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SOCIAL AND BEHAVIORAL SCIENCES. Education

ORIGINAL RESEARCH

Impact of Knowledge and Perception of the Swachh Bharat Abhiyan on the Health Behavior Patterns of Rural Residents in India

Authors' Contribution:
A – Study design;
B – Data collection;
C – Statistical analysis;
D – Data interpretation;
E – Manuscript preparation;
F – Literature search;
G – Funds collection

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Abstract

Background and Aim of Study: *Swachh Bharat Abhiyan (SBA) was launched by the Prime Minister of India to accelerate the efforts for achieving universal sanitation. To ensure adequate participation, community must be sensitized about the mission objectives and its role in bringing the desired change.*
The aim of the study: to assess the knowledge, perception and practices regarding SBA among rural people, and to study the association between their socio epidemiological factors and awareness regarding SBA.

Material and Methods: *Community based cross-sectional study was conducted for duration of 6 months (April to September 2021) at a rural area of south Tamilnadu. A sample of 250 subjects was included and was administered a predesigned, pretested, semi structured questionnaire. The responses were recorded and appropriate statistical tests were applied.*

Results: *Mean age group of our study participants was 47.6 ± 9.8 years. Television 126 (50.4%) and newspaper 41 (16.4%) were found to be the main source of information about SBA. This study showed out of 250 participants, 142 (56.8%) of them had good knowledge and 174 (69.6%) had good perception score. Our study found a statistical significant association between educational status and level of knowledge and perception score.*

Conclusions: *The present study found that majority of the subjects were aware of SBA and were having positive attitude and perception but very less practicing in our day today life. Increasing awareness regarding health hazards of open-air defecation and improper disposal of solid waste will create a change in their behavior in adopting healthy lifestyle.*

Keywords: *knowledge, perception, behavior patterns, practices, environmental sanitation, community*

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Introduction

Environmental sanitation is a major public health issue in India (Pandve, 2008). For every human being potable drinking water, sanitation and healthy hygiene practices are important to sustain healthy life. Most cities and towns in India are facing issues of dense settlement, shortage of water supply and inadequate facilities for disposal of human excreta (Ganesh et al., 2011; Nath, 2003). As our Father of the nation, M. K. Gandhi stated, "Sanitation is more important than Independence" and dreamt about clean India (Chaudhary, 2017). Adequate sanitation, together with good hygiene and safe water, is fundamental to good health and to social and economic development (Singh, 2008). The issues of developing understanding of the importance of maintaining sanitary and hygienic standards in public places were described in the study by Melnyk (2020). Among seven billion people in the world, about 2.5 billion people do not have access to improved sanitation and 1 billion people defecate in the open air (World Health Organization & United Nations Children's Fund (UNICEF), 2014). In developing regions where people are most vulnerable to infection, only one in every three people has access to improved sanitation (World Health Organization, & United Nations Children's Fund (UNICEF), 2017).

Globally, around 2.4 million deaths (4.2% of all deaths) could be prevented annually if everyone practiced appropriate hygiene and had good, reliable sanitation and drinking water (Pruss-Ustun et al., 2008).

In India, 53.0% of households or 600 million people defecate in open, out of which 69.3% belongs to rural areas and 18.6% belongs to urban areas (Gopal et al., 2009). Poor environmental sanitation, improper disposal of human excreta, and poor personal hygiene help to perpetuate and spread diarrheal diseases in India (Bhattacharya, 2003).

Swachh Bharat Abhiyan (SBA) was launched by the Prime Minister of India to accelerate the efforts for achieving universal sanitation. The core objectives of SBA are to bring about an improvement in the general quality of life in the rural areas (Ministry of Jal Shakti, 2017). To ensure adequate participation, community must be sensitized about the mission objectives and its role in bringing the desired change. With this background, this study was undertaken to assess knowledge, perception and practices regarding SBA among rural people of Thiruvarur district in Tamilnadu.

The aim of the study. To assess the knowledge and perception regarding SBA among rural people of Thiruvarur, and to identify their pattern of practices regarding SBA prevailing in their community.

Materials and Methods

A health center based, cross-sectional study was conducted in a rural setting Adiyakkamangalam village, District of Thiruvarur from April 2021 to September 2021. The study population included all males and females aged 20 years and above residing in this area. This area was selected as it is catered by the Department of Community Medicine, Govt Thiruvarur Medical College.

Sampling: Systemic random sampling.

At 95% confidence level and taking the awareness of SBA in rural area to be 62% (Kishore et al, 2018) and with a relative error of 10%, the sample size (n) comes out to be 240 using the formula (see Equation 1).

$$n = Z_\alpha^2 \times p \times q / L^2, \quad (1)$$

Z_α – value of the standard normal variate corresponding to level of significance alpha 5% (1.96);
p – awareness of SBA (0.62 or 62%);
q = 1 – p (0.38 or 38%);
L – allowable error (10%).

The sample size came to be 240. A total of 250 subjects were included in this study.

Data Collection Procedure

A house-to-house survey was done in a rural area of Tamilnadu, village Adiyakamangalam. Every third house was selected systematically, from each selected house all eligible individuals of 20 years, and above was included in the study. The study subjects were personally interviewed on face-to-face interview. For each study subject a questionnaire was administered. The purpose of this study was explained to each subject in the local language, before conducting the study and a written and informed consent was taken which was bilingual in English and Tamil.

The KAP of subjects toward SBA questionnaire items were rated and scored according to the following patterns.

For this study purpose, knowledge was scored: +1 was given for the correct answer and 0 for the incorrect answer. Scoring was done. Score 0-2 was considered as poor knowledge, 2-5 considered as average knowledge and more five as good knowledge. Attitude was also scored: +1 was awarded for positive attitude and 0 was awarded for negative attitude. Score less than 0-2 was termed as poor attitude, 2-5 as average and more than five was taken as good attitude.

Statistical Analysis

Data entered and analysed in Statistical Package for Social Sciences (SPSS-IBM) software version 21. For qualitative variables proportions for quantitative variables mean, median, range and standard deviation was calculated. Bivariate analysis to find the association between determinants like education was done. P-value of <0.05 was considered as significant.

Ethical consideration:

1. Informed written consent was taken from all study subjects. No pressure coercion was exerted on subjects for participation in the study.
2. Confidentiality and privacy was ensured at all stages (females were examined only in presence of one female attendent).
3. Institutional Ethical Committee clearance was obtained.
4. Safety COVID-19 precautions measures were strictly followed.

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Results

Our total study population consists of 250 subjects. Mean age group of my study population is 47.6+ 9.8 years. The minimum age of study participant is 21 years and maximum age is 68 years (Table 1).

Table 1

Sociodemographic Profile of the Study Subjects

Parameters	Categories	Frequency	
		people	%
Gender	Male	94	37.3
	Female	156	62.7
Religion	Hindu	206	82.4
	Muslim	38	15.2
	Christian	6	2.4
Educational status	Illiterate	99	39.6
	School	124	49.6
	Post school (diploma, graduate, postgraduate)	27	10.8
Occupational status	Unemployed	33	13.2
	Unskilled	122	48.8
	Semi-skilled	6	2.4
	Skilled	37	14.8
	Farmer / Shop	46	18.4
	Profession	6	2.4
Socio-economic status (BG Prasad classification)	I (Upper)	32	12.8
	II (Upper middle)	78	31.2
	III (Lower middle)	140	56.0
Type of family	Joint	167	66.8
	Nuclear	83	33.2

Most of the study population 29.6% fall under age category 21-30 followed by 24.0% in 51-60 age group, 22.0% in 31-40 age groups. Among the study population included in the study out of which 94 (37.3%) are males and 156 (62.7%) are females. Majority of the population of 206 (82.4%) samples comprises Hindu religion, 38 (15.2%) are Muslim, 6 (2.4%) are Christian.

Regarding their educational status and occupational status, 99 (39.6%) are illiterate, 120 (49.6%) have completed school education, 27 (10.8%) have completed graduation or diploma; and 33 (13.2%) are unemployed and 217 (86.8 %) are employed.

The socioeconomic status of the study subjects based on BG Prasad classification shows, most of them 140 (56.0%) belong to the lower middle, followed by 78 (31.2%) belong to the upper middle class, and 32 (12.8%) of the population belong to the upper class. Most of the study population 167 (66.8%) were nuclear family and 83 (33.2%) belong to joint family.

Table 2 shows knowledge regarding Swachh Bharat Abhiyan.

Most of them 226 (90.4%) have heard about this, the main objective of SBA was correctly answered by only 65 (26.0%), most of them 120 (48.0%) considered to eliminate open defecation free (ODF) as the main objective. The logo symbol of SBA was correctly known only to 126 (50.4%), half of them gave incorrect response. Most of them 160 (64.0%) did not know the name of our leader who was the inspiration of Swachh Bharat Mission (SBM), Mahatma Gandhi was quoted by only 58 (23.2%), followed by Nehru 12 (4.8%) then Sardar Patel 12 (4.8%) and Modi 8 (3.2%). Clean India as main goal of SBM was given correctly by only 79 (31.6%), almost half of them 121 (48.4%) was not aware of this.

Most of them 183 (73.2%) are aware that ODF is a big threat to environment. Regarding major illness due to open-air defecation only 110 (44.0%) of them are aware about it, 80 (32.0%) of them told diarrhea as major illness followed by fever and cold. More than half of my study population 142 (56.8%) were aware that handwashing after defecation is only for self-hygiene. Regarding the sequence of events in defecation, 212 (84.8%) were aware about it. Knowledge regarding availability of community latrine is known to most 204 (81.6%) of them in this village.

Most of them 156 (62.4%) are aware that solid waste disposal (SWD) is a big threat to environment. Regarding major illness due to SWD, most of them 170 (68.0%) are aware about it, 30 (32.0%) of them told diarrhea as major illness followed by fever 36 (14.4%) and cold 14 (5.6%). Knowledge regarding availability of community dustbin is known to most 196 (78.4%) of them in this village. Regarding the logo of recycle only 132 (52.8%) were aware of this and only 106 (42.4%) were aware about the colour coded bins for disposal of waste.

Table 3 shows the perception about Swachh Bharat Abhiyan among respondents.

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Table 2

Knowledge Regarding Swachh Bharat Abhiyan among Study Population

Knowledge questions	Frequency	
	people	%
1. Heard about Swachh Bharat Abhiyan		
Yes	226	90.4
No	24	9.6
2. Objectives of Swachh Bharat Abhiyan		
To eliminate open defecation free	120	48.0
To promote solid waste disposal	65	26.0
Both	65	26.0
3. Logo of Swachh Bharat Mission		
Correct response	126	50.4
Incorrect response	124	49.6
4. Inspiration of Swachh Bharat Mission		
Mahatma Gandhi	58	23.2
Jawharlal Nehru	12	4.8
Sardar patel	12	4.8
Narendra Modi	8	3.2
Don't know	160	64.0
5. Primary goal of Swachh Bharat Mission		
Green India	40	16.0
Smart India	10	4.0
Clean India	79	31.6
Don't know	121	48.4
Open Air Defecation		
6. Open air defecation is a threat to environment		
Yes	183	73.2
No	67	26.8
7. Major illness due to open defecation free		
Fever	44	17.6
Cold	16	6.4
Diarrhea	80	32.0
All of the above	110	44.0
8. Importance of hand washing after defecation		
For self-hygiene	142	56.8
For family hygiene	18	7.2
Both	90	36.0
9. Sequence of events in defecation		
Correct response	212	84.8
Incorrect response	38	15.2
10. Knowledge on availability of community latrine		
Yes	204	81.6
No	46	19.4
Solid Waste Disposal		
11. Improper disposal of waste is a threat to environment		
Yes	156	62.4
No	94	31.8
12. Major illness due to waste contamination		
Fever	36	14.4
Cold	14	5.6
Diarrhea	30	12.0
All of the above	170	68.0
13. Knowledge on availability of community dustbins		
Yes	196	78.4
No	54	21.6
14. Logo of recycle		
Correct response	132	52.8
Incorrect response	118	47.2
15. Heard about colour coded bins for waste disposal		
Yes	106	42.4
No	144	57.6

Table 3
Perception of the Study Subjects

Perception questions	Frequency	
	people	%
SBA is useful programme for the community		
Agree	192	76.8
Disagree	58	23.2
Open-air defecation acts as source of diarrhea disease due to flies		
Agree	122	48.8
Neither agree nor disagree	20	8.0
Disagree	108	43.2
Open-air defecation acts as source of diarrhea disease due to contaminated water		
Agree	163	65.2
Neither agree nor disagree	37	14.8
Disagree	50	20.0
Open-air defecation acts as source of diarrhea disease due to contaminated food		
Agree	92	36.8
Neither agree nor disagree	30	12.0
Disagree	128	51.2
Improper washing of hands after defecation can cause entry of pathogen		
Agree	195	78.0
Neither agree nor disagree	25	10.0
Disagree	30	12.0
Improper disposal of solid waste can contaminate water		
Agree	168	67.2
Neither agree nor disagree	22	8.8
Disagree	60	24.0
Improper disposal of waste can cause mosquitoes to breed		
Agree	194	77.6
Neither agree nor disagree	16	6.4
Disagree	40	16.0
All people must actively participate in SBA activities		
Agree	154	61.6
Neither agree nor disagree	12	4.8
Disagree	84	33.6
SBA is prorogated for political benefit		
Agree	174	69.6
Neither agree nor disagree	52	20.8
Disagree	43	17.2

Most of the respondents 192 (76.8%) agreed that SBA programme is useful to community and rest of them 58 (23.2%) do not agree to this statement. 122 participants (48.8%) think that open-air defecation can cause diarrhea due to flies, 163 participants (65.2%) – due to contamination of water, only 92 participants (36.8%) – due to contamination of food.

Most of them 195 (78.0%) of agree that improper washing of hands after defecation can cause entry of pathogen and cause infections. Only 168 (67.2%) of study participants agree to that improper disposal of waste can pollute water and 194 (77.6%) agree that improper disposal of waste can act as source of mosquito to breed. 154 (61.6%) of people agree to the statement that everyone should actively participate in SBA activities. Most of them 174 (69.6%) agree that SBA is propagated for political benefit.

Association between educational status and level of knowledge and perception among study subjects (Table 4) based on their response comes to statistically significant as the education status increases the level knowledge and perception score regarding SBA increases.

Table 5 shows practices of Swachh Bharat Abhiyan among the study subjects.

Most of them 182 (72.8 %) have toilet facilities in home, still 62 (24.8%) prefer for open-air defecation and 72 (28.8%) use community latrines for open-air defecation. Practices regarding personal hygiene, only 58.0% have the habit of handwashing after defecation, 92.4% do not use soap and water for cleaning hands, only 1.2% practice proper steps of handwashing. Only 56.8% use community dustbins for SWD, 67.2% prefer to throw garbage in and around house premise. Community participation is only 81 (32.4%) in SBA related activities and almost everyone 238 (95.2%) agreed to motivate people in participation of SBA related activities.

Table 4

Association between Educational Status and Level of Knowledge and Perception among Study Subjects

Educational status	Knowledge, people (%)			Perception, people (%)		
	Good	Average	Poor	Good	Average	Poor
Illiterate	52 (47.3)	30 (26.5)	17 (15.0)	70 (63.6)	16 (14.2)	13 (15.0)
Up to High school	66 (58.4)	37 (33.6)	21 (19.1)	80 (70.8)	23 (20.9)	21 (15.5)
Graduate	24 (88.9)	3 (11.1)	-	24 (88.9)	3 (11.1)	-
	P< 0.05*			P< 0.05*		

Note. *p<0.05 significant by applying Chi Square test

Table 5

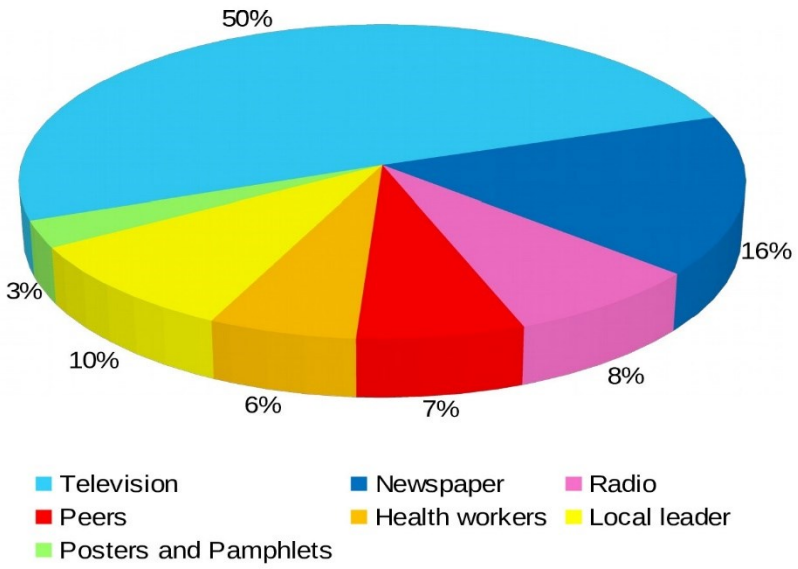
Practices of Swachh Bharat Abhiyan among the Study Subjects

Component	Compliance	Frequency	
		people	%
Subjects having toilet facilities in house	Yes	182	72.8
	No	68	27.2
Subjects preferring open defecation free	Yes	62	24.8
	No	188	75.2
Using community sanitary latrines for defecation	Yes	72	28.8
	No	178	71.2
Proper handwashing after going to latrines	Yes	145	58.0
	No	155	42.0
Using both soap and water after defecation	Yes	19	7.6
	No	231	92.4
Practicing proper steps of handwashing	Yes	3	1.2
	No	247	98.8
Using community bin for solid waste disposal	Yes	142	56.8
	No	108	44.2
Throwing of garbage waste in nearby places	Yes	168	67.2
	No	82	33.8
Participated in SBA activities	Yes	81	32.4
	No	169	67.6
Motivate people to participate in SBA activities	Yes	238	95.2
	No	12	4.8

Television and Newspaper were found to be the main source of information about SBA (Figure 1): 126 participants (50.4%) and 41 participants (16.4%) accordingly.

Figure 1

Distribution of Source for Information



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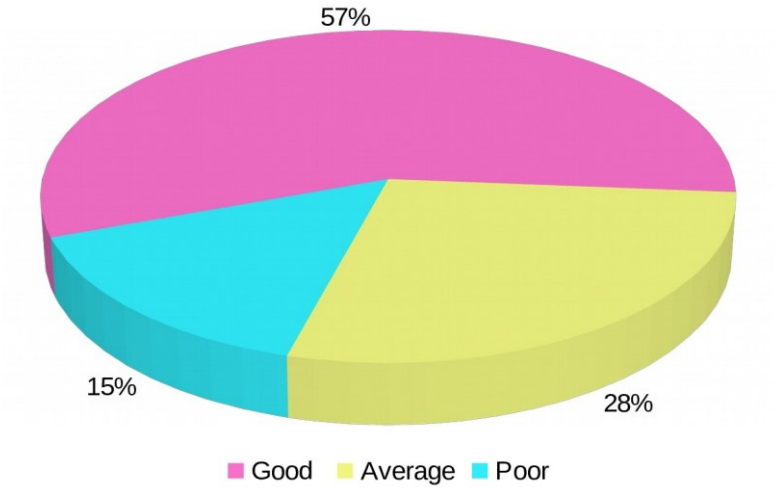
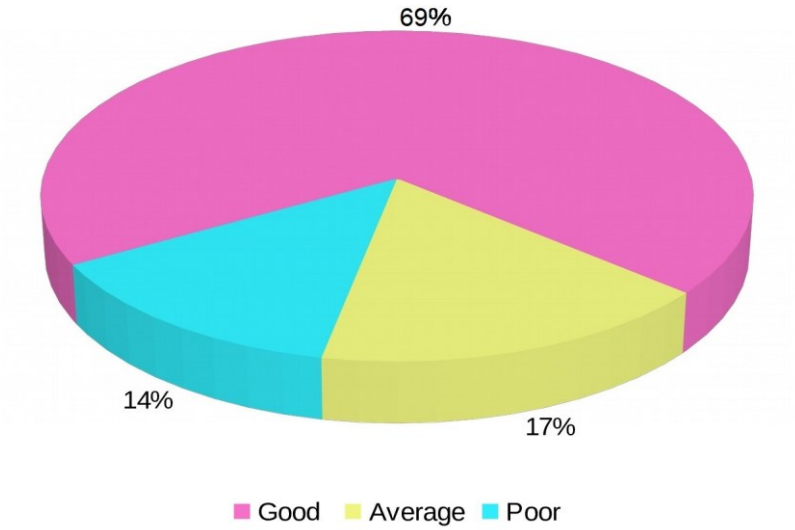
More than half of the study participants 142 (56.8%) had good knowledge score >5, others 70 (28.0%) had average knowledge and 38 (15.2%) had poor knowledge (Figure 2).

Figure 2
Distribution of Knowledge Score Assessment



More than half of the study participants 174 (69.6%) have good perception score >5, others 42 (16.8%) have average perception and 34 (13.6%) have poor perception (Figure 3).

Figure 3
Distribution of Perception Score Assessment



Discussion

In the present study, majority of the respondents belonged to 21-30 years' age group (29.6%). Mean age was 47.6 ± 9.8; were females 156 (62.7%), and were Hindus 206 (82.4%). Most of them lived in joint family 167 (66.8%). Regarding educational status 99 (39.6%) were illiterate, and rest were literate, only 33 (13.2%) were unemployed rest of them were employed, majority belonged to Socioeconomic Status (SES) Class II and Class III as per BG Prasad Classification updated.

In a similar study conducted in Jharkhand (Asian Development Research Institute, 2017), it was found that 39.0% of their study participants belonged to 21–30 years' age group. Majority were female participants (76.0%) and 34.0% were illiterates.

Another study in Nalgonda district, Telangana (Kishore et al., 2018) showed that 29.6% belonged to 21–30 years' age group, with predominantly female participants (56.1%), 96.6% was Hindus, 62.5% were literates, and 38.4% belonged to middle class similar to our study.

In another study done in Karnataka (Jeratagi et al., 2017), most of them (49.2%) belonged to SES Class IV followed by Class V (42.8%), where as in the present study, no one belonged to SES Class V.

The present study revealed that most of the respondents 226 (90.4%) had heard about SBA, which is similar to the studies 91.31% (Pradhan, 2017) and 93.62% were aware of SBA (Asian Development Research Institute, 2017).

Others studies done in Nalgonda districts that 204 (62.2%) out of 328 participants have heard about SBA (Kishore et al., 2018). In a study, conducted in Uttar Pradesh and Madhya Pradesh, was found that only 24.0% of their study participants were aware of SBA, which was quite low as compared to the present study (Swain & Pathela, 2016).

In the present study, out of 226 subjects who were aware about SBA, majority 165 (82.84%) of them have identified both eliminating open field defecation and promoting proper solid waste disposal as objectives of SBA, which is similar to this study (Kishore et al., 2018). Present study stated that 50 (95%) of the study subjects have identified eliminating open field defecation as one of the objective of SBA which is low compared to the findings in another study 93.0% (Asian Development Research Institute, 2017). 65.0% of the subjects in our study knew that promoting proper solid waste disposal as one of the objectives of SBA, where this is 87.7% (Kishore et al., 2018) and 62.3% (Asian Development Research Institute, 2017).

In our study most of them 183 (73.2%) are aware that ODF is a big threat to environment. Regarding major illness due to open-air defecation only 110 (44.0%) of them are aware about it, 80 (32.0%) of them told diarrhea as major illness followed by fever and cold. In a study conducted in rural areas of Tamilnadu a majority 87.2% (Anuradha et al., 2017) did not know that diseases could be spread due to the practice of open-air defecation, which is consistent with our study. However, in a study only a few out of the sample population (14.5%) were not aware of the harmful effects of open-air defecation (Geeta & Kumar, 2014).

More than half of my study population 142 (56.8%) were aware that handwashing after defecation is only for self-hygiene and 212 (84.8%) were aware about the sequence of events in defecation. Knowledge regarding availability of community latrine is known to most 204 (81.6%) of them in this village. However, similar other studies reported much higher prevalence of handwashing with soap after defecation by 69.8% (Kishore et al., 2018). In another study, 89.0% of their study participants used to wash their hands before eating and 92.0% of them washed after defecation (Swain & Pathela, 2016).

In our study most of them 156 (73.2%) are aware that SWD is a big threat to environment. Similarly, 74.7% respondents were aware solid waste management as very important (Usha et al., 2020).

Regarding major illness due to SWD, most of them 170 (68.0%) of them are aware about it. Knowledge regarding availability of community dustbin is known to most 196 (78.4%) of them in this village.

Television 126 (50.4%) and newspaper 41 (16.4%) were found to be the main source of information about SBA.

Similar results television (84.31%) and newspaper (39.21%) were found to be the main source of information (Kishore et al., 2018).

Present study found that 76.8% of the subjects felt that SBA is a useful programme for the community. In another study 76.1% of the subjects agreed that SBA helps in the development of the country and 54.3% agreed that SBA has brought changes on the ground level (Pradhan, 2017).

In another study conducted in Pune, it was found that 80.4% subjects thought that there is need of SBA and 72.8% felt that SBA is effective (Anuradhaet al., 2017). These findings reflect the positive perception of the community towards SBA. In another study found that 85.8% of the subjects felt that SBA is a useful programme for the community (Kishore et al., 2018).

Current study revealed that only 61.6% of the study subjects thought that all the people must actively participate in SBA activities. In similar study, done by Kishore et al. (2018), found 75.6% of the subjects wanted to participate.

Though majority of the participants had positive attitude, interestingly 69.6% felt that political benefits is other side of the coin for propagating SBA which is higher when compared to (Kishore et al., 2018).

Most of them 182 (72.8%) have toilet facilities in home, still 62 (22.0%) prefer for open-air defecation and 72 (28.8%) use community latrines for ODF.

The study conducted at Nalgonda district reported 26.5% as prevalence of open-field defecation, similar to the study findings 33.1% by Anuradha et al. (2017) and 17.0% by Kuberan et al. (2015).

Practices regarding disposal of household solid waste in community dustbins in the present study were 58.2%, 67.2% prefer to throw garbage's in and around house premises.

Although similar study reported even higher proportion (61.0%) of waste disposal at appropriate sites (community dustbins and dump trucks), still 39.0% of them indiscriminately threw the waste (Yaoda et al., 2014), which is slightly higher than the present study (32.4%). Only 4.0% were utilizing community dustbins and most of them (83.0%) disposed household waste in open field (Swain & Pathela, 2016).

Community participation is only 81 (32.4%) in SBA related activities and almost everyone 238 (95.8%) agreed to motivate people in participation of SBA related activities. Only 26.0% of the subjects have participated in SBA activities; however, 59.3% of the participants would like to motivate people to participate in SBA activities (Kishore et al., 2018). Contrast findings were observed in report (Asian Development Research Institute, 2017) which showed that 94.0% subjects have participated in SBA.

Practices regarding personal hygiene, only 58.0% have the habit of handwashing after defecation, 92.4% do not use soap and water for cleaning hands. Contrasting findings were observed 83.0% by Kuberan et al. (2015) and 82.0% by Jeratagi et al. (2017).

Conclusions

The present study found that majority of the subjects were aware of SBA and its objectives were known only less subjects and most of them were having positive attitude and perception towards SBA. Though most of the people were having positive perception only 32.4% have participated in SBA activities and the main source of information was found to be television and newspaper.

24.8% of the subjects preferred open field defecation and 56.8% of the subjects were disposing solid waste in community bins. The proportion of people disposing solid waste in community bins and using soap and water for handwashing was significantly higher among people who were aware about SBA. Increasing awareness regarding health hazards of open-air defecation and improper disposal of waste will create a change in their behavior in adopting healthy lifestyle. Planning and conducting Information Education Communication activities on this important issue on a regular basis is extremely necessary. Effective political and administrative support is needed to scale up the sanitation program.

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Ethical Approval

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