International Journal of Community Medicine and Public Health
Mittal GC et al. Int J Community Med Public Health. 2023 Feb;10(2):729-733
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20230229

Original Research Article

Knowledge and practices of water and sanitation and prevention of water-borne diseases among the residents of Wabgaon village

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Received: 23 November 2022
Revised: 30 December 2022
Accepted: 02 January 2023

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ABSTRACT

Background: Globally 1.339 billion U-5s and 79 thousand neonates aged 0-27 days were estimated to be dead due to diarrhoea. India, Nigeria, Afghanistan, Pakistan, and Ethiopia accounts for more than half of the deaths caused by diarrhoea. Our objectives are to understand the knowledge and practices of WASH, preventive and treatment measures of diarrheal diseases, the feeding practices and hygiene among the mothers in the rural village of Wardha district.
Methods: This is a mixed method study with study participants including 72 families randomly selected along with the front-line workers. the descriptive analysis was carried out with the help of R software and other online statistical software.
Results: 90.6 % had their source of water away from a contaminated place such as open drains, manure pits, solid waste disposal areas etc. Though 96.9% had toilets in their household only 93.8% actually used it. All of them washed their hands with soap after using the restroom. Mixed responses were obtained when people were asked about the line of action in case, they suffer from any of the acute diarrhoeal diseases. 90% of them prefer ORS during such times and the source of availing had mixed responses.
Conclusions: An interventional study for the same can be carried out. Regular follow ups might assist in keeping the public free from such communicable discomforts.

Keywords: WASH, Diarrheal diseases, Feeding practices, Hygiene, Sanitation

INTRODUCTION

Water forms an integral and essential part of human existence since its inception. Though its purity and cleanliness has been an issue due to the heedlessness of the community of late. Poor water quality continues to pose a major threat to human health. Diarrheal disease alone amounts to an estimated 4.1% of the total disability adjusted life year (DALY) global burden of disease and is responsible for the deaths of 2 million people every year. It was estimated that 88% of that burden is attributable to unsafe water supply, sanitation, and hygiene and is mostly concentrated on children in developing countries.[1] Diarrheal is a gastrointestinal infection caused by pathogenic microorganisms including *E. coli*, Rotavirus, *Salmonella spp.*, *Vibrio cholerae*, Campylobacter, and Shigella.[2] The time between birth and age 5 of a child's life represents a sensitive period for development. The developmental construct of the physical health and well-being of a U-5 (Under 5) includes physical readiness for the school day, physical liberation, and gross and fine motor skills.[3] This has been adversely affected due to such instances which can be avoided just by opting for some preventive measures. Around 525 000 children per year die from diarrheal illness, which is the second leading cause of death in children under five.[4] Diarrheal illness remained a key threat to global U-5 health and was estimated to be a reason for 15% of all-cause mortality among U-5 s.[5] Globally 1.339 billion U-5 s and 79 thousand neonates aged 0-27 days were estimated to be dead due to

diarrhoea.[6] India, Nigeria, Afghanistan, Pakistan, and Ethiopia accounts for more than half of the deaths caused by diarrhoea.[7]

In 1854, Dr John Snow famously incriminated the water from the Broad St pump as the vehicle of cholera transmission in London's Soho, but much of the medical establishment continued to uphold the miasma theory for many years thereafter. Ever since then, the role of water in diarrhoea transmission and prevention has been hotly debated.[8] Water, Sanitation and hygiene has taken centre stage for prevention of diarrhoeal diseases today. Water, sanitation and hygiene (WASH) initiative was also introduced by UNICEF that emphasises on hygiene and related diseases. Due to inadequate WASH services, more than 700 under five children die per day from diarrheal illnesses. Children in conflict zones have a nearly 20-fold greater risk of dying from diarrheal illness than from the fighting itself. Thus, in this study we try understand the knowledge and practices of WASH and diarrheal diseases among the residents of rural villages of Warda

Objectives

The current study was conducted with the objectives of understanding the knowledge and practices of WASH, preventive and treatment measures of diarrheal diseases and the feeding practices and hygiene among the mothers in the rural village of Wardha district.

METHODS

Study design and duration

It was a mixed method, descriptive cross-sectional study. A STROBE type of study conducted from June 2022 to October 2022.

Inclusion criteria

Inclusion criteria for current study were; the subject should be a resident of rural (Wabgaon) village, should be ready to participate in the study and frontline workers/AWW should be closely associated with the village and the villagers for at least 2 years.

Exclusion criteria

Exclusion criteria for current study were; participant who is not a resident of rural (Wabgaon) village and not willing to cooperate in the study and give his/her opinion about the questions asked. The study was carried out in a village of Wardha district that was demographically similar to most of the villages of central rural India, with the population of around 1500.The study participants were selected randomly and the frontline workers of the village were included for triangulation of data. The data entry was maintained in Microsoft Excel and the descriptive analysis was carried out with the help of R software and other online statistical software**.** Verbal informed consent and recordings were taken from the participants and the information were maintained for ethical consideration.

Table 1: The matrix of this mixed method study.

Domains	Methods to be used	Sample
Knowledge and practices of WASH	Questionnaire	72 families
Feeding practices among mothers	FGD of mothers	8 mothers
Preventive and treatment measures of diarrheal diseases	IDI of AWW	AWW of the selected village
WASH in school	Observation and Checklist	Primary school of the village
VHNSC involvement	IDI of sarpanch	Sarpanch

RESULTS

Quantitative data for knowledge and practices of WASH

A questionnaire was prepared which was then answered by 72 Families. The number of family members in each family ranged from 1 to 9 with 4 being the mean count. 92% families had tap water via pipelines as their prime source of water. Others used well water.

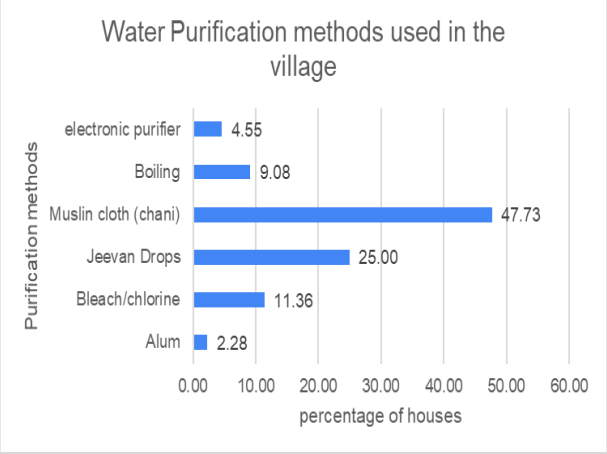

Figure 1: Water purification methods.

Total 82% families used tap water itself for other purposes as well. 90.6% had their source of water away from a contaminated place such as open drains, manure pits, solid waste disposal areas etc. 78% of the population purified water before using it. The following data was obtained when the people were asked the exact ways of purifying the water. Most of the population fetched water by dipping their hand directly. The storage vessel was washed often. 100% families washed vegetables in some or the other way before using them.

Table 2: Mothers on feeding practices and home care of diarrheal diseases.

Responsibilities	Maximum respondents said that they care for nutrition and health along with other answers like vaccination, cleanliness and play activities
Disease awareness	Maximum- common cold, cough and other URTI, also; diarrhoea, jaundice, dengue and other viral infection and blood abnormalities
Prevention activities	Jeevan drops, boiling of water, bleaching powder, dettol hand washing, washing child's clothes with hot water
Measures taken during diarrheal episodes	Maximum ORS packets; also: zinc tablets, hospital referrals
Home based cares	Reducing the food/easily digestible food, lemon water, eating cold food reduces the severity of the diarrhoea
Hospitals to approach	Rural hospital nearby (secondary care centre), Kiran clinic
Breastfeeding during diarrheal episodes	Maximum every 2 hours, Others, 4 to 5 times per day

Ways of storing the vegetables and food items were also asked. Whooping 96.9% stored cooked food in closed containers.

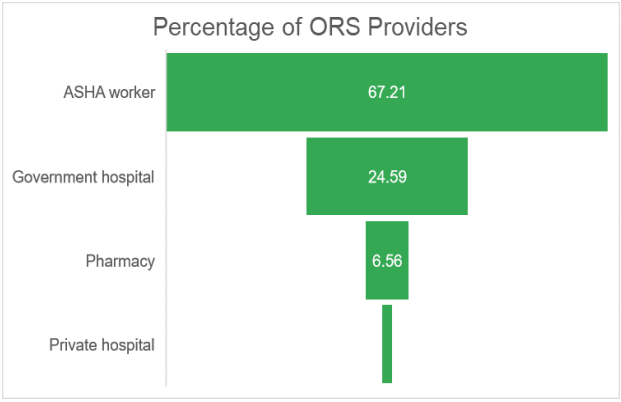

Figure 2: Percentage of ORS providers.

People didn't prefer to have outside food except for marriages or functions. Majority of the population had toilets present in their household. Though 96.9% had toilets in their household only 93.8% actually used it. All of them washed their hands with soap after using the restroom. About 80% of them even washed hands before meals.21.9% of the population suffered from any water-borne diseases such as diarrhoea, typhoid, cholera etc in the past one month. Mixed responses were obtained when people were asked about the line of action in case, they suffer from any of the acute diarrhoeal diseases. 90% of them prefer ORS during such times and the source of availing had mixed responses.

Table 3: Observation by WASH school checklist.

Domain	Yes/No
Handwashing facility (with water and soap) is ready in front of the classroom	Yes
Room is arranged for physical distancing	No
Waste bins are available and have been emptied	No
Separate cleaning and disinfecting solutions prepared	Yes
Floor is cleaned (swept or mopped)	Yes
High touch surfaces have been cleaned and disinfected:	Yes
Tables/armchairs/chairs	Yes
Doorknob and window handles	Yes
Switch and remote control	No
Board eraser/handrail	Yes

Table 4: In-depth interview of frontline workers.

Parameters	Response
Role in child monitoring-growth and diseases	Conduct home visits 7 times till 1.5 month after delivery and observe symptoms of diseases, and also, Asha along with AWW arrange mothers meeting monthly where they talk about techniques of breastfeeding.
Diarrhoea concerned services	Distribute the ORS packets and also explain about the preparation of it. They also tell the family to make homemade ORS called Saar Sanjeevani.
Lactation related advices	Breast milk should be provided every 2 hours. Mother is told to wash hands before and after feeding the baby.
Hygiene	Daily life activities performed for children should be done after hand hygiene. Maintain cleanliness in and around the house. Jeevan drops available free of cost. Awareness regarding cleanliness and sanitation.
Treatment and record maintenance	Mother is given zinc tablets along with ORS. They follow after every visit and check for the progress. Maintain the record for 1 and half months.

Table 5: In-depth interview with sarpanch (village head).

Parameters	Response
Program related to health and malnourished child	Health promotion activities conducted by VHNSC governed by Gram Panchayat, Arranges Aahar Spardha (nutritious dish competition)
Related to diarrhoea	Distributes ORS and Zinc Tablet through ASHA workers, Providing Jeevan drops for cost at Rs.50, Checks vaccination status every third Tuesday, Ensures distribution of Albendazole tablets

Qualitative data analysis

The FGD was carried out with 8 mothers and questions were asked to know about the feeding practices along with their knowledge on the preventive and home care of diarrheal diseases. Thematic analysis was done and following themes were captured. The ASHA says that` "Our main objective is to decrease the infant mortality and maternal mortality rate as low as possible".

DISCUSSION

One of the notable and appreciable outcomes of the study was that the Sarpanch, the Aganwadi workers and the people themselves were very much aware about water borne diseases especially diarrhoea. The mothers in the village took utmost care and preventive measures to avoid instances of such infections under the guidance of trained AWW. Usage of Jeevan drops, filtered water, bleach were some preventive measures helping them curb the disease spread. In a study conducted by Agrawal et. al in the same district in a nearby village 61% of households purified water before drinking in contrast to 78% in our study village.[9] In another study by Kumari et al. 97/140 mothers fetched water directly from their hand or they had some contact of hand with the drinking water, which was also evident in the history taken in this village.[10] Avachat et al found that most of the diarrheal cases in western India had poor sanitation facilities, hence sanitation facilities in the village was also assessed.[11] The village overall had good sanitation facilities with almost each household having a toilet which in turn reduces risk of diarrheal illness by preventing open defecation. Washing hands after using restrooms was practiced by the villagers without fail which helped the cause. In spite of such practices and awareness still 21.9% of the population suffered from water borne diseases in the past one month which is again an astonishing number.

Limitations

Socio economic factors of the families weren't taken into consideration. Apart from that, the literacy of the mothers could have been considered quantitatively. A transect walk could have been performed in addition to the qualitative methods used in order to look into the sanitation practices of the village overall.

CONCLUSION

The study helps us to keep a check on and also assess the present conditions regarding sanitation in rural set ups. With the advancement in medicine, it has now become easier to avoid the spread of such diseases, the only factor where the overall lag is knowledge and practices which the population possess and follow. As mentioned above overall hygiene of the residents of the village was quite appreciable. Apart from this, areas where the villagers lack can be educated so as to curb the spread of water borne diseases. An interventional study for the same can be carried out. Apart from this a seasonal variation can also be studied and depending upon that the treatment and preventive measures can be listed and put into practice. Moreover, regular follow ups might assist in keeping the public free from such communicable discomforts.

ACKNOWLEDGEMENTS

Authors would like to thank the villagers and all the participants of the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Mittal GC, Sundar RNS, Prashanth A. Knowledge and practices of water and sanitation and prevention of water-borne diseases among the residents of Wabgaon village. Int J Community Med Public Health 2023;10:729-33.