ORIGINAL RESEARCH PAPER

Medical Science

ASSESSMENT OF HANDLING OF DRINKING WATER, SANITATION AND HAND WASHING PRACTICES IN VILLAGE DHANAS, CHANDIGARH.

KEY WORDS: sanitation, hand washing, Swacch Bharat Mission.

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ABSTRACT

Background- Water supply and safe sanitation are among two of the most important factors directly related to health. **Methods**-A cross sectional study was conducted on 380 villagers from Village Dhanas of Chandigarh to assess the sanitation facilities and related practices, hand washing practices, attitude towards water handling practices, method adopted to make water safe to drink and to assess the awareness among villagers about the initiative of Swachh Bharat Mission (SBM). Results- All 380 households had sanitary toilets. The 70.8% toilets were cleaned on daily basis. 50% opined that use of toilet improves personal hygiene and cleanliness. All respondents believed in washing hands with soap after defecation. 44.7% treated their drinking water. 73.9% were aware of the SBM **Conclusion**- Existing knowledge and practices regarding sanitation behavior by the villagers were found appropriate and satisfactory.

INTRODUCTION-

The improved water supply and quality sanitation are the most effective means to improve public health and eventually to save lives. It also has variety of benefits including prevention of disease, better nutrition, increased access to schools, promotion of economic activity, improvements in housing and ultimately enhancing the quality of life1. However, in developing countries, water and sanitation services are still severely lacking. Rapid, unplanned urbanization, population explosion and industrialization have exerted pressure on the quality and quantity of water resources and access to adequate sanitation facilities. Key Facts from Joint Monitoring Programme (JMP) Report, states that though, 91% and 68% of the global population uses an improved drinking water source and sanitation facilities respectively, remaining 9% (663 million) and 22% (2.4 billion) people still do not have access. Hence, 946 million people tend to rely on open defecation2. The Union Ministry of Urban development initiated a survey during 4-20 January, 2016 for reality check of sanitation conditions across 75 major cities. The parameters focused on SBM objectives i.e. garbage collection, solid waste management, and conditions of public toilets3. The 'City Beautiful' could not retain its top position due to deficiency in coverage of waste management and sanitation4. Present study has been undertaken to study the existing sanitation, water handling practices and hand washing practices to further find out the factors which needs to be addressed to help city to be on top amongst clean city.

Methods-

Study design - Cross –sectional.

The Study area - Dhanas is a village located in Chandigarh with total 1845 families residing comprising of 7094 population of which 4258 are males while 2836 are females at the time of survey.

Study period - January 2016 – April 2016.

Sample size- Assuming an estimate prevalence of 50% with margin of error as 5% (95% Confidence Interval), sample size came out to be 400.

Sampling design - Multistage cluster sampling. The study village Dhanas was randomly selected from the list of villages adopted by Panjab University. First household was selected by simple random sampling. Applying circular systematic sampling, the consecutive household was taken at the 5th interval i.e. 6th household. One member per selected household was interviewed.

Data collection- Face-to-face interviews using a structured questionnaire were conducted to obtain information. All interviews were preceded by an informed consent.

Data entry was done on SPSS software (21.0) and MS Excel (2010). Results- Age wise, majority of respondents (51.5%) were from the age group 21-39 yrs. 21% of respondents were illiterate. Rest 79% had enrolled with formal education (Table 1).

Table 1- Educational status of study respondents

Educational status	Male (n=107) n (%)	Female (n = 273) n (%)	Total (n = 380) n (%)
Illiterate	18 (16.8)	62 (22.7)	80 (21.0)
Primary/secondary school	29 (27.1)	117 (42.9)	146 (38.4)
High school	12 (11.2)	52 (19)	64 (16.8)
Higher secondary school	19 (17.8)	5 (1.8)	24 (6.3)
College / University	29 (27.1)	37 (13.6)	66 (20.3)

Majority of respondents were not engaged in formal work. The proportion was high in females (77.3%) as compared to males (7.5%). 27.1% of survey population was found to be self –employed (Table 2).

Table 2: Occupation of study respondents

Occupation of respondents	Male (n=107) n (%)	Female (n = 273) n (%)	Total (n = 380) n (%)
Self employed	44 (41.1)	59 (21.6)	103 (27.1)
Govt. employee	13 (12.1)	0 (0)	13 (3.4)
On daily wages	12 (11.2)	0 (0)	12 (3.1)
Agriculture	13 (12.1)	0 (0)	13 (3.4)

Private job	17 (15.9)	3 (1.1)	20 (5.2)
Unemployed/homemaker	8 (7.5)	211 (77.3)	219 (57.6)

The average family income reported was more than Rs. 25,000 as per the information gathered from respondents.

In the current study it was observed that all (100%) participants had toilets built inside their home and all family members were using them (Table 3).

Table 3: Sanitation facilities and related practices followed by respondents

Variables	Frequency (n=380)	Percentage (%)
Availability of toilet within house		
a) Yes	380	100
b) No	0	0
Usage of toilet		
a) Yes	380	100
b) No	0	0
If yes, what type of facility		
a) Indian style	264	69.5
b) Western style	83	21.8
c) Both	33	8.7
Do you yourself clean the toilet?		
a) Yourself	338	88.9
b) Hired someone	42	11.1
How often you/your family member clean the toilet?		
a) Daily	269	70.8
b) Weekly	101	26.6
c) Fortnightly	10	2.6
What material is used for cleaning the toilets?		
a) Cleaning Liquid	380	100
b) Detergent	0	0
Type of water supply for the toilet?		
a) Overhead tanks	359	94.5
b) Water stored in bucket	21	5.5

While exploring the advantages of owning individual toilet; 50% of respondents said it helps to improve hygiene/cleanliness. While among other reasons, 47.3% respondents perceived that it has more privacy/safety, it is convenient/saves time (44.4%) and only 36.8% said that it improves health.

All households had fixed hand washing place with availability of soap and water (Table 4).

Table 4: Hand washing practices of study respondents

Variable	Frequency (n=380)	Percentage (%)
At home, do you have a fixed hand-washing place/ station?		
a) Yes	380	100
b) No	0	0
If yes, does it always has water and soap?		
a) Yes	380	100
b) No	0	0
Do you wash your hands after defecation		
a) Yes	380	100
b) No	0	0
If yes, how do you wash your hands?		
a) Soap and water	380	100
b) Water only	0	0
Do you wash your hands before handling meal?		
a) Yes	380	100
b) No	0	0
If yes, how do you wash your hands?		
a) Soap and water	266	70
b) Water only	114	30

Washing of hands before handling food showed positive correlation with educational status of respondents (r = 0.31, P = 0.01) which means higher the education level more is the awareness among the study subjects. Same for the variable, income of the household there was positive correlation (r = 0.34, P = 0.01) with washing of hands which means more the availability of resources more is the hand washing practice among respondents (Table 5).

Table 5: Pearson correlation between socio-demographic and washing of hands before cooking and serving meals

Sr.no	Variables	1	2	3	4	5	6
1	Washing hands before handling food?	-	-.002	-.220**	.317**	-.047	.342**
2	Age of respondents	-	-	.108*	-.380**	-.003	-.128*
3	Gender of respondents	-	-	-	-.235**	.330**	0.075
4	Educational status of respondents	-	-	-	-	-.348**	.432**
5	Occupation of respondents	-	-	-	-	-	.094
6	Income of household	-	-	-	-	-	-

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

When respondents were asked about the source of the drinking water 100% responded household connection. None was observed to use hand pump water (Table- 6).

Table 6: Perceptions and practice related to drinking water among study respondents

Variables	Frequency (n)	Percentage (%)
Drinking water source		
a) Household connection	380	100
b) Hand Pump	0	0
Water treatment		
a) Yes	170	44.7
b) No	210	55.3
If yes, type of water treatment		
a) Water filter	155	40.8
b) Boiling	9	2.4
c) Sieve cloth	6	1.6
If no, why?		
a) Water is safe	151	39.7
b) It makes water unpalatable	54	14.2
c) others	5	1.3

On exploring the views about the initiative Swachh Bharat Mission (SBM), it was found that more than half of the respondents (73.9%) were aware and 26.1% haven't heard about it (Table 7).

Table 7: Views of study respondents about Swacch Bharat Mission

Variable	Frequency (n=380)	Percentage (%)

Knowledge about Swacch Bharat Mission		
a) Yes	281	73.9
b) No	99	26.1
Knowledge about objectives of Swacch Bharat Mission?		
a) Yes	243	86.5
b) No	38	13.5
Do you find your surrounding clean?		
a) Yes	270	71
b) No	110	28.9

DISCUSSION- In present study it was observed that 100% households in study area had access to sanitation facility in their home and all family members used it. The observations were similar to Anjaneyulu5, who reported that Kosai village from the Talamadugu mandal in Adilabad district had 100% latrine facilities within the household's premises and Rechini village from Bejjur mandal had 98.3% latrine facilities. The Cleaning of the toilets was done on daily basis as per 70.8% of respondents. Overall sanitary condition observed was good in the study area. A report by Department of Rural Health care, Ministry of Rural Development Phnom Penh, Cambodia6 reported that about 46% of the households with latrines, clean the latrines once a day while 29% said that they clean once every 2-3 days. In 81.1% cases it was the wife who cleaned the latrines. When enquired about the benefits of owning the toilet within house 50% of the respondents acknowledged that it improves hygiene/cleanliness. One reason given by 47.3% respondents that building their own toilet is advantageous because it maintains privacy/safety. A study by Augsburg, Caeyers, & Oteiza7 reported that between 94 and 99% of households in study areas in India and Nigeria stated that a toilet increased happiness in general; 91–98 per cent stated that it reduced embarrassment and 90–99% mentioned that it increases safety.

In present study 10.5% had children less than 3 years of age. Of them, 7.9 % of study population flushed excreta of their children in same toilet they use and other 2.6% disposed it in garbage pit.
A study conducted in Chandragadhi of Jhapa District by Sah et al8 reported different methods of disposal of children's excreta; 32.5% threw the excreta in the same latrine they used; 17 % threw in open field, 7% outside house and about 5.4% used garbage bin. A study by Banda et al9 in rural South India reported that hand washing with soap after defecation was practiced more commonly by the under-15 age group due to education at local schools on importance of good hygienic practices. As per our study, a considerably higher frequency (100%) washing of hands with soap and water after defecation was reported.

Conclusion- Existing knowledge and practices regarding sanitation behavior in the village was appropriate and satisfactory. The major factor behind it could be better socio-economic status of villagers. Provision of safe drinking water should be given utmost priority. The same can be provided by planning and conducting IEC activities regarding safe drinking water issue on a regular basis. Sense of responsibility and awareness among respondents needs to be focused through lectures and advertisements related to SBM.

REFERENCES-

1. Kumie, A., & Ali, A. (2005). An overview of environmental health status in Ethiopia with particular emphasis to its organization, drinking water and sanitation: A literature survey. Ethiopian Journal of Health Development, 19(2), 89 – 103. http://doi.org/10.4314/ejhd.v19i2.9977.
2. Key Facts from JMP 2015 Report: The report of the WHO/UNICEF Joint Monitoring Programme on access to drinking water and sanitation ahead of the MDG's. (2015).
3. The Economic Times, 2015. Assessed on 5th January, 2016.
4. Indian Express, 2016. Assessed on 16th February, 2016.
5. Anjaneyulu, P. (2016). Rural Sanitation in India and Telangana State: A Special Reference to Rural Adilabad district. International Journal of Humanities and Social Science Invention, 5(5), 27–33.
6. National Sanitation and Hygiene Knowledge, Attitudes and Practices (KAP) Survey. (2010).
7. Augsburg B., Caeyers B., Fransisco O. (2015). Evaluating development policy at IFS The costs and benefits of investing in a toilet. Views from Indian and Nigerian households and their policy implication.
8. Sah, R. B., Baral, D. D., Ghimire, A., & Pokharel, P. K. (2013). Study on knowledge and practice of water and sanitation application in Chandragadhi VDC of Jhapa District. Health Renaissance, 11(3), 241–245.
9. Banda, K., Sarkar, R., Gopal, S., Govindarajan, J., Bahadur, B., Benita, M., Balraj, V. (2007). Water handling , sanitation and defecation practices in rural southern India : A knowledge , attitudes and practices study, Transaction of Royal Society of Tropical Medeciene and Hygiene, 101(11), 1124–1130.