The perception of Swachh Bharat Abhiyaan and attitude towards cleanliness among dental students of Kanpur city: A cross-sectional study

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ABSTRACT

Background: The Swachh Bharat Abhiyan (SBA) is the most significant cleanliness campaign by the Government of India. Youth are the strong pillars of the development of any country. There is a need to bring a big change to the youth about the cleanliness drive. This study aims to assess the perception of SBA and attitude towards cleanliness among dental students of Kanpur city.

Materials and Methods: This study is a descriptive, cross-sectional survey, which comprised of 390 undergraduate and postgraduate students. A pretested, self-administered, close-ended questionnaire consisting of 11 questions were included to evaluate the perceptions and attitudes regarding SBA among the dental students. Data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 21 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.). Categorical data were compared using the Chi-square test. All values were considered statistically significant for a value of $P \leq 0.05$.

Results: The results of the study revealed that there is a positive attitude among study participants towards cleanliness, but efforts are still required to emphasize the importance of cleanliness among the many inhabitants. To implement SBA effectively, it is important to highlight the urgent need for public awareness. Conclusion: This study found that the majority of the participants was having positive attitude and perception towards SBA, yet initiatives and approaches are still needed to help bring positive actions among those who are reluctant to follow proper cleanliness, sanitation, and hygiene practices.

Keywords: Attitudes, Bharat, cleanliness, swachh

Introduction

Mahatma Gandhi said, “Sanitation is more important than Independence.” He was aware of Indian rural people’s wretched situation at the time and dreamed of a clean India where he stressed cleanliness and sanitation as an integral part of life. India is an ancient civilization. It is considered to be a pious nation; its people are very religious. India consists of people of different faiths; Hindus, Muslims, Christians, Sikhs, Parsis, Jains, etc., and they very devotedly follow their faiths. But our country’s sad reality is that all cleanliness and modesty are limited exclusively to religious activities and cooking. Holding our environment clean and sanitize is not in our behavior. At most, we keep our own homes clean and caring for sidewalks, roads, parks, or other public places is not our concern. The Swachh Bharat Abhiyaan (SBA) is the most significant cleanliness campaign by the Government of India. The Abhiyan was
launched by the Honourable Prime Minister Narendra Modi on the 2nd of October, 2014 at Rajghat, New Delhi to make India clean.[1,3] Although the scenario has improved, in terms of hygiene and sanitation, much more needs to be done. Unsafe drinking water, poor access to adequate sanitation facilities, and inadequate handwashing are a major cause of global childhood disease and death.[4] The campaign has well-defined guidelines and two sub-missions — the Swachh Bharat (Gramin/Rural) and the Swachh Bharat (Urban) project.[5] The objectives of urban SBA are the elimination of open defecation; eradication of manual scavenging; modern and scientific municipal solid waste management; bringing positive behavioral changes regarding healthy sanitation practices; generating awareness about sanitation and its linkage with public health and capacity augmentation for urban local bodies (ULBs) to create an enabling environment for private sector participation in capital expenditure (CapEx) and operation and maintenance expenditure (opex).[6]

Swachh Bharat may have started on a high note, but cleaning up the country is a serious business. Apart from investment, it calls for behavioral changes, expertise, and scientific knowledge. SBA is an ambitious project and has succeeded in making a difference at the level of facilities and services, but all the goals of this plan can only be accomplished when people are aware of this mission and have a good attitude towards basic sanitation and waste management.[6] Thus, primary healthcare physicians play an important role in achieving this as they are the primary level providers and can help people with counseling and motivation.

There is a lack of studies assessing undergraduate and postgraduate student’s attitude towards cleanliness and sanitation activities. This study aims to assess the perception of SBA and attitude towards cleanliness among dental students of Kanpur city.

**Materials and Methods**

**Study design and study population**

This study is a descriptive, cross-sectional survey, which comprised of 390 undergraduate and postgraduate students. A pretested, self-administered, close-ended questionnaire consisting of 11 questions were included to evaluate the perceptions and attitudes regarding SBA among the dental students.

**Inclusion and exclusion criteria**

Inclusion criteria were that all the students who agreed to participate in the study were included. The students absent on the day of the study, students who did not fill the questionnaire, and students who did not give written informed consent to participate were excluded from the study.

**Pilot study and pretesting of the questionnaire**

Pilot study was conducted among 40 students to determine the feasibility of the study. These students were excluded from the final sample. Cronbach’s coefficient was found to be 0.78, which signifies acceptable internal reliability of the questionnaire. For testing the validity, the content validity ratio was also calculated by using item-rated content validity indices. This was achieved by taking the responses on the dichotomous scales where the academicians indicated whether an item is favorable (score of +1) or unfavorable (score of 0). The content validity ratio was found to be 0.86 by the panel of four academicians. In addition, there were no changes required in the questionnaire as a result of the pretest.

**Ethical approval and informed consent**

The study protocol was approved by the Institutional Ethical Committee (Dated: 30th March, 2020) and ethical approval was granted for the same. A written informed consent form was also obtained from all the participants.

**Sample size estimation**

Sample size was calculated using the following formula:

\[ N = \frac{4pq}{L^2} \]

where \( N \) = is the sample size, \( P \) = Prevalence (60%), \( q \) = (1 - p), \( L \) = is the permissible error in the estimation of \( P \) = 0.05

\[ N = 4 \times 0.60 \times 0.4 / 0.05 \times 0.05 \]

The estimated sample size was 384, which was rounded off to a sample of 400 to accommodate dropouts. There were 10 dropouts as the participants were absent on the days of study. Therefore, the final sample size was 390. The study participants were recruited by random sampling method. The response rate was 95%.

**Data collection and analysis**

The questionnaire was distributed by the investigator. The students were told to approach the investigator immediately in case of any doubts regarding any of the questions in the questionnaire. The study was conducted between the timeperiod of April 2019 to June 2019.

Data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 21 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) Descriptive statistics included calculation of percentages, mean, and standard deviation. Data distribution was assessed for normality using the Shapiro–Wilk test. Categorical data were compared using the Chi-square test. All values were considered statistically significant for a value of \( P \leq 0.05 \).

**Results**

Three hundred ninety study participants including both undergraduate as well as postgraduate students were enrolled in the study. Participants were categorized by age into young...
adults (18-35 years), middle-aged adults (36-55 years). Table 1 shows the age distribution of the study participants, out of 390 subjects, 384 (98.46%) were young adults and 6 (1.54%) respondents were middle-aged adults. Table 2 shows the gender distribution of the study participants, out of 390 subjects, 140 (35.90%) were males and 250 (64.10%) were females. Table 3 shows the year of study of the participants, out of 390 subjects, 66 (16.92%) subjects were from the first year, 81 (20.77%) subjects were from the second year, 78 (20%) subjects were from the third year, 51 (13.08%) subjects were from final year, 43 (11.02%) subjects were interns, and 71 (18.20%) subjects were postgraduate students.

Table 4 shows the response of participants regarding the perception of SBA. Majority of the participants (151, 38.72%) agreed that the contribution at an individual level is important in SBA while 123 (31.54%) participants did not agree with this. Difference between the responses in all the groups was statistically significant (P < 0.001). One hundred eighty-two (46.67%) participants felt that SBA is not able to communicate the importance of cleanliness while 147 (37.60%) agreed with this. Difference between the responses in all the groups was statistically significant (P < 0.001). One hundred seventy-nine (45.90%) participants had a thought that SBA has contributed towards clean India while 123 (33.08%) subjects agreed that SBA has contributed towards clean India. Difference between the responses in all the groups was statistically significant (P < 0.050). One hundred eighty-five (47.43%) participants agreed with the importance of their participation in SBA activities, while 89 (22.82%) participants did not agree with the importance of their participation in SBA activities.

Table 5 shows the response of participants regarding the attitudes of SBA. Two hundred nineteen (56.15%) participants throw waste into the garbage bin, 112 (56.15%) participants throw waste into the garbage bin all the times, and 59 (15.13%) participants sometimes throw waste into the garbage bin. Difference between the responses in all the groups was statistically significant (P < 0.001). Two hundred six (52.82%) participants never sort their waste before disposing it off, 123 (31.54%) participants sometimes sort their waste before disposing it off while 61 (15.64%) participants most of the time sort their waste before disposing it off. Difference between the responses in all the groups was statistically significant (P < 0.002). One hundred sixty-seven (42.82%) participants collect and burn their waste most of the time while 151 (38.72%) participants collect and burn their waste all the time. Difference between the responses in all the groups was statistically significant (P < 0.003). One hundred ninety-three (49.48%) participants sometimes give a piece of advice to people who litter, 129 (33.08%) participants most of the time give a piece of advice to people who litter, 152 (38.97%) participants most of the time report to authorities when they notice litter surrounding their community while 68 (17.43%) participants never give a piece of advice to people who litter. Difference between the responses in all the groups was statistically significant (P < 0.001).

### Discussion

One of the best and the most important initiatives taken by the government of India, SBA aims at a clean and hygienic country. Youth are the strong pillars of the development of any country. There is a need to bring a big change to the youth about the cleanliness drive. In this study, most of the participants (98.46%) were young adults (18-35 years age group) with the mean age of around 26 years and most of the participants were females (64.10%).

Utpat et al. conducted the study at Bharati Vidyapeeth University Medical College and evaluated the attitude of participants towards SBA. He found that 91.30% of students agreed with that their participation is necessary for SBA. This study showed that the majority of the participants agreed that the contribution at an individual level is important in SBA.

Pradhan P evaluated the impact of the SBA campaign on the public attitude towards cleanliness. He stated that 76.08% of respondents were satisfied that SBA is helping in the development of the country. But, 15.21% of respondents are
not satisfied.[16] Results obtained from this study showed that 46.67% of participants felt that SBA is not able to communicate the importance of cleanliness. It means these respondents think that there are limited channels/medium of information dissemination. Print media is consumed only by a limited number of people who are literate and are in the distribution radius. Studies also indicate that although penetration of radio is higher in India, it is used mostly to listen to entertainment programs. Mass media can inform only generic messages, whereas people need the core message. On the other hand, the life of banners, posters, and leaflets are limited. According to Pradhan P in his study, 47.81% of respondents feel that cleanliness in their area has not improved after the launch of SBA.[19] Results obtained from this study showed that 179 (45.90%) participants had a thought that SBA has no contribution towards clean India. This may be due to corruption in ground implementation is again hampering the SBA.

As per an independent Research report published by ABC Live Haryana, dissemination of incentives under Swachh Bharat Mission (Urban) in the state of Haryana has been made arbitrarily by ignoring the guidelines of Swachh Bharat Mission (Urban). It could be happening in many other states too. The garbage disposal plan, sewage treatment plan especially in big cities need to be well devised, otherwise, it will be difficult to make the mission a success.[11]

Kishore YJ et al. conducted to assess knowledge, perception, and practices regarding SBA among rural people. He revealed that 77.45% of the study subjects thought that all people must actively participate in SBA activities.[12] In a similar study, Utpat et al. found that 91.30% of the subjects wanted to participate in SBA.[13] Results of this study showed that majority of the participants agreed with the importance of their participation in SBA activities.

| Groups | Total (n=390) | Gender | Chi square value | P |
|--------|---------------|--------|-----------------|---|
| Group 1 | 65 | 25 (38.5) | 40 (61.5) | 7.176 | 0.208 |
| Group 2 | 65 | 19 (29.2) | 46 (70.8) | 17 (26.2) | 14 (21.5) | 14 (21.5) |
| Group 3 | 65 | 27 (41.5) | 38 (58.5) | 9 (13.8) | 6 (9.2) | 6 (9.2) |
| Group 4 | 65 | 17 (26.2) | 48 (73.8) | 11 (16.9) | 15 (23.1) | 15 (23.1) |
| Group 5 | 65 | 23 (35.6) | 42 (64.6) | 3 (4.6) | 3 (4.6) | 3 (4.6) |
| Group 6 | 65 | 29 (44.6) | 36 (55.4) | 23 (35.4) | 33 (52.3) | 23 (35.4) |

* Chi-square test; **Statistically significant, P<0.05

| Year of study | Total (n=390) | Grp 1 n (%) | Grp 2 n (%) | Grp 3 n (%) | Grp 4 n (%) | Grp 5 n (%) | Grp 6 n (%) | Chi square value | P |
|---------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------|---|
| First year    | 65 | 20 (30.8) | 31 (47.7) | 30 (46.2) | 27 (41.5) | 34 (52.3) | 23 (33.8) | 49.078 | <0.001* |
| Second year   | 65 | 19 (29.2) | 23 (35.4) | 24 (36.9) | 27 (41.5) | 27 (41.5) | 27 (41.5) | 58.860 | <0.001* |
| Third year    | 65 | 17 (26.2) | 21 (32.3) | 21 (32.3) | 27 (41.5) | 27 (41.5) | 27 (41.5) | 69.943 | <0.001* |
| Fourth year   | 65 | 13 (20) | 11 (16.9) | 11 (16.9) | 11 (16.9) | 9 (13.8) | 5 (7.7) | 35 (53.8) | 69.943 | <0.001* |
| Interns       | 65 | 7 (10.8) | 9 (13.8) | 16 (24.5) | 5 (7.7) | 17 (26.2) | 17 (26.2) | 58.860 | <0.001* |
| Postgraduate  | 65 | 10 (15.4) | 7 (10.8) | 7 (10.8) | 7 (10.8) | 7 (10.8) | 2 (3.1) | 58.860 | <0.001* |

* Chi-square test; **Statistically significant, P<0.05

| Questions | Responses | FREQUENCY (%) | Chi square value | P |
|-----------|-----------|---------------|-----------------|---|
| Q1. Contribution at individual level is important in SBA | Strongly agree | 0 (0) | 0 (0) | 0 (0) | 11 (16.9) | 6 (9.2) | 58.860 | <0.001* |
| Agree | 27 (41.5) | 23 (35.4) | 21 (32.3) | 30 (46.2) | 24 (36.9) | 26 (40) |
| Undecided | 9 (13.8) | 13 (20) | 11 (16.9) | 11 (16.9) | 9 (13.8) | 5 (7.7) |
| Disagree | 29 (44.6) | 19 (29.2) | 17 (26.2) | 17 (26.2) | 19 (29.2) | 22 (33.8) |
| Strongly disagree | 0 (0) | 10 (15.4) | 7 (10.8) | 7 (10.8) | 2 (3.1) | 6 (9.2) |
| Q2.SBA is able to communicate the importance of cleanliness | Strongly agree | 4 (6.2) | 0 (0) | 6 (9.2) | 0 (0) | 3 (4.6) | 5 (7.7) | 49.078 | <0.001* |
| Agree | 19 (29.2) | 23 (35.4) | 24 (36.9) | 27 (41.5) | 27 (41.5) | 27 (41.5) |
| Undecided | 6 (9.2) | 8 (12.3) | 3 (4.6) | 5 (7.7) | 5 (7.7) | 3 (4.6) |
| Disagree | 27 (41.5) | 32 (49.2) | 27 (41.5) | 33 (50.8) | 33 (53.8) | 30 (46.2) |
| Strongly disagree | 9 (13.8) | 2 (3.1) | 5 (7.7) | 0 (0) | 0 (0) | 0 (0) |
| Q3.SBA has contribute towards clean India | Strongly agree | 5 (7.7) | 6 (9.2) | 0 (0) | 8 (12.3) | 3 (4.6) | 11 (16.9) | 69.943 | <0.001* |
| Agree | 19 (29.2) | 23 (35.4) | 24 (36.9) | 17 (26.2) | 28 (43.1) | 15 (23.1) |
| Undecided | 10 (15.4) | 0 (0) | 4 (6.2) | 9 (13.8) | 0 (0) | 7 (10.8) |
| Disagree | 27 (41.5) | 33 (50.8) | 37 (56.9) | 26 (40) | 34 (52.3) | 22 (33.8) |
| Strongly disagree | 4 (6.2) | 0 (0) | 0 (0) | 5 (7.7) | 0 (0) | 10 (15.4) |
| Q4. Your participation in SBA activities is important | Strongly agree | 15 (23.1) | 11 (16.9) | 9 (13.8) | 13 (20) | 12 (18.5) | 14 (21.5) | 19.655 | 0.186 |
| Agree | 29 (44.6) | 25 (38.5) | 35 (53.8) | 30 (46.2) | 31 (47.7) | 35 (53.8) |
| Undecided | 6 (9.2) | 9 (13.8) | 11 (16.9) | 10 (15.4) | 2 (3.1) | 4 (6.2) |
| Disagree | 15 (23.1) | 20 (30.8) | 10 (15.4) | 12 (18.5) | 20 (30.8) | 12 (18.5) |
| Strongly disagree | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |

* Chi-square test; **Statistically significant, P<0.05
A study conducted by Kishore YJ et al. reported that 34.75% of the subjects were disposing of solid waste in community bins.\[13\] Yoada et al. in their study reported that 61% of the subjects were utilizing community bins.\[13\] The results of this study showed that 56.15% of respondents throw their waste into the garbage bin, which indicates the positive attitude towards cleanliness among study participants. Yoada et al. also reported that only 17.3% of subjects separated their waste when storing it, while the remaining 82.7% did not do any kind of waste separation.\[13\] In this study, the large proportion of respondents (52.82%) did not sort their waste before disposing it off. This creates an appropriate environment for the breeding of disease vectors, such as mosquitoes and cockroaches, and for the proliferation of rodents, such as rats and mice, which pose a threat to public health.

Waste burning is a significant source of dangerous carcinogens like dioxins and furans, and black carbon, a short-lived climate pollutant that contributes to climate change, increased melting in polar regions due to the deposition of soot and black carbon on snow and ice and numerous human health issues.\[14\] In this study, 42.82% of participants collect and burn their waste most of the time while 151 (38.72%) participants collect and burn their waste all the time. This finding indicates that it is the need of the hour to sensitize people for waste management.

In this study, a large proportion of participants did not dispose of their wastes at authorized place and provide their own trash bin for use regularly. In the same way, less proportion (38.97%) of participants report to authorities when they notice litter surrounding their community. The study findings indicate that there is a positive attitude among study participants towards cleanliness, but efforts are still required to emphasize the importance of cleanliness among the many inhabitants.\[15,16\] To implement SBA effectively, it is important to highlight the urgent need for public awareness.

### Conclusions

Although the SBA lays a lot of emphasis on collecting waste in cities, it does not seem to have given adequate attention to waste management. Undergraduate students in colleges can take up the main role in their respective localities to organize school going students in their locality. Students will graduate to be working professionals. Hence, it is important that they pass on their responsibilities to younger ones by sharing their experiences on SBA. This study found that the majority of the participants was having positive attitude and perception towards SBA, yet initiatives and approaches are still needed to help bring positive actions among those who are reluctant to follow proper cleanliness, sanitation, and hygiene practices.
Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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