

# **A Review on Open Air Defecation post Swachh Bharat Abhiyan in Tamil Nadu: Prevalence and Determinants**

<sup>1</sup> V. Vijay Devanesan. & <sup>2</sup> Rohit Thomas Abraham.

## **Abstract**

Open Air Defecation has been an immortal evil in most of the developing countries with its impact ranging from socio-economic to health aspects. This issue becomes severe when it calls for public health interventions especially when the women and children of the rural households are prone to the dangers associated with the practice. The cause of the problem is also quite wide and deep. It ranges from economic constraints to restrictions to behavioural change. The immediate and the long-term effect of this practice often falls in the health domain. The people practicing this evil existence are not only prone to contracting diseases but also can be instrumental in spreading the same to others. The problem gets coupled when the burden falls on Below Poverty Line (BPL) families. The loss of health due to the spread of diseases leads to the loss of school days, labour days and wage opportunities. This review paper focuses on the prevalence of Open-Air Defecation (If still in practise), the socio-cultural and economic determinants for practicing Open Air Defecation and the impact of Swachh Bharat Abhiyan in India, with Tamil Nadu in particular.

**Key Words:** *Swachh Bharat Abhiyan, Open Air Defecation, Open Defecation Free, Latrines.*

## **Exordium**

India's advancements in technology, business, health, economy and upliftment of the downtrodden despite the growing population, slum growth, illiteracy, etc., have been impressive.<sup>1</sup> On the other hand, Open Air Defecation (OAD), improper waste disposal, water contamination, and water pollution still remain a major problem in India.<sup>2</sup> OAD on open ground, near water reservoirs paralyzes development, reduces life expectancy and causes innumerable health problems. Defecating in the open pollutes drinking water, spreads disease by flies and insects, ingested worms, spread of diseases that affect the intestine preventing the body from absorbing the required calories and nutrients, these are the examples of how human health is affected.<sup>3</sup> Protection and promotion of human health are the main intention of the sanitation system. Malnutrition, Anaemia, Malaria etc., are few of the diseases caused due to the lack of proper sanitation. Cleanliness and hygiene are keys to a healthier lifestyle. The idea of proper sanitation helps prevent the contact of

faeces by humans, this can be ensured by construction of pit latrines, dry latrines, septic tanks etc. In this paper we will review on the following question, why does OAD remain a stand out in India? Why OAD is still practiced post SBA? Does the social, cultural, economic or behavioural change influence or challenge OAD in India? Isn't the dignity and safety of people who practice OAD at risk? What impact has SBA made?

### **Methodology**

A Review on the impact of SBA in Tamil Nadu; prevalence and determinants of OAD in India was done by critically analysing secondary data's such as research papers, articles from newspapers, data provided by the government, books, etc. 'Swachh Bharat', 'OAD', 'health impacts', 'prevalence' are some of the keyword used while searching the data base. Data or articles after the implementation of SBA (i.e.; after 2014) was taken to study the impact and prevalence of OAD. Men and women of all age groups were selected for the study with its main focus on the rural areas of Tamil Nadu.

### **Objectives**

1. To estimate the prevalence of OAD in rural India if still in practice
2. To understand and evaluate the impact of SBA
3. To review multiple articles on OAD and its health/social impacts
4. To compile various suggestions and recommendations made by studies to halt OAD
5. To elicit the underlying determinants

### **Open Air Defecation - India**

OAD refers to people who defecate in the open, or people who relieve themselves despite the availability of *latrines* built for them. In India, around 65,000 tonnes of faeces are defecated into the environment. OAD causes a variety of respiratory issues, as well as worm infection and diarrheal diseases. Water-borne infections, vector-borne diseases, malnutrition, stunting and gender-based violence, and visual and olfactory pollution are among the major problems caused by OAD.<sup>4</sup> Poor sanitation has a severe influence on women and children, stifling nation's development and resulting in shorter life span of people.

### **Sanitation Programs**

India is a country with various cultures and religions, has a total population of 1.37 billion, 68.68% belong to rural areas and 31.14% belong to the urban area.<sup>5</sup> 80% of the urban households have latrines, whereas only 69% of the rural population have access to latrine facility. The remaining percentages of the population use community toilets or relieve themselves on open fields. Latrine facilities in rural areas were increased from 1% in 1981, 11% in 1991, 22% in 2001 and to 32.7% in 2011. During this period many programs such as Central Rural Sanitation program in 1986, total sanitation campaign in 1999 and Nirmal Bharat Abhiyan in 2012 were initiated to eradicate OAD.<sup>6</sup> Central Rural Sanitation Program (CRSP) was the first initiative to tackle sanitation, the objective was providing privacy and dignity for women and improve the standard of life.<sup>7</sup> The aim of the program was to improve the sanitation of the rural population by 25%.<sup>8</sup> The Government replaced

the CRSP as the Total Sanitation Campaign (TSC), the TSC was inefficacious despite their stress in behavioural changes and demand for latrines. The campaign advertised about the ill effects of uncleanness.<sup>9</sup> In 2012, the TSC campaign was renamed Nirmal Bharat Abhiyan (NBA) with the goal to provide improved facilities for the rural population by 2022.<sup>10</sup> SBA initiated under Prime Minister Narendra Modi on October 2nd 2014, the mission aimed at eradicating OAD with a slogan "One step towards cleanliness".

### **Swachh Bharat Mission**

Indian Human Developmental Studies (IHDS) data collected during the period 2011 - 2012 by the National Council of Applied Economic Research (NCAER) and University of Maryland saw that 40% of the 40,000+ household in India that defecated in the open, 60% to the rural population defecated in the open. The data collected also showed that 55% of the scheduled caste, 60% of the scheduled tribes and 30% forward caste had defecated in the open, although there was an overall improvement when compared to the data collected during 2004 - 2005.<sup>11</sup> Hence to accelerate Universal Sanitation, Swachh Bharat Mission was launched. The mission's goal was to eliminate OAD between 2014 and 2019, which could only be achieved by building household and community latrines and educating people about the benefits of using latrines. The Swachh Bharat mission's goals included building latrines that are subsidized for individuals living below the poverty line (BPL), converting dry latrines into affordable sanitary latrines, and constructing drains, pits, and proper waste disposal systems.<sup>12</sup>

Swachh Bharat Mission has made some progress over the years. Firstly, dedication and commitment coming from the highest level in a government, secondly through behavioural change and thirdly, ODF status is verified by monitoring the usage of latrines built, whereas earlier it depended on the number of latrines built. Fourth more staffs were hired and deployed to educate about the effectiveness of a healthier lifestyle. Over 2 lakh villages, 201 districts, and 5 states were proclaimed ODF in October 2017. There had been significant development as of December 2018, with over 5 lakh villages, 580 districts, and 27 states/union territories. Since 2014, over 100 million latrines have been built, 6,03,177 villages, 706 districts, and 36 states/union territories have been proclaimed ODF, according to the SBA website. The Ministry of Drinking Water and Sanitation enhanced government aid to ensure that assistance for building household latrines and meeting the needs of people with disabilities was prioritised.<sup>13</sup> The website for 'Jal Jeevan Mission' by the Department of Drinking Water and Sanitation gave data that 17,86,71,105 rural household present, of which 3,61,26,620 rural household are provided with tap connection which roughly 20.2% the number of household taps keep improving each day.<sup>14</sup> Phase II of the Swachh Bharat Mission is in progress which will ensure that ODF behaviours are sustained and safe management of solid and liquid waste management.<sup>15</sup>

### **Review on the Impact of SBA**

**India:** India is home to the world's second largest population has also been the home to world's largest population that defecates in the open. Poor hygiene conditions and insanitary disposal of human excreta leads to mortality in our country.<sup>16</sup> India contributed to nearly 600 million from the total 1 billion people who had no access to latrines and the mission would help in eradicating

OAD.<sup>17</sup> According to census data from 2011, only 32% of rural households had toilets, and other research revealed that even fewer people utilised them. According to the Ministry of Drinking Water and Sanitation, 90 million latrines have been constructed, with rural sanitation up to 98 percent in 2018 from 34 percent in 2014.<sup>18</sup> The National Statistical Office (NSO) disagreed with these claims from the government although there was a great progress with latrine facility use at rural areas. The NSO discovered a shift in behaviour as a result of SBA; only 3.5 percent of those with access to toilets did not use them, demonstrating that SBA was effective. A Survey conducted in January 2019 in the states of Rajasthan, Bihar, Madhya Pradesh, and Uttar Pradesh revealed that more residents in the states owned a toilet than in 2014.<sup>19</sup> Despite improvements in the use of latrines, studies have showed that ODF was still a long way off in many of the states that had declared themselves ODF. Many states had declared ODF, however the research identified a discrepancy in Jharkhand (42%), Rajasthan (34%), Karnataka (30%), Madhya Pradesh (29%), Andhra Pradesh (22%), and Maharashtra (22%). In Gujarat, which was proclaimed ODF in October 2017, a quarter of rural households lacked access to latrines.<sup>20</sup> Saikat Dey's study on Polempur villagers, published in the IJRAR-International Journal of Research and Analytical Reviews, revealed that a substantial number of villagers suffered from numerous diseases as a result of poor sanitation. Some villagers did not have access to latrines hence the practice of OAD, leading to flies acting as carriers as well to infectious diseases. The data also showed that 50% of the villagers suffered from dysentery, diarrhoea, cholera and typhoid. Especially, Women were vulnerable due to this practice, when they did not avail latrines during their monthly bleeding<sup>21</sup>. The Print reported in May 2020 that the SBA had allocated Rs.12,000 to members whose names were on the recipient list, but the villages said that the money had not reached them or that they did not know how to withdraw it. The village headman, on the other hand, stated that people do not use the money handed to them for the construction of houses or latrines, but rather deposit it in their bank accounts.<sup>22</sup>

**Tamil Nadu :** In Tamil Nadu around 2 lakh latrines in 2014-2015, and 22 lakh latrines in 2017-2018, indicating that sanitation has improved. Swift and speedy construction of latrines in both urban and rural areas of the states was intended to raise awareness and urge people to abandon the practise of defecating in the open.<sup>23</sup> Some of the positive impacts of SBA were that 800 women in Tamil Nadu were foot soldiers for the effectiveness of total sanitation. Around 500 women in Salem helped the district administration in constructing latrines. Gold coins were given to 10 people who constructed latrines in Karaikal Municipality. Transgenders were also included by the Trichy corporation who build its first ever transgender toilet. Self-help groups of many districts were a part of sanitation.<sup>24</sup>

Studies were conducted to understand the reason for the prevalence of OAD in Tamil Nadu. Studies show that people still practice OAD is either habitual or linked to walking. People defecate in the open as maintenance and construction of latrines are an economically issue. People preferred OAD with company as it drew way for a chit chat. Women preferred OAD over latrines as it gave them free space and ventilation whereas the latrines made them feel suppressed to the confined space.<sup>25</sup> Eighty percent of people defecate in the open in districts like Ariyalur, Dharmapuri, Villupuram, Perambalur, and Tiruvannamalai.<sup>26</sup> Sampath Kumar Srinivasan in his study on the panchayats in

Namakkal, Perambalur and Pudukkottai districts in Tamil Nadu showed that People restricted the use of toilet either due to lack of water or cultural barrier and economical barriers.<sup>27</sup> Rakesh Kumar in his studies on the rural households of Perambalur district point out that 41.5% are unaware of public toilet facility, 15.3% defecate in the open due to inadequate supply of water at home, 16.9% defecate outside as the toilet space is congested, 16.6% defecate outside as a habit, 10% defecate in the open as they are financially not stable and 0.4% were discriminated from using latrines based on their caste.<sup>28</sup> A comparative study of rural parts of Tamil Nadu and Bihar showed that people defecated in the open because it was convenient and accessible. Economic constraints also played a role in not owning a toilet.<sup>29</sup> The National Statistical Office (NSO) conducted a survey between July and December 2018, the study was done in some of the states that had declared to be ODF even before the survey began, Tamil Nadu being one of the states that contradicted the survey by the National Statistical Office, a gap of 37% was found, meaning that 37% of Rural Households did not have access to latrines.<sup>30</sup>

#### **Newspaper reports on Tamil Nadu:**

The Times of India on November 2018 reported that 98% of the rural population had access to latrines. According to the Government of Tamil Nadu, 31 of the 32 districts were declared ODF, the urban population is not far behind. Many Central Government Agencies had contradicted these claims, including the National Family Health Survey which claimed that two of five people defecated in the open. Many Researchers had denied the Government data as exaggerated. The number of latrines had increased but the usage of these latrines had not increased. A study also showed that the district with high literacy rate do not defecate in the open, whereas district with low literacy rate had people who did not use the toilet that were constructed for them.<sup>31</sup> According to an article published in the Hindustan Times on October 3rd, many community latrines are either closed or unmaintained, forcing individuals to defecate in the open.<sup>32</sup> On March 5th, 2020, dtnext reported on the bad architecture of latrines, as well as poorly lighted latrines, which were a serious issue when it came to women's safety. According to a study published in the Bio-Med Central Journal, women who defecate in the open are prone to the danger of sexual abuse.<sup>33</sup> It was also stressed that latrine neglect can lead to urinary infection.<sup>34</sup>

#### **Occurrences in India after the implementation SBA**

- Two teenage girls were raped in Uttar Pradesh's Baudan District on the 27<sup>th</sup> of May 2014, as both the teenager had to go out to defecate in the open due to lack of toilet facilities.<sup>35</sup>
- On the 5<sup>th</sup> of November 2018, a young girl being raped in Dharmapuri was reported in the Times of India. The girl had stepped out to use the toilet thus uncovers to the world how latrines built far from home are unsafe for women.
- On November 2018 an elephant attacked a vegetable vendor when she went to relieve herself.<sup>36</sup>

- On the 25<sup>th</sup> of September 2019, two Dalit children were beaten to death for defecating in the open, the father of the children said he did have a toilet at home.<sup>37</sup>
- On February, 2020 a Dalit man who worked at Villupuram was lynched for defecating in the open.<sup>38</sup>

#### Discussion:

The above review of the articles, journals, papers published have emphasised the prevalence of OAD yet again after the implementation of SBA. The cause of the problem of OAD is wide and deep. Economic constraints, behavioural changes, maintenance of latrines and water supply are the main reason for OAD still prevalent in many districts and states. People practising this evil are prone to contracting diseases caused due to OAD and also act as instruments for spreading the same. Some other reason as found in various studies are poverty, lack of financial aid, maintenance of toilets, single pits, sharing latrines with their family due to cultural issues and behavioural change.<sup>39</sup> Discrepancies in data by the government, fake beneficiaries that were in place to loot money, lack of water, community toilets that were shut, low quality raw materials for construction, lack of space and latrines that were favourable to the old and disabled were other reason for the prevalence of OAD.

#### Conclusion

SBA has borne fruit by reducing the number of people that have been defecating in the open and spreading awareness on the ill effects of OAD. The main reason for the impacts is because of the active participation from the highest level of the government. Due to societal, economic, and behavioural constraints, ODF is still a long way off in many states. Poverty, lack of room, inadequate ventilation, water scarcity, the necessity to go a long distance to use the latrines built for them, and physical hurdles are all reasons why people still defecate in the open. Cleaning septic tanks, using quality raw materials will also have a major impact on people not using latrines. Public awareness of OAD's negative impacts must be propagated extensively by SBA. Monitoring to avoid corruptions and ensuring that people do not use the money or latrines for other purposes. Stringent laws and penalties would also help in achieving ODF status.

#### Suggestions and Recommendations

The Primary goal should be **educating people** on **sanitation** and the importance to **hygiene** to help in reducing OAD. People need to understand the **benefits** of using a **latrine** than defecating in the open.

- **Constructing latrines** that are **cost efficient** and built with **quality raw material**. **Lack of space** and **poor ventilation** lead to a **behavioural change** of people defecating in the open.
- **Single pits** were the **major problem** in many studies conducted, single pits require **undecomposed sludge** that had to be cleared manually or the use of expensive machines.

**Twin pits** were **recommended** by the government which allows cleaning on pit and while using the other.

- **Physical Barriers** such as **lack of space, travelling** a long way to use the facility, **paths** to the latrines are rough, **nothing to hold while squatting or getting up** for the **old**. **Paths** to the latrine must be accessible as they would have a huge **impact** on the **visually impaired, wheel chair users** etc. **Water pumps, landmarks, lockable doors** need to be set up to ensure **safety and privacy** for users.
- **Elderly** and **persons with disabilities** need to be considered **while constructing latrines**. **Implementing staff** need to be aware on ways to **build** latrines that are **accessible** and low cost for the older people and disabled.
- **Women** are more prone to **sexual violence** while defecating in the open, several nationwide campaigns were held to stop such harassments. **Construction of private toilets** for every household would help women avoid **travelling long distance** to defecate at night and prevent sexual violence.
- **People in charge** of various departments also need to take **care** on the **usability** of latrines at **public places**. Lack of cleanliness and maintenance lead to **OAD**.
- **Monitoring** construction of latrines by people who have received money from the governments, as well as **ensuring** people who are eligible for **beneficiaries receive** the **government aid**.
- **Water scarcity** is another problem that people face, people **use** latrines that are built by them or for them **during monsoon but defecate** in the open during **summer**. Solving water problem would also have a major impact on OAD
- 

#### ABREVIATION

|        |   |                                                       |
|--------|---|-------------------------------------------------------|
| ODF    | - | OPEN DEFECATION FREE                                  |
| SBA    | - | SWACHH BHARAT ABHIYAN                                 |
| UNICEF | - | UNITED NATION INTERNATIONAL CHILDREN'S EMERGENCY FUND |
| IDHS   | - | INDIAN HUMAN DEVELOPMENT STUDIES                      |
| NCAER  | - | NATIONAL COUNCIL OF APPLIED ECONOMIC RESEARCH         |
| CRSP   | - | CENTRAL RURAL SANITATION PROGRAM                      |
| TSC    | - | TOTAL SANITATION CAMPAIGN                             |
| NBA    | - | NIRMAL BHARAT ABHIYAN                                 |

|      |   |                                                          |
|------|---|----------------------------------------------------------|
| SLWM | - | SOLID LIQUID WASTE MANAGEMENT                            |
| NSO  | - | NATIONAL STATISTICAL OFFICE                              |
| IJAR | - | INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS |
| WHO  | - | WORLD HEALTH ORGANISATION                                |
| SBM  | - | SWACHH BHARAT MISSION                                    |

---

<sup>1</sup>Britto R, Arputham S C, Monika S, Meena R, Neevetha R, Dheekshana S, Deepa A, Veerakumar A M, George N. 2018. Open-air defecation: A qualitative approach. Ann Trop Med Public Health [serial online], [cited 2020 Mar 6]; 11:119-24. Available from: <http://www.atmph.org/text.asp?2018/11/4/119/272559>.

<sup>2</sup>S.C Joshi. 2017. *Swachh Bharat Mission an Assessment*. New Delhi. Kunal Books.

<sup>3</sup>S.C Joshi. 2017. *Swachh Bharat Mission an Assessment*. New Delhi. Kunal Books.

<sup>4</sup><https://www.google.com/amp/s/www.thehindu.com/news/international/U.S.-researcher-ties-higher-incidents-of-rape-in-India-to-open-defecation/article16834436.ece/amp/>

<sup>5</sup> <http://m.statisticstimes.com/demographics/population-of-india.php>.

<sup>6</sup>Mridula Sinha, Dr. R.K Sinha. 2016. *Swachh Bharat, A Clean India*. New Delhi. Prabhat Prakashan Publishers.

<sup>7</sup> Kathryn Alexander, Cooper Allton, Colin Felsman, Minsun Hahn, Tishina Okegbe, Dustin Palmer, Jeremy Taglieri, Mike Thibert Advised by Professor Jeffrey Hammer. Ending Open Defecation in India: Insights on Implementation and Behavior Change for Swachh Bharat

Abhiyan,[https://spia.princeton.edu/sites/default/files/content/India%20Workshop%20Report\\_FINAL\\_2.25.2016.pdf](https://spia.princeton.edu/sites/default/files/content/India%20Workshop%20Report_FINAL_2.25.2016.pdf)

<sup>8</sup><https://iwaponline.com/wp/article-abstract/15/6/1001/20080/An-untold-story-of-policy-failure-the-Total?redirectedFrom=fulltext>

<sup>9</sup><https://www.google.com/url?sa=t&source=web&rct=j&url=https://jalshaktiddws.gov.in/sites/default/files/TSCGUIDELINESJune2010.pdf&ved=2ahUKEwicjoaG1YvoAhW763MBHf5aBAGQFjABegQICRAH&usg=AOvVaw1XCa4CLaL7mRXMIXAy5gOG>.

<sup>10</sup> Kathryn Alexander, Cooper Allton, Colin Felsman, Minsun Hahn, Tishina Okegbe, Dustin Palmer, Jeremy Taglieri, Mike Thibert Advised by Professor Jeffrey Hammer, Ending Open Defecation in India: Insights on Implementation and Behavior Change for Swachh Bharat

Abhiyan,[https://spia.princeton.edu/sites/default/files/content/India%20Workshop%20Report\\_FINAL\\_2.25.2016.pdf](https://spia.princeton.edu/sites/default/files/content/India%20Workshop%20Report_FINAL_2.25.2016.pdf)

<sup>11</sup><https://www.thehindu.com/thread/politics-and-policy/how-open-defecation-free-is-india-really/article25191578.ece>

<sup>12</sup>Md. Taufiq Ansari. 2015. *Sanitation and Swachh Bharat Abhiyan*. New Delhi. Omega Publications.

<sup>13</sup><https://www.google.com/url?sa=t&source=web&rct=j&url=https://swachhbharatmission.gov.in/sbmcms/writereaddata/images/pdf/technical-notes-manuals/PWD-Guidelines.pdf&ved=2ahUKEwif8LSV4ufrAhUTXSsKHYNnCaIQFjAAegQIAhAB&usg=AOvVaw0n4ujVjQiv3Le9dWFBZGWv>

<sup>14</sup><https://jaljeevanmission.gov.in/>.

<sup>15</sup><https://swachhbharatmission.gov.in/SBMCMS/about-us.htm>

<sup>16</sup><https://www.ijcmph.com/index.php/ijcmph/article/view/1671>

- <sup>17</sup>S.C Joshi, 2017. *Swachh Bharat Mission an Assessment*, New Delhi, Kunal Books.
- <sup>18</sup><https://www.indiaspend.com/after-4-years-of-swachh-bharat-open-defecation-down-26-percentage-points-but-toilet-use-does-not-match-construction-sprees-false-claims-evident/>.
- <sup>19</sup>[http://mospi.nic.in/sites/default/files/publication\\_reports/Swachhta\\_Status\\_Report%202016\\_17apr17.pdf](http://mospi.nic.in/sites/default/files/publication_reports/Swachhta_Status_Report%202016_17apr17.pdf)
- <sup>20</sup><https://www.google.com/amp/s/www.thehindu.com/data/data-mismatch-is-rural-india-100-open-defecation-free-like-swachh-bharat-data-concludes/article30460909.ece/amp/>
- <sup>21</sup>Causes and Consequences of Open Defecation and Improper Sanitation: A Study in Polempur Village, Khandaghosh Block, Bardhaman, Saikat Dey, IJRAR- International Journal of Research and Analytical Reviews, VOLUME 5 GB Greg self-explanatory! ISSUE 3 I JULY– SEPT 2018] E ISSN 2348–1269, PRINT ISSN 2349—5138, Available Online: [https://www.google.com/url?sa=t&source=web&rct=j&url=https://ijrar.com/upload\\_issue/ijrar\\_issue\\_1756.pdf&ved=2ahUKEwi0zNnBhubrAhVWbysKHZ9SDFYQFjABegQIDhAG&usq=AOvVaw3frkq39Fr04zXFYoneJuLT](https://www.google.com/url?sa=t&source=web&rct=j&url=https://ijrar.com/upload_issue/ijrar_issue_1756.pdf&ved=2ahUKEwi0zNnBhubrAhVWbysKHZ9SDFYQFjABegQIDhAG&usq=AOvVaw3frkq39Fr04zXFYoneJuLT)
- <sup>22</sup><https://www.google.com/amp/s/theprint.in/india/badaun-village-once-in-news-for-lack-of-latrines-after-gangrape-still-the-same-after-5-yrs/224392/%3famp>.
- <sup>23</sup><https://swachhindia.ndtv.com/swachh-bharat-abhiyan-tamil-nadu-to-go-open-defecation-free-on-october-2-25278/>
- <sup>24</sup><https://swachhindia.ndtv.com/swachh-bharat-abhiyan-tamil-nadu-to-go-open-defecation-free-on-october-2-25278/>.
- <sup>25</sup>Britto R, Arputham S C, Monika S, Meena R, Neevetha R, Dheekshana S, Deepa A, Veerakumar A M, George N. 2018. Open-air defecation: A qualitative approach. *Ann Trop Med Public Health* [serial online] [cited 2020 Mar 9]; 11:119-24. Available from: <http://www.atmph.org/text.asp?2018/11/4/119/272559>.
- <sup>26</sup>[https://www.google.com/amp/s/m.timesofindia.com/city/chennai/tn-stumbles-in-march-towards-swachh-state/amp\\_articles/66856095.cms](https://www.google.com/amp/s/m.timesofindia.com/city/chennai/tn-stumbles-in-march-towards-swachh-state/amp_articles/66856095.cms)
- <sup>27</sup>Srinivasan, Sampath Kumar. 2014. Open Defecation: Awareness & Practices of Rural Districts of Tamil Nadu, India. *International Journal of Scientific Research*. 3. 10.15373/22778179/MAY2014/176.
- <sup>28</sup>Kumar, Rakesh & Sinha, Sati. 2019. Socio-cultural determinants of open defecation in rural households of Perambalur district, Tamil Nadu. *International Journal of Community Medicine and Public Health*. 6. 1594. 10.18203/2394-6040.ijcmph20191389.
- <sup>29</sup>Bicchieri, Cristina & Ashraf, Sania & Das, Upasak & Kohler, Hans-Peter & Kuang, Jinyi & McNally, Peter & Shpenev, Alexey & Thulin, Erik. (2017). Phase 1 Project Report. Social Networks and Norms: Sanitation in Bihar and Tamil Nadu, India. Available on: <https://repository.upenn.edu/pennsong/16/>
- <sup>30</sup><https://www.thehindu.com/thread/politics-and-policy/how-open-defecation-free-is-india-really/article25191578.ece>
- <sup>31</sup>[https://www.google.com/amp/s/m.timesofindia.com/city/chennai/tn-stumbles-in-march-towards-swachh-state/amp\\_articles/66856095.cms](https://www.google.com/amp/s/m.timesofindia.com/city/chennai/tn-stumbles-in-march-towards-swachh-state/amp_articles/66856095.cms)
- <sup>32</sup>[https://www.google.com/amp/s/m.hindustantimes.com/photos/india-news/photos-experts-sceptical-as-pm-modi-declares-india-open-defecation-free/photo-oEvWrez6If84CvTqnXVw8L\\_photo.html](https://www.google.com/amp/s/m.hindustantimes.com/photos/india-news/photos-experts-sceptical-as-pm-modi-declares-india-open-defecation-free/photo-oEvWrez6If84CvTqnXVw8L_photo.html)
- <sup>33</sup><https://www.google.com/amp/s/www.indiatvnews.com/amp/news/india-higher-incidents-of-rape-in-india-linked-to-open-defecation-study-361034>
- <sup>34</sup><https://www.dtnext.in/News/TamilNadu/2020/03/05050003/1218435/ODF-status-is-still-a-far-cry-in-TN.vpf>.
- <sup>35</sup><https://www.google.com/amp/s/theprint.in/india/badaun-village-once-in-news-for-lack-of-latrines-after-gangrape-still-the-same-after-5-yrs/224392/%3famp>

<sup>36</sup>[https://www.google.com/amp/s/m.timesofindia.com/city/chennai/tn-stumbles-in-march-towards-swachh-state/amp\\_articleshow/66856095.cms](https://www.google.com/amp/s/m.timesofindia.com/city/chennai/tn-stumbles-in-march-towards-swachh-state/amp_articleshow/66856095.cms).

<sup>37</sup><https://www.google.com/amp/s/amp.dw.com/en/two-dalit-children-beaten-to-death-in-india-for-defecating-in-open/a-50599738>

<sup>38</sup><https://thelogicalindian.com/amp/news/dalit-man-tamil-nadu-19746>

<sup>39</sup><https://www.conserve-energy-future.com/how-open-defecation-affect-human-health-environment-and-solutions.php>

**Bio Profile of the Authors:**

<sup>1</sup>Assistant Professor,  
Department of Public Administration,  
Madras Christian College,  
Tambaram, Chennai - 600059.  
Email - vijaydevanesan@gmail.com.

<sup>2</sup>Research Assistant,  
Department of Public Administration,  
Madras Christian College,  
Tambaram, Chennai – 600059.  
Email – rohit96p@gmail.com