of NDDM related to their hygienic behaviour associated with the sanitation system.

Category	Yes/no	Explanation
Washing Hand	Yes (100%)	Using soap
Drinking water	Yes (98%)	96% of students carry drinking water from home while 4% are collecting it near municipality tap.
Taste of municipality Water	100%	Good
Water born related problems	Yes (60%)	Stomach pain, Diarrheal
Lock system in toilets	No (100%)	Separate compartment for boys' and girls' students is there, but separate toilets with proper lock system are absent.
Odor from toilet	Yes (100%)	One of the majors complains that all the students have, is that they avoid going to the toilet during school hours because of savors bad odor
Water availability in toilet	Yes (100%)	Use municipality water, but school authority never tested that quality of water from any recognized testing laboratory
Workshop related to sanitation and health organised by 'School Education Department'	100%	"Nirmal Vidyalaya Abhiyan" which is organized according to the schedule school calendar

**Table 2.** This hygienic parameter data is based on the survey of 30 teachers (both male and female) in 15 primary schools of NDDM related to their hygienic behaviour associated with the sanitation system.

Category	Yes/no	Explanation
Washing Hand	Yes (100%)	Using soap
Toilet Facility	No (100%)	They use students' toilet because in school prizes teachers do not have any separate toilets.
Drinking water	Yes (100%)	100% of teachers carry drinking water from home.
Taste of municipality Water	-	Good
Water born related problems	No	-
Absent during menstruation(for Female Teachers)	No	-

sustainable manner may be beneficial for this segment.

## Conclusion

Numerous studies all over the world are vigorously conducted to examine the health issue related to sanitation and drinking water in school levels. The present work highlighted that, how the quality and availability of water and sanitation in the school environment creates an impact on the health of school children along with the teachers. This study has shown that knowledge and awareness of hygiene issues are important predisposing factor to determine positive hygiene actions. The study observed considerable gap in practicing positive hygiene behaviour, as a result of adequate knowledge and awareness among the students. The main problem related in this issue is not only the unavailability of resources, but also the improper management of the available resources. The concerned body (School WASH program) should give attention to improve the knowledge of school children for latrine utilization. Further study that combined different methodological approach should be made to quantify the influence of enabling factors on hygiene actions of students. To understand further supportive issues,

evaluate the effect of parents' involvement on the children's hygiene practice is necessary.

## Acknowledgment

The authors are grateful to Mrs. Ilora Pal Das (Urban Planner), NDDM municipality for providing the necessary support to do the research study.

## Conflict of interest

The author declares no conflict of interest.

## REFERENCE

- Banega Swachh India. <http://www.swachhtakipehel.com> Sumitra GCW, Bhodiakhera 2015). Analysis of Five Year Plan in India. Int. J. Manag. Soc. Sci. Res.4(7):. children living in a slum of Kolkata, India. J Prev Med and Hyg, 54(3):153-158.
- Five Years Plan of India. <https://en.wikipedia.org>. Accessed: December 7 2018.
- Gisore AW (2013). An Assessment Of Sanitation Facilities in Public Primary Schools In Kajiado Central District. University of Nairobi.

- History of Toilets: exploring history of sanitation & hygiene. <http://www.sulabhtoiletmuseum.org/history-of-toilets/>.
- Iravatham M (2011). The Indus Fish Swam in the Great Bath: A New Solution to an Old Riddle. Indus Research Centre: Roja Muthiah Research Library, Chennai, India.
- Jahan S, Roky MRH (2016) Comparative Study Of The Sanitation Practices Between Urban And Suburban School Children In Jessore District, Bangladesh. *Int. Res. J. Public Environ. Health.* 3(3):47-54.
- Jung JS, Hui KN, Man LK, Su Fei ST (2003). Toilet Cleanliness in RGS, Raffles Girls' School (Secondary), PPL project.
- Ministry of human resource development. Government of India. <https://mhrd.gov.in/>
- Nirmal Vidyalaya Saptaha (School Hygiene Week), 2015. Updated on January 8 2019. <https://wbxpress.com/nirmal-vidyalaya-saptaha-school-hygiene-week-2015/>
- Prüss-Üstün A, Bos R, Gore F, Bartram J (2008). Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health. *World Health Organization, Geneva.* [https://apps.who.int/iris/bitstream/handle/10665/43840/9789241596435\\_eng.pdf;jsessionid=51AD0BCABE E0D7164EBADAD4BCA7954B?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/43840/9789241596435_eng.pdf;jsessionid=51AD0BCABE E0D7164EBADAD4BCA7954B?sequence=1)
- Sanitation (2019) - Government policies and Schemes.
- Sarkar M (2013). Personal hygiene among primary school School Sanitation and Hygiene Education in India Investment in Building Children's Future. SSHE Global Symposium: "Construction is not enough" Delft. The Netherlands. June 2004.
- The World Health Report (2002), Reducing Risks, Promoting Healthy Life. World Health Organization (WHO). <https://www.who.int/whr/2002/en/>. January 20 2018.
- Towards Total Sanitation and Hygiene: A challenge for India (2003). South Asian Conference on Sanitation Dhaka, Bangladesh. Government of India. 21st to 23rd October 2003. <http://www.mdws.gov.in/sites/default/files/CountryPaperSanitationOct2003.pdf>.
- World Health Organization (2018): Sanitation. <http://www.who.int/topics/sanitation/en/>.