Original Article

Health literacy on hygiene and sanitation, nutrition, and diseases among rural secondary school children – Findings from a qualitative study in Odisha, India

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Abstract

Context: Health literacy among school children is a priority to promote their health, hygiene, and nutrition behaviours and practices. Although in schools they learn from their peers and teachers, their domestic and social conditions also contribute to learning and adopting in practice. The level of health literacy is also influenced based on socio-demographic features. **Aims:** It is imperative to explore and understand the practices including existing gaps and challenges for future improvement. **Methods and Material:** A qualitative study consisting of 17 focus group discussions (FGDs) among students and teachers in six rural secondary schools was carried out in a rural block of the Cuttack district, Odisha. All FGDs were audio-recorded; transcribed and compiled data were imported into Atlas.ti for analysis. **Results:** An existing gap in health literacy and healthy practices with respect to hygiene and sanitation, nutrition, and diseases was observed. A low socio-economic status, inaccessibility to clean and safe drinking water, toilet facility, and nutritional food items were major factors preventing their health literacy and practice. Many schools have adopted measures such as poster presentation, practical teaching and demonstration, school play, and competitions at the school and in the community, which were found to be effective for creating awareness. Improving infrastructural facilities, ensuring availability of essential commodities, and having more health-promotional activities are required for improving health literacy and practice. **Conclusions:** There is an urgent need to improve the health literacy and practice among rural school children. Innovative practical-oriented education at schools and improved awareness among parents and community people would achieve better adherence to healthy practices.

Keywords: Health literacy, Odisha, rural, school children, WaSH

Introduction

Health literacy, especially among school children, is a priority to promote health, hygiene, and nutrition behaviours and practices for preventing many diseases. Health literacy refers to an individual's capacity to receive, view, and understand basic health knowledge and resources to support his or her health.[1] An individual's health awareness, behaviour, and abilities determine his/her health literacy status.[2,3]

Adolescence is the critical period in an individual's life cycle to learn life skills and adopt them into practice through the behaviour change that lasts for a longer period. Ultimately, these practices, whether good or bad, determine the health status and

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related outcomes.[4] Therefore, it is important to educate and nurture good and healthy practices at an early age for a healthy being and society.

Children and young adolescents spend most of their time in schools and get an opportunity to learn many things from their peer groups and teachers. The school environment provides a great platform for them to learn many life skills and convert them into practice. Although the school-based health curriculum educates them on healthy behaviour and practices, strict instructions and rules help to follow these practices.[5] Besides the school environment, domestic and social conditions also play an important role to make the students health-literate. A health literate child builds his/her skill as a healthy individual and better engages his/her community for a healthy society.[4,6] This directly reflects as a decreased burden of communicable and non-communicable diseases in the community and is definitely helpful for the health system and health service providers towards achieving better health indicators. However, studies have shown about the existing variations on the level of health literacy among school children based on their gender,[4] rural–urban variation,[7] and social status of families.[8] With regard to health literacy and practices, inter-school variations cannot be denied. To improve the status of health literacy among school children and achieve better health practices among them, it is critical to explore and understand the current practices including existing gaps and challenges at different levels (such as schools, individuals, and communities). In India, only a few studies have been carried out among school children on the said topic. With this backdrop, the present study was carried out among the rural secondary school children to understand their health, hygiene, and nutrition practices and explore the existing gaps and challenges.

Materials and Methods

Study setting, design, and method

A cross-sectional qualitative study was carried out among the students and teachers of six secondary schools in the Tigiria block of the Cuttack district, Odisha. Odisha is a high-prioritized state of India with a population size of more than 41 million[9], of whom 83% are living in rural villages.[10] The Model Rural Health Research Unit (MRHRU) has been established in the study area in order to promote health research in the rural areas and address the locally prevalent health problems. Although secondary schools provide education to students from standard VI to X, we included students of standard VIII to X under our study for their better participation. A total of six schools were randomly selected among the existing 64 secondary schools in the study block area. Focus group discussions (FGDs) were carried out among the students and teachers using a pre-designed and pre-tested guide. The FGD method was chosen because of its advantage in better eliciting the group norms and meanings and the ability to simulate a natural environment for sharing experiences.[11]

Study population and sampling procedure

A total of 17 FGDs were conducted, which include six FGDs among teachers and 11 FGDs among students. Separate interviews for boys and girls were performed in co-education schools. For better representation of boys and girls across all standards, the student participants were selected following the Kiss grid method[12] given below in Table 1. From each of the selected classes, among the students who volunteered to participate, 10 to 12 were selected for the FGD. FGDs were facilitated by trained researchers in local language (Odia) in a friendly atmosphere. A total of 117 students and 38 teachers participated under the study.

Data management and analysis

FGDs were audio-recorded, and transcriptions were performed immediately after the data collection. Compiled data were imported into the Atlas.ti (analytical windows software) for coding. According to the study objectives, coded data were abstracted. Categories and themes were generated. Findings were interpreted according to the concepts based on study objectives. All the recurrent themes were supported by verbatim of the respondents.

Quality appraisal

The Consolidated Criteria for the Reporting of Qualitative Research (COREQ) assessment tool was used to assess the quality of selected articles.[13]

Ethical consideration

This study was approved by the institutional ethical review committee of the Indian Council of Medical Research (ICMR)–Regional Medical Research Centre, Bhubaneswar, Odisha. Written approval from the District Education Officer, Cuttack, was obtained to carry out the study in the schools. Permissions from the school headmasters were obtained prior to data collection. Assents were obtained from the participating students, and written consent was obtained from their class teachers.

Result

The study findings are presented under three broad themes, including (1) knowledge and practice on health with special focus to hygiene, sanitation, nutrition, and diseases; (2) existing gaps and challenges (schools, individuals, and communities); and (3) measures adopted to address the gaps and challenges.

Theme 1: Knowledge and practice on health with special focus to hygiene, sanitation, nutrition, and diseases

Category I: Knowledge on Hygiene, Sanitation, Nutrition, and Diseases

We observed that most of the students had a fair understanding on hygiene, sanitation, and nutrition. These topics are the part

of their course curriculum and taught in their classes. However, there were some students who were not so clear about these terminologies. A few responses by the students when they were asked about "what they mean by health" are given below.

"To be healthy and fit is called health." (8th standard student)

"Health is a state of physical, mental and social well-being and absence of diseases" (9th standard student)

About nutrition and sanitation, a few responses were as follows:

"The food we eat is nutrition. Because whatever we eat, it provides us with the energy to do our work" (8th standard student)

"Daily taking a bath and brushing teeth, hand washing after using the toilet, keeping the environment clean etc., are called sanitation." (8th standard student)

To some participants, it was much clear on how health, nutrition, sanitation, and infectious diseases are inter-linked. They were able to recognize the role of each component and how one has an impact over another:

"If we get proper nutrition, we will be healthy. Also, if we cannot get proper nutrition, we will be unhealthy and get various diseases. When we get proper nutrition, our immunity power develops, which prevents various diseases." (9th standard student)

"If we are not hygienic, probably we will be affected by skin diseases. Also, if our surrounding is not clean, different types of mosquitoes will bite us. So, we have to clean the surrounding. Also, we need to clean our nail." (9th standard student)

Most of the teachers mentioned that not all students have explicit knowledge on the topics. They pointed out reasons such as 'topics like health behaviour are not included in their study curriculum', 'lack of interest among some students to learn', and 'lack of opportunity for them to learn and practice because of their economic condition' for this. However, some students had explicit knowledge on health behaviour components because of their practice in routine life.

"Though they don't know the exact definition, many students have sound knowledge regarding the components because every day we are telling them about sanitation, nutrition, and health through various activities, other than the classroom teaching." (teacher)

"Few students come to school, sit, and go. They do not take part in anything. What can we do to them?" (teacher)

Category 1.2: Level of practice:

Upon exploring about whether knowledge among the students, particularly on sanitation, nutrition, health, and infectious diseases, get translated into their practices, the student participants subtly distinguished between knowledge and practice. Most of the students knew about the various activities that could make them healthy and disease-free. They also stated about the difficulties while bringing them into practice.

"I have tuition early in the morning, so when I wake up, I have to go to my tuition. I do not get time to do exercise." (8th standard student)

"In my home, my mother does yoga every day. But I feel lazy to wake up early in the morning." (9th standard student)

Although most of the students explained different methods and activities for ensuring hygiene and sanitation, such as hand washing, self-cleanliness such as bathing and brushing teeth, along with maintaining a clean environment, and so forth, they do not practice them to the fullest. The reasons given were as follows:

"I know before having food, we need to clean our hand, but often I forget. My mother scolds me for that" (9th standard student)

"Maintaining cleanliness around our surrounding is important. But it's my mother's work to keep it clean. I come to school, so do not get time." (9th standard student)

Category 1.3: Gap between knowledge and practice:

Many students mentioned about the gaps between their knowledge and practice with respect to their daily activities. For instance, they know that use of dustbins could help to maintain the school surrounding clean; however, seldom they practice.

"Though the students know, very few practices it. At least we are here to tell them what to do and what not. But once they go to their home, nobody tells them." (teacher)

"Most of the parents are farmers. In the evening they sleep early. They neither teach their children nor discuss about their study." (teacher)

"I do wash my hand before taking food, but only in school. Once I go back to home, I usually forget, and because nobody is there to tell me, so I neglect it." (8th standard student)

Theme 2. Existing gaps and challenges (schools, individuals, and communities)

Category 2.1. At the school and its environment

Although most of the students and teachers told positive aspects related to the school, a few participants highlighted the lack of school-based health promotion activities that hinder the learning process. Also, the development of positive habits and attitudes related to health, taking responsibility for their own and others' health, and encouraging them to choose a healthy lifestyle were such activities that are yet to be initiated by the school. In this regard, a teacher told that

"School should organize events which focus on how to maintain a healthy lifestyle and its importance. It is important and will help students to maintain a positive life." (teacher)

Considering the importance of mental health, a student highlighted the lack of mental health promotional activities in the school. The participant in this regard stated,

"In school, teachers should teach us about the importance of the mental well-being of an individual. Physical health everyone can see, but none observes mental health. So, mental health-related activities could be helpful" (9th standard student)

Participants also mentioned about addressing the existing gaps and challenges, such as the lack of infrastructure, poor cleaning and maintenance of the toilets, and inadequate water supply along with availability of sanitary resources, for ensuring WaSH practices.

Table 1: Selection of FGD participants

Students Std.	School 1		School 2		School 3		School 4		School 5		School 6*
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Girls
X											
IX											
VIII											
Teachers	Group 1		Group 2		Group 3		Group 4		Group 5		Group 6

*Girls only school

"The toilet is usually dirty. Still, some use it, and some go back side of the toilet."
(Student)

Similarly, girls' needs during menstruation are often neglected at the school, preventing many girls coming to the school during their menstrual period.

"During my periods, I stay at home. Here changing and disposing the sanitary pad is an issue. We usually throw it to the back side of the school, around the bushes" (9th Standard Student)

With regard to nutritional practices, the lack of monitoring and supervision during the cooking process and food preparation under the Mid-Day Meal program and sitting on open grounds or school verandas (Corridors) while eating were some of the gaps highlighted by the students and teachers.

Category 2.2: Personal level

Other than the school level, many gaps at the personal or family level such as a poor socio-economic status, inaccessibility to clean and safe drinking water, toilet facility, and nutritional food items were highlighted by the participants.

"We do not have latrine; we defecate in open field. Also, I wash my hand using ash after coming from the toilet. Not only I, in my home everyone does the same" (8th standard student)

"I have to get up early and carry the lunch box to the field for my father. After that, I get ready for school. I do not get time to do exercise" (9th standard student)

Upon interviewing the teachers, they also opined similarly.

"Few students could not come to school because they have to do their household activities like cooking, cleaning, etc., because their parents have to go for farming. In this situation, how can we ensure their good and practices" (teacher)

"Many times, students come in empty stomach. They do not have food to eat, access to the toilet, and many other issues. Sometimes they also have to stay at home and cook food. So, in such a situation, it's very difficult to ask them to maintain their health" (teacher)

Category 2.3: Community level

Individuals' practices are influenced by the choices made by their community. In this regard, teachers opined,

"Community-based sanitation program could be a possible way that may lead to a change in behaviour among masses" (teacher)

"During the parent-teacher meeting, we usually emphasize on the importance of sanitation and health along with other health promotion and disease prevention activities. However, if someone from health department could explain this to them, that would be more effective." (teacher)

One of the student participants told,

"If in a community, people start participating healthy lifestyle, then definitely gradually others will adopt that" (9th standard student)

Theme 3. Measures adopted to address the gaps and challenges

Category 3.1. School level

In schools, various methods such as poster presentation, practical teaching and demonstration, school play, and competitions have been adopted to provide effective learning to the students apart from the classroom teaching.

"Last year the school had organized a debate competition. The topic was "environmental sanitation". I still remember all the points I had spoken in front of others." (9th standard Student)

"I feel the practical teaching is a very effective method for learning. When we hear something, we may forget after some days or months, but if we see something and someone demonstrates the steps and procedure, we never forget that. Last time in science exhibition, we had witnessed the demonstration about malaria prevention" (9th standard student)

Some teachers mentioned that to change students' habits regularly, they check their hygiene to make them understand the importance of sanitation.

"Routinely we check their nails, clothes, and hair. If they do not maintain their hygiene, we punish them" (teacher)

"We always ask them to use the dustbin. Few students always follow it, but some do not. So, last time we had warned them that, we will collect fine if they do not use dustbin" (teacher)

Category 3.2: Individual level

Some of the respondents told that they have adopted effective measures to maintain their health and hygiene. Schools play a significant role to bring these changes in their daily routine.

"I usually cut my nails, do hand washing, and clean my clothes. In school they always ask us about this, so now it has become a habit for me." (8th standard student)

"We see students maintaining hygiene like washing hands, use of dustbins at school. But after going from school, I don't know whether they do the same or not." (teacher)

Category 3.3: Community level

Through school initiatives, various activities were performed at the community level to create awareness among the people on health and sanitation. Also, various programs such as "Swachhata Diwas" and "National Nutrition Week" were observed through street play, role play, and slogans. Pamphlets related to similar topics were distributed in the community.

Figure 1: Framework on the Enablers–Gaps–Barriers for strategies to Improve Health and Well-being

Discussion

This qualitative study highlights about the health literacy among rural school-going children, their health practices, the existing gaps, and challenges at different levels focusing on hygiene, sanitation, nutrition, and diseases.

Nutrition

Although some students had knowledge about food and nutrition, most of them were not clear about the nutrition and nutrients. Similarly, Yilmazel *et al*.[14] had also observed nutrition literacy to be moderate among adolescents. They had suggested for public health efforts in coordination with multiple sectors for improving nutritional literacy among adolescents. While exploring about the source of information about the nutrition, participants mentioned the school, specifically the teachers, and family members as the major sources. A study highlighted that the internet (18.6%), followed by the families (15.2%) and books (13.1%), was the source of information regarding nutrition.[15] In contrast to this, Zoellner *et al*.[16] had reported that

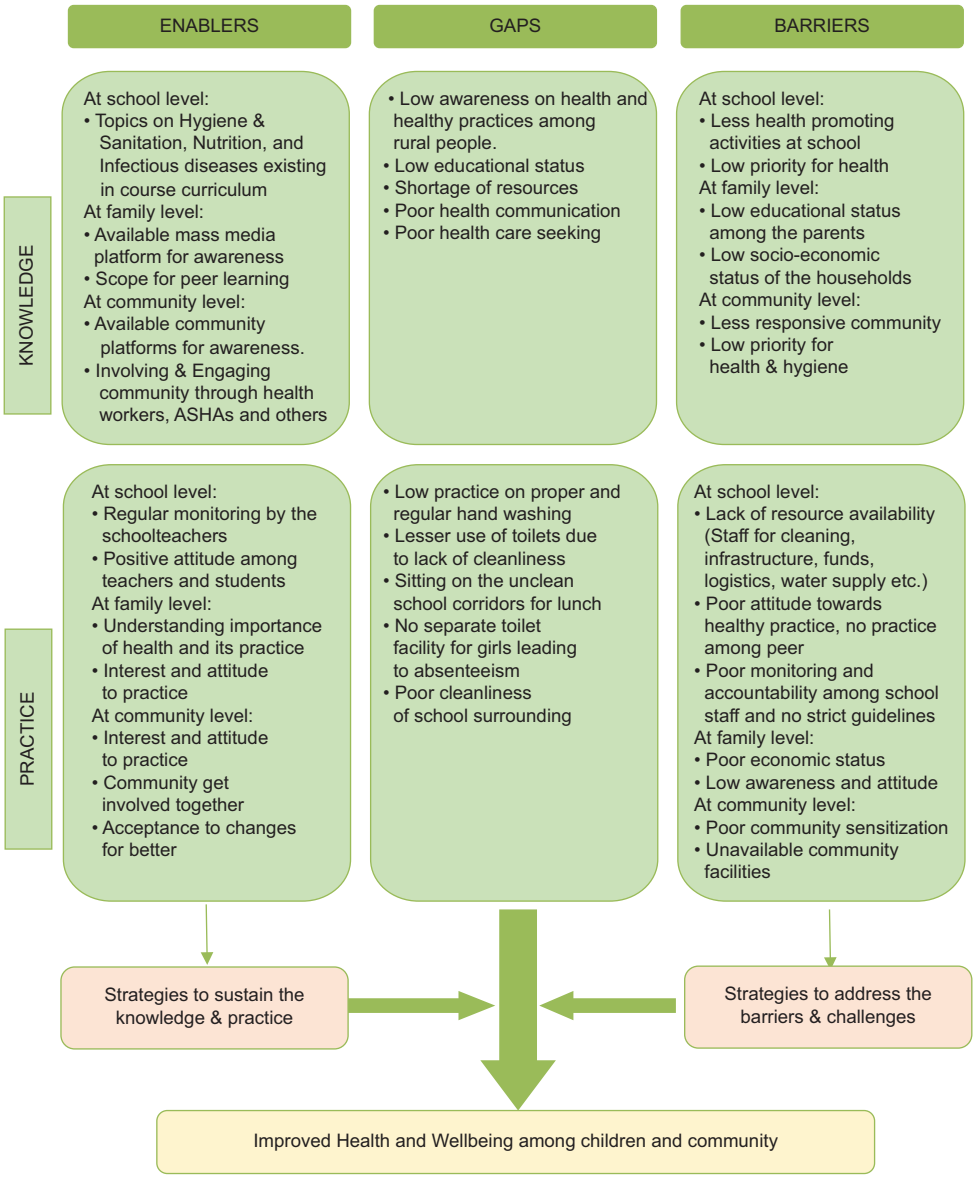

Figure 1: Framework on the Enablers- Gaps-Barriers for strategies to Improve Health and Wellbeing

the internet is not frequently used among the adults for nutritional information. Moreover, school students in rural settings have limited access to internet services. Studies have also highlighted the adult family[17,18] and college classes among under-graduate students[19] as the primary sources of knowledge on nutrition.

A study by Koca *et al*.[20] has suggested that to maintain a healthy lifestyle, adolescents should know and follow the dietary guidelines; however, the majority of the adolescents do not practice the same. According to Maziya, adolescents become more and more conscious about choosing their food, with an advancement in their educational level.[21]

Sanitation

In regard to sanitation and personal hygiene, a gap between knowledge and practice is existing among the students. However, improved knowledge helps the students to practice healthy hygiene and sanitation. A study among primary school children by Sarkar has shown that 94.23% of children washed their hands after visiting the toilet and 84.62% washed their hands before eating.[22] We found that although the majority of the students practice hand washing while they are in school, a similar practice is not strictly adhered when they are at home. Rizqi *et al*.[23] in their study had established a significant correlation between health literacy and tooth brushing practice. We found that poor socio-economic conditions, inadequate infrastructure and sanitation facility, and the lack of basic requirements such as water and soap are important factors that hinder the students in healthy sanitation and hygiene practices. Similar to our finding, Raihan *et al*.[24] had also highlighted the association between Socio-Economic Status (SES) and Water, Sanitation, and Hygiene (WASH) practice causing a poor nutritional status. This shows that there is an urgent need for implementing strategies to improve health awareness and practices irrespective of their socio-economic conditions in rural settings.

Infectious diseases

Although many students had knowledge regarding infectious diseases, their causes, and how to prevent them, still some students did not know about them. We observed that those who had taken part in health projects, science exhibitions, and role play were having explicit knowledge about infectious diseases and communicable and non-communicable diseases. According to Castro-Sánchez *et al*.,[25] limited or insufficient health literacy was associated with reduced adoption of protective behaviours. We observed that the newer practical oriented methodologies in teaching the students at the school help them to understand the subject better. Introducing such innovative teaching methods at the school would certainly improve the knowledge and understanding among the students. However, to translate this knowledge into practice, apart from the school, equal efforts should also be required at home and at the community level. Educating the parents and community people are equally important if we want to bring the changes for healthy practice.

Limitations

This research was carried out among the secondary school children in a rural region of Odisha, India. Study results may not corroborate with non-rural regions. Therefore, the study results need to be generalised accordingly. Our study intends not only to understand the health literacy among students but also to unfold the existing gaps and challenges in knowledge and practices.

Conclusion

Health literacy was found to be low and inadequate among the secondary school children of rural Odisha. In order to improve the health literacy and practice among the students, innovative practical-oriented education processes at schools need to be introduced. However, strategies need to be developed and introduced at the school, home, and community levels to translate their knowledge into healthy practices. Apart from the students, the parents at home and community people also need to be educated for better adherence to healthy practices.

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Conflicts of interest

There are no conflicts of interest.

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