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SUMMARY AND CONCLUSIONS
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THE PRESENT STUDY ATTEMPTED TO ANALYSE THE IMPACT OF TOTAL SANITATION CAMPAIGN ON RURAL HOUSEHOLDS IN ANDHRA PRADESH BY CONSIDERING A CASE STUDY OF VASADI VILLAGE IN VIZIANAGARAM DISTRICT. THE STUDY IS CARRIED OUT BY EXAMINING VARIOUS ISSUES RELATING TO SANITATION AND HYGIENE SUCH AS OPEN DEFECATION, AVAILABILITY OF TOILET FACILITY, RESTRICTED USE OF TOILET, AVAILABILITY OF WATER AND DRAINAGE FACILITIES, DISPOSAL OF SOLID WASTE ETC.

The specific objectives of the study are:

1. To analyse the status of sanitation and open defecation levels in India;
2. To analyse the Health, Hygiene and Sanitation levels in Andhra Pradesh vis-à-vis India;
3. To study the socio-economic profile of the sample households in the study area;
4. To examine the impact of TSC with respect to open defecation among rural households in study area;
5. To find out the impact of TSC in terms of health expenditure among rural households in the study area;
6. To suggest appropriate policy measures.

Based on the objectives outlined, the following hypotheses were formulated

4. Socio-economic conditions of the sample households impact on health, sanitation and hygiene conditions.
5. Open defecation is more behaviour related rather than income and education related in the rural areas.
6. Health expenditure is independent of income, but depends more on sanitation and hygiene conditions.

The study is based on both primary as well as secondary sources of data. Primary data are collected for the cross section period 2009-10, while secondary data
are drawn from NSSO 54th Round (1998) (National Sample Survey Organisation) and other sources such as Government Reports, Statistical Abstracts of Andhra Pradesh and India published by the Directorate of Economics and Statistics.

Village Vasadi in Vizianagaram district is purposefully selected, as it is noticed to be suffering on account of serious sanitation problems and related diseases with people practicing wide spread open defecation without arrangements for lifting garbage. The study uses appropriate statistical tools for the purpose of analysis such as averages, percentages, Chi-square test, Regression analysis etc. Chi-square test of independence of attributes is employed to observe the relationship between various aspects relating to health, hygiene and sanitation. In the present study ordinary least square method (O.L.S) is used to estimate the regression equations.

The study attempted to examine the status of sanitation and total sanitation campaign in India by examining sanitation over different periods such as ancient, pre-independence, post-independence period and modern period. The study also attempted to discuss open defecation trends at the World level, India and Andhra Pradesh.

The study dealt with the analysis of sanitation levels in India by analysing type and technology of latrines in India, sewerage system in rural and urban India, garbage removal.

The study analysed socioeconomic characteristics of sample respondents by examining the aspects such as gender, age, marital status, social status, land holdings, education level, occupation, plinth area of house, source of drinking water, availability of drainage and toilet facility.

The study also attempted to examine the sanitation levels in Vasadi village in Andhra Pradesh by examining various aspects such as mosquito menace, awareness about sanitation, availability of toilet facility, type of toilet technology used, reasons for not having toilet facility, reasons for preference to open defecation. An attempt is also made to examine the bivariate relationship between several variables by considering Chi-square test of goodness of fit. Further, multiple regression analysis is attempted to examine the factors affecting health expenditure.
8.1 Summary of Findings

Major findings of the study are

1. In the select village Vasadi, a significant majority of the head of the households in the sample i.e. 92 per cent are found to be males, while only 6 per cent are females. Further, a majority of the head of the households (69 per cent) are aged below 35 years, while the remaining 31 per cent are aged above 35 years. Moreover, a majority of the heads of the sample households (94 per cent) are married, while a meager 6 per cent are widows/widowers.

2. Analysis of the religious and social status shows that a significant majority i.e. 82 per cent of the households belong to Hindu religion, while 18 per cent are Christian. Majority of the households (67 per cent) belongs to BC followed 25 per cent belongs to SC and a mere 2 per cent belong to Scheduled Tribes.

3. In the select village Vasadi, majority of the heads of the sample households (62 per cent) are agricultural labourers, while about 26 per cent are farmers followed by about 6 per cent working in unorganized sector. Further, about 2 per cent are engaged in livestock management.

4. Economic status of the sample households reveals that only about 10 per cent is found to be above poverty level, while majority of the households (90 per cent) belong to below poverty line.

5. In Vasadi, majority (63 per cent) are literate, while 37 per cent are illiterates. However, among the literate households of the village majority of the households i.e, 56 per cent completed secondary level of education followed by primary level (38 per cent) and higher level education (6 per cent).

6. In the select village, majority (37 per cent) of sample households are living in RCC roofed houses followed by 33 per cent of the households living in tiled houses. Further, nearly 28 per cent of households are living in thatched houses, while remaining 2 per cent are living in Mud houses. Majority of the houses (63 per cent) have two rooms, while the remaining 37 per cent have more than two rooms in their houses.
7. In Vasadi, majority of the houses (42 per cent) have plinth area between 50 – 100 sq. yds, followed by 31 per cent have more than 100 sq yd plinth area and 27 per cent have less than 50 sq yd plinth area. About 37 per cent of sample households have good ventilation in their homes, while 33 per cent of them have normal ventilation. Nearly 16 per cent have bad ventilation status, while 8 per cent houses have very bad ventilation status.
8. About 70 per cent fetch water from shared community bore well, while 14 per cent depend on hand pumps, 12 per cent on public taps.
9. Majority of sample households (66 per cent) do not have the drainage system, while the remaining 34 per cent of the households have the drainage facility.
10. The analysis implies that 64 per cent of the households are affected by illness, while the remaining 36 per cent of the households did not encounter any disease during the study period. Among those affected with disease nearly 31 per cent of households suffered from viral fevers followed by 30 per cent from diarrhea, about 10 per cent each from Elephantiasis and Chicken Guinea, 7 per cent from gastro entities, 5 per cent from Jaundice and 6 per cent from skin Allergies.
11. The study reveals that majority of households (61 per cent) depend on Registered Medical Practitioner in the village, 22 per cent on government hospital and 15 per cent on private hospitals in the nearby town.
12. Analysis of Chi – square implies the association or relationship between several variables such as (i) social class and occupation of sample households, (ii) social class and income group of sample households, (iii) education status and income level of sample households, (iv) size of landholdings and income group of sample households (v) source of water and income group of sample households.
13. Analysis of Chi – square implies the association or relationship between several variables such as (i) size of family and Income group of sample households, (ii) living space and income of sample households.
14. The analysis implies the poor attention given to drainage clearance by the village panchayat authorities, which causes the growth of mosquito centers due to water logging and thereby posing threat to the health of villagers as
nearly 78 per cent of households reported the frequency of drainage clearance is between one week to more than one month.

15. The analysis reveals that, the mosquitoes menace is largely due to lack of hygiene, water logging and poor sanitation in the select village.

16. Majority i.e. 80 per cent of the households are aware of the importance of sanitation, while 20 per cent are unaware of the importance of sanitation.

17. Majority i.e. about 83 per cent of sample households are not having toilets within the home premises, while around 17 per cent is having toilet facility at home.

18. Majority i.e. about 41 per cent households practice open defecation in the open fields, while about 33 per cent use the community sanitation complex for defecation.

19. In the select village Vasadi, a majority of households i.e. about 83 per cent did not have a toilet at home and hence, go for open defecation causing massive insanitary conditions in the village, while only about 17 per cent possess toilet at home.

20. Out of the 44 households having septic toilets, about 77 per cent use a septic tank with the bottom sealed with cement, which requires to be cleaned up once it gets filled, whereas 23 per cent use septic toilet with bottom open to soil.

21. With regard to the method of disposal of child faeces/excreta in the family are concerned, it is observed that more than 61 per cent reported that they always threw it in the drain or on the road while nearly 10 per cent threw it on the garbage dump. However, only 2 per cent disposed it properly/safely in the toilet.

22. In the select village Vasadi, majority of households i.e. about 79 per cent do not use public latrines, while only about 21 per cent households use public lavatories.

23. In the select village Vasadi, majority i.e. about 81 per cent of households have to walk around 200 to 400 meters to avail public latrines, while about 19 per cent households need to walk only up to 200 meters to avail the facility. However, on the average the households have to walk about 263 meters.
24. Majority of sample households i.e. about 40 per cent need to walk between 600 to 800 meters for attending nature - call through open defecation, while about 38 per cent of households walk up to 400 – 600 meters. At the same time, it can be seen that about 8 per cent of households walk less than 200 meters for defecating in open, while about other 8 per cent households walk about 800 – 1000 meters. Thus, the analysis implies that in Vasadi village on the average the villagers have to walk about 567 meters for open defecation.

25. In the select village Vasadi, in respect of a majority of sample households i.e. about 34 per cent the toilet is used by all family members at night time only. About 32 per cent of households reported that only ladies use the toilet at night time and not during the day time. However, in respect of about 23 per cent households only children are found to use the toilet, while in about 11 per cent of households all members of family are reported to use the toilet both at day and night time.

26. In the select village Vasadi, a majority of households i.e. 50 per cent use the toilet sparingly to avoid filling of the septic tank, while about 32 per cent reported that they do not use the home toilet, as open defecation is more comfortable and also free of cost. At the same time about 18 per cent of households noticed to avoid the usage due to bad smell and preferred open defecation.

27. In the select village Vasadi, about 47 per cent of sample households reported that they have been habituated for open defecation since generations, while about 27 per cent households expressed that personal toilet at home are congested without fresh air flow and hence, preferring open defecation, nearly 10 per cent of households said that nobody had convinced them about the dangers of open defecation to village hygiene, about 8 per cent households felt that open defecation provides good and free fertilizer to fields.

28. Analysis of Chi – square implies that there exists association or relationship between several variables such as between (i) households having drainage system and income of sample households, (ii) households having toilet at home and income of sample households, (iii) households having toilet at home and literacy of sample households (iv) reasons for
households not having toilet facility at home and education status of sample households (v) reasons for households not using toilet facility at home and education status of sample households (vi) households preference for ODF to personal toilet use at home and education status of sample households (vii) reasons for households not having toilet at home and occupation of sample households (viii) size of households family and preference for ODF to personal toilet at home of sample households (ix) size of house (plinth area) and toilet facility of sample households.

29. Analysis of Chi – square implies that there exists no association or relationship between several variables such as between (i) reasons for households opting for ODF and education status of sample households (ii) method of garbage disposal and education status of sample households (iv) preference of households for ODF to personal toilet at home and occupation of sample households and (v) garbage disposal place of households and occupation of sample households.

30. When health expenditure (in Rupees) is regressed on family size, annual income, plinth area, water availability, existence of drainage system and availability of toilet facility the selected regression equation is found to be a reasonably good fit as the explanatory variables included in the model provide explanation to the extent of 63 per cent.

31. Except the coefficients of variables namely family size (FS) and drainage system (D2) all other coefficients are found to be statistically significant at 1 per cent level. Moreover, the coefficients of all variables are observed to have the expected signs.

32. The analysis implies that annual income, plinth area of house, availability of water and toilet facilities are the important factors affecting health expenditure of the sample households in Vasadi village.

8.2 Overall Summary

1. The study of socio economic conditions in Vasadi Village reveals that more than 62 per cent of households are land less labour, 33 per cent households are very small farmers with a meagre land of less than 2 acres, 90 per cent of households are living below poverty line, 70 per
cent households share community water well, 66 per cent households
do not have drainage system, 83 per cent households do not have toilet
facility and 64 per cent households suffered illness due to poor
sanitation and hygiene among the sample households. In the light of
facts mentioned, the study draws support in favour of hypothesis 1,
which implies that socio-economic conditions of the sample
households have their impact on health, sanitation and hygiene
conditions.

2. With regard to the aspect of open defecation is concerned, in select
village Vasadi, out of 255 sample households, only 44 households (17
per cent) reported to have personal toilets at home. Hence, 83 per cent
of households are opting for open defecation as there is no alternative
to attend nature - call. However, though 44 households have toilet
facility at home, due to restricted use on account of various reasons,
some family members of those households are also opting for open
defecation. Thus, irrespective of income levels, more or less all the
households are opting for open defecation in the village. Further, the
analysis also implies no association or relationship between reasons for
households opting ODF and education status of sample households.
Hence, the study draws support in favour of hypothesis 2 implying that
open defecation is more behaviour related rather than income and
education related in the rural areas.

3. The regression analysis implies that annual income, plinth area of
house, availability of water and toilet facilities are the important
factors affecting health expenditure. Thus, the study found only partial
evidence in favour of the hypothesis 3, implying that health expenditure is
not independent of income, but depends more on sanitation and
hygiene conditions.
8.3 Policy Suggestions

Based on the results arrived, the study outlines the following policy implications:

- In the select village Vasadi, steps should be initiated to push up the annual incomes of households by effectively implementing the income generating programmes for rural poor. This in turn helps in improving the sanitation level among the rural households.
- The local body of Vasadi village should seek the help of state government in providing pucca houses under Indira Avas Yojana and other schemes, so as to improve the size of houses i.e., plinth area.
- As availability of water is found to be a significant variable affecting health expenditure, the local body should take responsibility of supplying adequate water through providing community bore wells/street taps.
- Further, as availability of toilet facility is also found to be a significant variable affecting health expenditure of sample households, efforts should be initiated to provide increased subsidy for construction of toilets/free distribution of toilet kits to the villagers.
- Water and drainage system in the village should be developed to achieve 100 per cent sanitation coverage by entrusting panchayati raj institutions and local administration the responsibility of operation and maintenance of water supply and sanitation to the local bodies.
- The subsidy component extended by the state government through the local body is found to be inadequate and is not reaching the BPL families. As such the subsidy component should be increased and effectively monitored in order to make the programme a success.
• NGOs should play a key role in encouraging the habit of sanitation and make it demand driven instead of imposing it by government from the top. NGOs played a key role in increasing the coverage of sanitation to impressive level in Bangladesh. Even private sector, public-private partnerships and community participation should be encouraged to enhance the sanitation coverage.

• Due to bottlenecks in the governance, lot of money meant for making toilets remains unspent in many states including in Andhra Pradesh even though the pent up demand for toilets is much higher than their supply. As such better governance is needed to achieve 100 per cent results in sanitation and thereby the MDG goals.

• Steps should be initiated for the use of electronic media in disseminating information and educating the people about the tremendous benefits of clean sanitation and safe drinking water for preventing waterborne diseases and deaths especially among children.

• Measures should be taken to improve sanitation in rural areas through IEC programmes and concept of ECOSAN – the ecological sanitation or environmental sanitation, which basically is a mechanism to recycle urine and excreta matter into fertiliser and fuel as already successfully demonstrated by an NGO run by Mr. Nandan Nilakeni in Bangalore.

• Steps should be initiated for provision of clean toilets in village schools and sanitary napkins for poor girls, which improves the school attendance and their menstrual hygiene and general health.

• TSC provides platform for innovation and creative solutions like cost effective and affordable toilets, water saving toilets made of fibre glass at ` 60 each, toilets made of clay from village resources in environment friendly ways creating jobs, vacume pressure technology, Rural Sanitary Marts (RSMs),
public-private partnerships in building and maintaining clean affordable Community Sanitary Complexes (CSCs). As such rural people should be made aware of these schemes and techniques.

- Above all, the success of the total sanitation campaign depends on the effective organisational structures, right kind of attitude, behaviour and awareness levels among rural population particularly women and children, especially school children.

8.4 Limitations of the Study

1. As the Study deals with qualitative variables which cannot be quantified, the analysis is made using simple tools such as Chi–square test of independence of attributes and multiple regression analysis only. Advanced tools could not be used due to limitations.

2. Issues and responses relating to open defecation are very delicate, extremely personal and sensitive subjects to be analysed. Hence reporting bias may affect results of the study.

3. Data relating to the various aspects of sanitation and open defecation for different states were available in 54th Round of NSSO. As such the analysis on sanitation and open defecation levels in India is carried out in Chapter V using the 54th Round of NSSO data. Hence, it is not comparable with Census 2011 data.

4. The study is based on a representative village with all sections of society. The present study is confined to a single village covering wide aspects of sanitation such as open defecation, water supply, garbage disposal, availability of drainage, availability of personal toilet. However, the results of the study may not be generalized to the entire country or state, because of variations in socio-economic characteristics such as culture, traditions, habits and perceptions of households. As such features vary from village to village, state to state, region to region and between religious and ethnic groups.
5. Shortage of village data on configuration of income of all the members of the household, components of health expenditure, occupational details of the households etc., details of the subsidies sanctioned and actually received by the households etc., also serve as limitations of the study. However, in view of the absence of any major economic study related to the problem of open defecation in rural India, the present study would serve as a useful tool for further research.