



Assessment of knowledge and practices of selected health and sanitation issues in slums of Ahmedabad

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ABSTRACT

Background

India has recently witnessed unprecedented economic growth. However, this rise in income has not resulted in the concurrent economic development in the country. The urban poor have been at the most disadvantage and have shown poor performance indicators in health outcomes. This paper is based on baseline assessment of knowledge and practices of selected health issue in selected slums of Ahmedabad.

Methods

A descriptive cross-sectional research was conducted to analyse and explore the level of awareness of hygiene and sanitation issues of slum dwellers. The data was compiled using household survey among 600 slum dwellers in two slums. From each slum, 100 households with a woman who is either pregnant at the time of the survey or who has recently delivered and 200 neighbouring households were interviewed. The non-probability snowball sampling technique was used. The data was collected with the help of structured questionnaire.

Analysis

There was less awareness of precursors to poor health. While hand washing came out as a common practice, use of soap was not universal. Frequency and method of hand washing was also found to be sub-optimal. While there was some information about house fly and mosquitoes, misconceptions around illnesses spread by them were observed. Health awareness campaign remained the least observed source of information about health and hygiene related issues.

Discussion

The key areas of improvement that have emerged from the survey are a) awareness of proper hygiene including techniques of hand washing, b) awareness of vector borne diseases, with focus on low-cost, self-initiated control of intra-home mosquito breeding sites, and c) importance of sanitation and safe disposal of human waste. It is suggested that these issues needs to be focused and reiterated in the performances.

Keywords: Knowledge, Practice, Health, Sanitation, Slum, Ahmedabad

INTRODUCTION

India has witnessed unprecedented economic growth during the post-reform period over two decades or so. However, this steady rise in Gross Domestic

Product (GDP) has not resulted in the concurrent economic development in the country. While the rising income has resulted in rising average income of its citizen and the overall poverty headcount ratio has

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declined from 45% in 1993-94 to around 30% in 2009-10, there are around 354 million poor people in the country.¹ The Human development parameters of India are worse than its neighbours Bangladesh and Sri Lanka. India continues to be at the bottom of the medium human development countries; as of 2013, it ranked 136 among 186 countries in human development. The urban poor have been at the most disadvantage and have shown equally bad, if not worst, performance indicators than its rural counterparts.² With an increasing trend of urbanization, India too is experiencing issues that emerge from linkages of urban poverty and health of urban poor residing in the slums of emerging cities.³

Two Asian countries i.e. China (758 million) and India (410 million) account for nearly one-third (30 %) of the world's urban population. As of 2014, India has 32 percent population living in urban areas, up from around 27.8% in census 2001 and 31.2% in census 2011.^{4,5} With an increasing trend of urbanization, India too is experiencing issues that emerge from linkages of urban poverty and health of urban poor residing in slums in cities.³ Around 17.4% of urban Indians - amounting to around 65 millions residing across 13.7 million households – live in such slums across the cities of India. This meant around 5.4% annual increase over estimated 46 million slum dwellers in 2001. The slum dwellers remain inadequately addressed – if not neglected – entity not only from the perspective of poverty reduction efforts, but also from developmental interventions. As a net effect, most cities across the world witness increased poverty, inequality, and exclusions over a period of time.⁶

With population of 55.7 lacs in 2011, Ahmedabad is the largest city of Gujarat, and fifth most populous cities in India.⁴ The city health plan of Ahmedabad Municipal Corporation (AMC) puts the population estimate at 60.08 lacs in 2012, of which around 18% lives in slums. These 9.9 lacs people live in 2.29 lacs households spread across a total of 739 slum pockets.⁷ Studies have indicated that poor living conditions, inadequate water supply and sewerage network facilities in slums of Ahmedabad. Thus, apart from vector borne diseases, other major illnesses observed in the slums are Jaundice,

Gastroenteritis, and Typhoid.^{8,9} Clearly, there is very high burden of water borne and water related illnesses in the slums of Ahmedabad, and there is a need for sustained intervention. One such intervention is to improve awareness about and thus capacities of slum dwellers to respond to determinants of health.

This paper is based on assessment of knowledge and practices of selected health issue in slums of Ahmedabad. The assessment was meant to measure baseline for the proposed arts-based health awareness intervention by a local organisation called Darpana Academy of Performing Arts.

METHODOLOGY

This section is divided into two sub-sections viz. Slum Selection and Survey Methodology.

Slum Selection

It was decided to select two demographically identical slums from different parts of the AMC. The AMC is divided into six zones, which are further divided into 64 electoral wards. The city is being served by a total of 57 Urban Health Centers (UHC); each of the UHC provides primary care to urban slums in their respective coverage areas. The selection of slums underwent a consultative process with implementation partners as well as officials of AMC. After repeated efforts, a database of slums and slum-like agglomerates was availed. After repeated efforts, a database of 4900 slums and slum-like agglomerates – spread across 62 MS Excel sheets - was availed. The database had important variables like a) Slum Area Name, b) Latitude and Longitude, c) Population and no. of households, d) Households With toilets, and e) location and distance of nearest Anganwadi, primary school and Urban Health Centers (UHC). The database underwent a much-needed collation and cleaning before using it for short listing of the slums. At the end of the data cleaning, there were 4820 slums with some population figures. Next, it was decided to short list slums with a) population more than 2000 and b) distance of less than 1 km from all the three public facilities as mentioned above. The final selection of slums was based on inputs from the Medical Officers and Health supervisors of these UHCs on the basis of



a) population composition, b) presence of other NGO/interventions, and c) logistic feasibility. Thus, at the end of this consultative process, 'Kumbhajini Chali' in Kubernagar ward was identified as intervention slum and 'Mangal Talavadi' in Vasna ward was identified as a control slum¹.

Survey Methods

Study Design

Since the objective of the research is to analyse and explore the level of awareness, descriptive cross-sectional study design is considered appropriate. The data was compiled using quantitative data collection tools. Household survey included quantitative data (e.g. Socio-demographic profile, hygiene seeking practices, and knowledge and practice about selected health issues, etc.) among slum dwellers. The survey population included adult slum dwellers who reside in the area of Kumbhajini chali and Mangal Talavadi, as mentioned in the coverage areas of respective UHC and AWCs. From each slum, the households (HHs) from where the data were collected included two kinds of households viz. a) 100 households of Category A - HHs with a woman who is either pregnant at the time of the survey or who has delivered during a year preceding the date of the data collection, and b) 200 households of Category B - neighbouring household without any such history. Thus, a total of 600 households were interviewed. The sample size was determined based on logistical and financial feasibility. The sampling technique employed for selection of HHs was non-probability snowball sampling technique. While the Anganwadi register was used to locate the first 'Category A' HH in each of the coverage area, the rest HHs in

respective coverage areas were identified with the help of the respondents. Two neighbouring houses of each of the Category A household were selected as Category B HHs. Thus, with a ratio of 1:2 for Category A and B HHs were added to make a total sample of 300 HHs in each selected slum area. House listing was carried out prior to the data collection. With 12% of non-response rate; a total of 372, 346 HHs were visited to ensure filling up of 300 questionnaires in each of the slum.

Data collection

The survey was carried out during May 2014. The data was collected through interviews with the help of a structured questionnaire. All attempts were made to ensure the privacy and confidentiality of the respondents. An oral informed consent was obtained prior to the conduct of interviews after providing a participant information sheet to all respondents. The questionnaire and oral consent were translated into local language i.e. Gujarati. The respondents who refused to provide consent were not interviewed. The collected data were subjected to random field scrutiny to ensure optimal quality. The data were entered into specially designed software, using EPI-Info programme version 3.2. The data were then analysed using MS Excel and STATA software version 12.

ANALYSIS

The average age of the respondents was 31 years (30 years for Kumbhajini Chali and 32 years for Mangal Talavadi). Around 12% HHs were headed by women. The respondents across slums were predominantly Hindu. Around one-fifth (22%) respondents indicated that highest level of education in their household is not more than five years of schooling. While around 10% of these were either illiterate or did not have any formal education, a similar proportion indicated education above schooling, including 8% who had a graduate in their house. An average household size was found to be 5.8. An average monthly income for Kumbhajini Chali (Rs. 8857) is slightly higher than that of Mangal Talavadi (Rs. 7340). More than 41% respondents indicated that manual labour work as a major source of family income. Vendor (29%) comprised second highest category of occupation.

¹ An important learning of the entire process was about the documentation of slum being maintained at the AMC; not only the database is difficult to get, it has incomplete and inadequate details of slum population. For example, the area of the intervention slum of Kumbhajini Chali comprises 3-4 slums identified in the database as separate slums. At the ground level, these slums do not have geographical boundaries and more or less operate as a unit.



Nearly half of the houses in Kumbhajini chali were pukka or semi-pukka, as compared to 88% semi-Pukka dwellings in Mangal Talavadi. Major source of drinking water in both the slums was supply water. Around 71% HHs reported to purify the water prior to drinking; In Mangal Talavadi, more than one-third (39%) HHs did not report the purification of water prior to drinking. The most common method of water purification involved filtering it through a mechanical strainer. Nearly all HHs in Kumbhajini Chali used a flush toilet for defecation as compared to only two third (68%) in Mangal Talavadi, where around 7% reported open defecation and another 24% HHs reported the use of community toilet i.e. Sulabh Shauchalaya.

Hygiene, sanitation and water

Respondents were asked about possible common reasons for illnesses in their locality. 'Improperly discarded garbage' and 'Mosquitoes' were perceived as possible determinants of illnesses. There was a low level of risk perception for important factors like 'Unsafe drinking water, and 'Stagnated water/overflowing drains'. Similarly, very low proportion of respondents indicated improper hand washing, contaminated food, tobacco/alcohol use, and Malnourishment as determinants of illness or diseases. Lack of cleanliness, extreme heat and mixing of sewage with drinking water pipeline are the three additional factors that were mentioned by some respondents.

Overall, 63% respondents indicated that they did not have any information on water-related or waterborne diseases. The proportion was higher for Mangal Talavadi (70%) as compared to Kumbhajini Chali (56%).

Hand washing

Although all the respondents indicated that hand washing is important, around 80% respondents in both slums indicated that hand washing is important to prevent illness. Three-fourth of respondents (75%) indicated that they wash their hands at least three times a day. The majority of the respondents indicated use of soap and water for hand washing. In Mangal Talavadi, around one-fifth respondents

indicated use of plain water, as compared to 12% in Kumbhajini Chali.

All the respondents were asked to describe their method of hand washing, which was then coded into five categories that involved components of scientific approach to hand washing. Little more than half of the respondents in both slums indicated 'only rubbing of the palms' as a method of hand washing. Another one-fourth (25%) indicated rubbing of palms from both front and back. Only one percent of respondents indicated nearly proper method of hand washing involving rubbing of palms from both front and back, in between their fingers and scrubbing of their nails.

Respondents were asked to reflect on occasions during daily lives when one must hand his/her hands. In both the slums, two occasions viz. Before having a meal and after defecation were mentioned by a majority of the respondents. The next two occasions as mentioned by respondents were 'prior to cooking' and 'after handling garbage'. Although agreeing to wash hands prior to meals, only one third of respondents (34%) in Kumbhajini Chali and 11% in Mangal Talavadi.. There remains low awareness about the importance of hand washing after a) changing sanitary pads, b) handling wounds and cuts, c) handling animals or animal waste, d) coughing and sneezing, and e) handling ill persons.

Television is the preferred source of information for proper hand washing methods for both the slums. While the second preferred source was government health workers for Mangal Talavadi, it was relatives/friends for Kumbhajini Chali. Radio and health awareness campaigns were at the bottom of the list of existing sources of information for the importance of hand washing (Table 1). Certain respondents also mentioned health facilities/doctors, and schools as sources of information, while others indicated it as general knowledge.



Table 1 Existing Source of Information Regarding Benefits of Proper Handwashing in the Slums

Particulars	Kumbhaji ni chali	Mangal Talavadi
Newspaper	27.5	18.7
Television	84.7	83.6
Radio	22	14.3
Health awareness campaign	15.3	1.3
Government health workers	48.3	76.7
Relatives/Friends	58.2	33.7

House fly control and waste disposal

While 53% respondents indicated some knowledge about illness spread by house fly, the awareness was higher in Kumbhajini Chali (63%) as compared to Mangal Talavadi (43%). Of those who have heard about such illnesses, around half could not name any such diseases.

Almost all respondents in both the slums indicated covering food items in the house as a prevention measure. However, only around 43% household reported using the toilet for disposal of the child faeces. The proportion was relatively less (39%) in Mangal Talavadi, where more than half of the respondents (52%) indicated disposal of faeces in the

open area along with other garbage. Around one-fourth (23%) respondents in Kumbhajini chali – as compared to only 7% in Mangal Talavadi indicated children defecating in the latrine. Unsafe disposal of child faeces in Mangal Talavadi is also a reflection of the fact that sizeable HHs in the slum indicated use of community toilet, as described earlier.

The system of household waste disposal was found to be different in both the slums. While Kumbhajini chali indicated a heavy reliance (78%) on garbage collector and collection by an AMC van dedicated for the purpose, around three-fourth respondents of Mangal Talavadi indicated open disposal of household waste. This can be better understood through figure below.

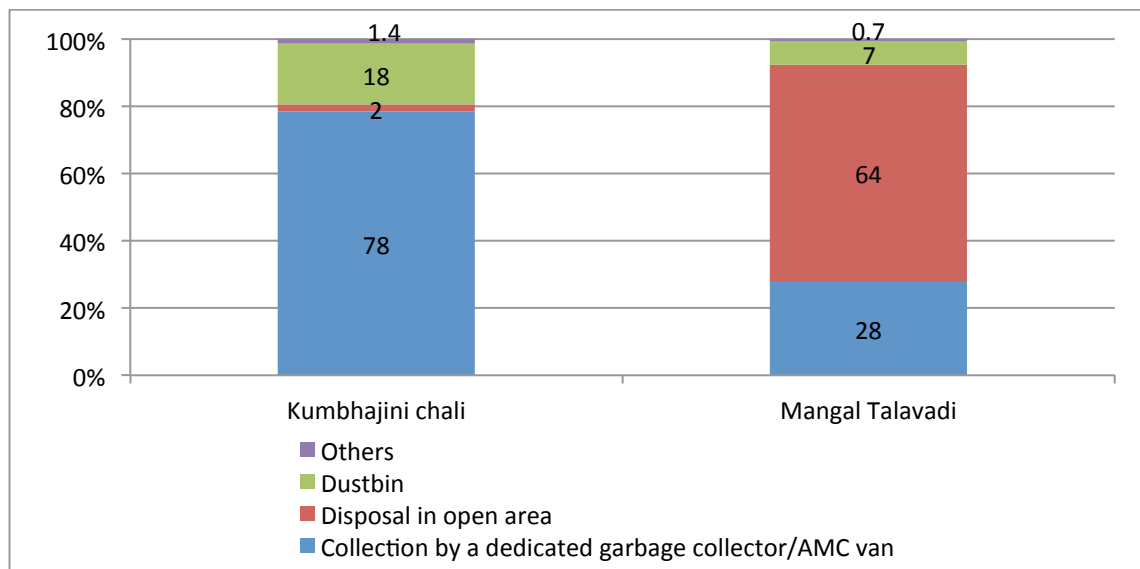


Figure 1 System of Household Waste Disposal in the Slum



Mosquito Control

While there was very high awareness about Malaria as a disease caused by mosquito bite, there was relatively low level of awareness about Dengue and Chikungunya.

As for the information about mosquito breeding sites, respondents agreed to stagnated water in ditches and puddles, and open garbage/trash as major breeding sites. Relatively less awareness was found in intra-house breeding sites unclean water storage containers, canvas/plastic sheets, and stagnated water in unused items like old tyres, plastic cup etc. This finding is important because AMC conducts annual intra domestic mosquito breeding elimination for the same purpose. Awareness about intra-house sites is crucial as the HHs can even take preventive actions without active help of the health machinery. Also, the plastic / canvas sheet was found to be least known breeding sites in both the slums. Many slum dwellers use such material to cover the huts in absence of concrete ceiling. These sheets can serve as potential mosquito breeding sites and thus, awareness about such sites is important in urban settings.

Relatively low self-awareness was found for breeding place elimination; however, almost all respondents agreed with the three major methods of elimination - preventing water stagnation, keeping the water containers covered, and changing water regularly in water tanks – after probing.

As for the respondent's perception about prevention of mosquito bites, interestingly, the least costly option of covering body with full sleeve clothes, and use of mosquito nets were not mentioned as preferred methods. The high awareness about the

use of mosquito coil, mat, and liquid vaporizers can easily be attributed to a sustained marketing campaign of mosquito repellents by commercial producers of the same. As for the source of information about mosquito control, most respondents mentioned Television (85%) as a source, followed by government health workers (65%).

Awareness about health services and schemes

Details were sought on various inputs the HHs received from governmental as well as non-governmental sources in hygiene, sanitation and health services. It was observed that in both the slums, there is miniscule or no presence of Non Governmental Organisations (NGOs). As far as the inputs from the governmental sources is concerned, Mangal Talavadi overall seems to receive more attention across the health and hygiene area. One intervention that stands out is vaccination, both in terms of information dissemination and provision of services.

As for the knowledge of the respondents about government services providers/facility and utilization of thereof, Kumbhajini chali indicated high level of knowledge (more than 95%) and utilization (84% among those who knew about the services) of about Anganwadi center and Anganwadi worker. Not only the knowledge about Anganwadi center and worker was lower in Mangal Talavadi, its utilization was further lowered. In fact, around 18% respondents in this slum indicated that they did not need the services of Anganwadi centre. On the other hand, Mangal Talavadi indicated better information about and utilization of services of link workers (90% and 95%, respectively) and urban health centers (93% and 84% respectively). The details can be seen as Table 2.



Table 2 Knowledge about Government Services Providers/Facility and Utilization thereof – Comparison across in slum (%)

Particulars	Kumbhajini chali		Mangal Talavadi	
	Knowledge	Utilization	Knowledge	Utilization
Anganwadi centre	97.7	73.7	79.5	52.3
Anganwadi worker	95.3	73.1	62.1	64.0
Link worker	57.9	52.6	90.3	95.5
ANM/FHW	22.7	56.2	1.3	40.0
Urban Health Centre	63.3	69.1	92.9	82.5

Figure 2 below present data on knowledge of selected government health schemes. Overall, very high level of awareness was observed for Integrated Child Development Scheme (ICDS) (85%), followed

by Rashtriya Swasthya Bima Yojana (RSBY) (36%). Very low awareness was found for schemes like Bal Sakha Yojana and Kasturba Poshan Sahay Yojana.

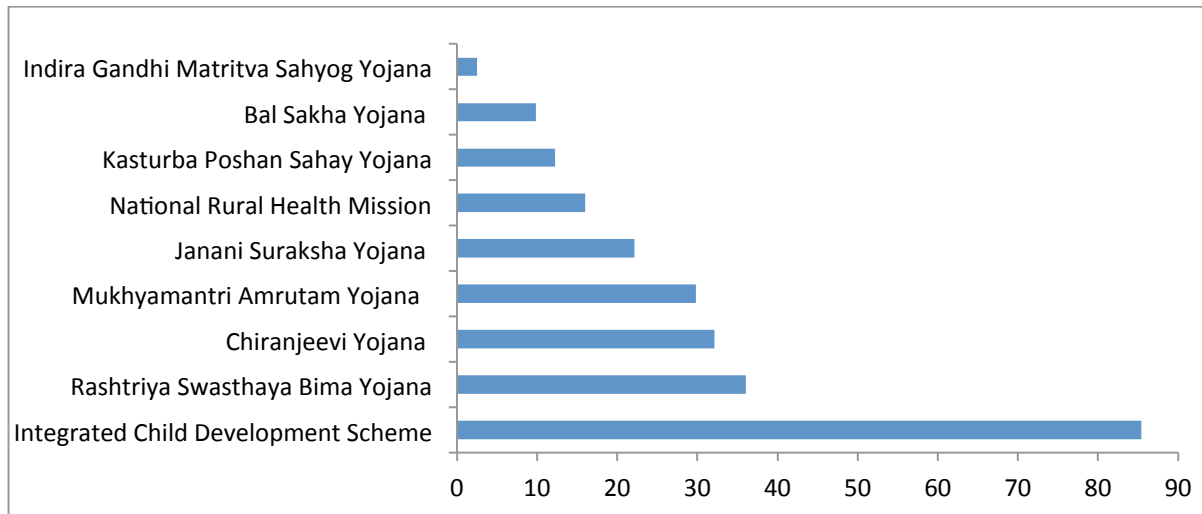


Figure 2 Proportions of HHs Reporting to have Knowledge about Selected Government Health Schemes (in %)

As for the comparison between the slums, while awareness about the ICDS scheme was very high in both the slums, its uptake among those who knew about the scheme was higher in Kumbhajini chali (80%) as compared to Mangal Talavadi (48%). This finding corroborates well with previous finding on

awareness and uptake about services of Anganwadi center and workers. There is an interesting pattern about Mangal Talavadi; while awareness about schemes is relatively higher, their uptake is lower. Details of such pattern can be seen in table 3 below.



Table 3 Knowledge about Government Health Schemes and Utilization thereof - Comparison across slums (in %)

Particulars	Kumbhajini chali		Mangal Talavadi	
	Knowledge	Utilization	Knowledge	Utilization
National Rural Health Mission	20.7	43.3	11.2	22.9
Rashtriya Swasthaya Bima Yojana	29.0	7.8	43.1	37.5
Indira Gandhi Matritva Sahyog Yojana	2.7	14.3	2.4	33.3
Integrated Child Development Scheme (ICDS)	89.0	80.2	81.8	47.7
Mukhyamantri Amrutam Yojana	23.7	8.0	36.0	13.8
Kasturba Poshan Sahay Yojana	6.7	40.0	17.9	28.1
Chiranjeevi Yojana	26.3	42.0	38.1	22.6
Bal Sakha Yojana	7.7	10.3	12.1	36.6
Janani Suraksha Yojana	16.0	35.9	28.4	14.0

SUMMARY

The two slums were different in various parameters. The Socioeconomic profile of respondents in Mangal Talavadi was found to be by and large following the existing local pattern, and also in concurrence with findings of 65th round of National Sample Survey, which was conducted in 2008-09. In Mangal Talavadi, the pattern of type of dwellings, access to safe water, and availability of flush latrine was observed along the lines of common practices documented elsewhere, including census.¹⁰⁻¹³ Availability of sanitary latrine in the houses and defecation practice are reflection of health and sanitation seeking behavior of community to certain extent.

Overall, there was less awareness about a) importance hand washing, b) consumption of contaminated food within and outside home, c) tobacco and alcohol, and d) malnourishment, as precursor to poor health. While hand washing came out as a common practice, use of soap was not universal and the method of hand washing was also found to be improper. The practice of hand washing with the use of soap, especially after cleaning a child who defecated, and prior to cooking or feeding children needed further attention. Health awareness campaign remained the least observed source of information about hygiene and hand washing. While

there was some information about house fly and mosquitoes, misconceptions around illnesses spread by them were observed. Child faeces disposal found to be very poor in Mangal Talavadi; one possible reason could be the lack of flush latrine within house for majority of the households in the slum. Similarly, garbage disposal system in Mangal Talavadi was sub-optimal with majority of the HHs reporting open disposal of household waste.

While higher awareness was reported for Malaria, information on Dengue and Chikungunya was found sub-optimal. This was corroborated with the fact that certain 'container breeding sites' – as opposed to 'ground water breeding sites' - were not known to many respondents. While information on elimination of breeding sites was found to be low, awareness about low cost prevention options against mosquito bites was also low. Health awareness campaign remained least mentioned source of information about mosquitoes, especially in Mangal Talavadi.

DISCUSSION

The key areas of improvement that have emerged from the survey are a) awareness of proper hygiene including techniques of hand washing, b) awareness of vector borne diseases, with focus on low-cost, self-initiated control of intra-home mosquito breeding



sites, and c) importance of sanitation and safe disposal of human waste.

It is suggested that these issues needs to be focused and reiterated in the performances. Arts based interventions needs to be targeted well so as to increase its effectiveness. It is recommended that each of the performances is better targeted in terms of location, socio-demographic profile of target groups, time of the day so as to maximize its reach and utility. Micro-analysis of existing data can be useful while planning the performances. Appropriate debriefing of all levels of government officials and sharing of project update at regular interval is essential for continued buy-in of project activities, especially when the project is being implemented in partnership or in linkages with government machinery. Such efforts must be taken up and sustained throughout the project period.

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