International Journal of Health Sciences and Research
[Indexed, Peer-Reviewed Journal]
Volume 15; Issue: 3; March 2025
Website: www.ijhsr.org
Original Research Article *ISSN: 2249-9571*

A Cross-Sectional Study to Determine the Sociodemographic Profile, Water and Energy Resource in Rural Area of Navi Mumbai

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DOI: https://doi.org/10.52403/ijhsr.20250304

ABSTRACT

Introduction: People living in urban slums experience poverty, nutritional deprivation especially among women and children, low education, hazardous occupation, low-quality housing, unclean water supply, unregulated waste disposal, and the lack of open and safe recreational spaces, thereby adversely impacting their health. Housing is one of the basic requirements of human wellbeing for survival. In rural areas, almost three out of four Indians and 77% of the Indian population live in poor conditions. Although poverty has been reduced during the past four decades, it remains painfully high. A total 228-patients were interviewed under this programme.
Methodology: Data collected were assessed to discover the Sociodemographic Profile, Water and Energy Resource.
Result: The chi-square test results indicate significant associations in several areas. Notably, religion ($p = 0.042$), education ($p = 0$), the nature of water supply ($p = 0.038$), and water storage practices ($p = 0.005$) show significant relationships with the choice of water source. This suggests that religious affiliation, educational attainment, the consistency of water supply, and whether households store water significantly influence the type of water source used.

Keywords: Water, Energy, Rural India, Navi Mumbai

INTRODUCTION

India's premier industrial and commercial centre is Mumbai. Mumbai has become one of the world's "mega cities". The population of the Mumbai urban agglomeration in 1991 was 12.5million (Swaminathan, 1995), Mumbai is sixth most populous city in the world. The reality is that over one-half of Mumbai's population lives in conditions of abject poverty, squalor and deprivation (1).
People living in urban slums experience poverty, nutritional deprivation especially among women and children, low education, hazardous occupation, low-quality housing, unclean water supply, unregulated waste disposal, and the lack of open and safe recreational spaces, thereby adversely impacting their health. The National Family Health Survey (NFHS-5) (2019-20), a large-scale nationally representative cross-sectional survey observed that 18.6% children under 5 years of age were found to be underweight for their height in the Mumbai suburbia. Another cross-sectional

analysis of 325 children between the ages of 10 and 18 months of mothers living in 20 urban slums in Western Mumbai reported that 76% of the children were anaemic, 31.2% had stunting, 25.1% were underweight, and 9.0% were wasted (2).

Water is most essential to human life. It can be said that water is life itself, because 60% of the human body is water. no field of human activity can be complete without water (3). For every human being's water and air are the two necessary substances for the survival of life on Earth. Safe drinking water, sanitation and hygiene at home are essential requirements for human health, and all countries have a responsibility towards this goal (World Health Organisation). one of the critical challenges in India is Safe drinking water deficiency. More than 44 million Indians suffered from enteric fever and viral hepatitis during 2014–2016 due to consumption of unhygienic water (WELFARE), and providing sufficient energy access to everyone ensures safe drinking water (Deshmukh et al.). low-resourced settings are confronted with a growing burden of non-communicable diseases (NCDs), In addition to persisting challenges of infectious diseases and maternal health (4).

Energy is a critical input for economic growth and sustaining development processes. Over one-third of the world's population, largely consisting of the poor in rural areas of developing countries does not have access to electricity. Lack of access to affordable energy is an important factor contributing to the relatively poor quality of life in rural areas of developing countries, required high demand of energy for purposes such as lighting, cooking, space heating in the domestic sector, water lifting and transportation in agriculture (5).

Housing is one of the basic requirements of human wellbeing for survival. In rural areas, almost three out of four Indians and 77% of the Indian population live in poor conditions. Although poverty has been reduced during the past four decades, it remains painfully high. In both urban and rural areas of the country, approximately one-third of the population lacks sufficient housing. In India, there are an estimated 200 million families, of which 65 to 70 million lack access to suitable housing. (6)

The need of research is very notable because urban poverty and lack of basic amenities is very common in Urban Slums. But in rural India is also facing with problems in terms of water, energy and many essential needs for livelihood. So, this research is conducted with the objective of providing a comprehensive overview of sociodemographic factors, housing, and knowledge, attitude and practice related to main source of water facilities reported by residents across 5 villages in Navi Mumbai, India.

RESEARCH METHODOLOGY-

The present study was Cross sectional study under the schedule Caste Sub-Plan carried out by regional research institute of Unani medicine Mumbai, one of the institutes of central council for Research in Unani medicine, an apex research organisation, functioning under the Ministry of Ayush, Gov. of India. Mobile Healthcare programme has been conducted amongst the SC population of five villages namely Shiv shakti Nagar (Turbhe), Panchanan Road (Taloja), Lakdhabakhar (Airoli), Digha, New Panvel to provide free Unani medicine at their doorstep and also to create awareness among them. The data was collected in a predesigned validated format specially designed for Schedule Cast Sub-Plan during period of June 2023 to Aprile 2024 from the patients visiting mobile healthcare OPD. A total 228-patients were interviewed under this programme. Data collected were assessed to discover the Sociodemographic Profile, Water and Energy Resource

Study Population: Raigad District Maharashtra.

Study Setting: Navi Mumbai

Sample Size: = $Z^2 PQ/d^2$

$Z\alpha/2 = 1.96$

P= 50/100 =0.50

Q = 1-P= .50
d= 0.065
n=227.31 = 228

Study Period: June 2023-April 2024

RESULTS

Table 1: Socio-Demographic Profile of the Population

Category	Number	Percentage (%)
Sex		
Male	154	67.54
Female	74	32.46
Age		
18-28	25	10.96
29-39	44	19.30
40-50	65	28.51
41-60+	94	41.23
Marital Status		
Unmarried	11	4.8
Married	196	86.0
Widow/Widower	20	8.8
Separated	1	0.4
Religion		
Hindu	196	86.0
Muslim	28	12.3
Christian	2	0.9
Others	2	0.9
Caste		
SC	73	32.0
ST	115	50.4
OBC	15	6.6
Others	25	11.0
Education		
Illiterate	53	23.2
Semi Lit	2	0.9
Primary	63	27.6
High School	78	34.2
Intermediate	5	2.2
Graduate and above	27	11.8
Mizaj		
Dhamvi	62	27.2
Balghami	56	24.6
Safravi	57	25.0
Saudavi	53	23.2
Diet		
Veg	69	30.3
non-Veg	122	53.5
Veg+- egg	37	16.2
Occupation		
None	7	3.1
Landholder	35	15.4
Agriculture	9	3.9
Unskilled	14	6.1
Skilled Labourer	22	9.6
Business	21	9.2
Student	2	0.9
Housewife	56	24.6
Unemployed	7	3.1
Retired	50	21.9
Others	5	2.2

Addictions		
None	92	40.4
Tobacco	43	18.9
Snuff	23	10.1
Smoking	22	9.6
Bhang	14	6.1
Alcohol	22	9.6
Others	12	5.3

The demographic profile of the patients is mentioned in table. A total of 228 individuals were treated out of which 154(67.54%) were male and 74(32.46%) were female. Most people come under age between (41-60+) (94,41.23%) and only (25,10.96%) comes under age 18-28. Marital status of patients shows that 196(86.0%) were married, 11(4.8%) people were unmarried.

The majority (196,86.0%) of patients were Hindu (28 ,12.3%) patients were Muslim and only (2,0.9%) patients was Christian. The demographic study of patients cast show where majority of people were from ST (115,50.4%),73(32,0%) ST and only 15,25(6.6,11.0%) OBC and other.

The majority of patients (78,34.2%) were educated up to high school level only and (27,11.8%) patients were holding graduation degrees and above.

Data about Mizaj of patient were most of people 62(27.2%) were Damvi mizaj, 56,57(24.6%,25.2%) Safravi and Balgami Mizaj and only 53(23.2%) were Sodavi mizaj.

Majority of patients diet were non-Veg 122 (53.5%),69(30.3%) was Veg,37(16.2%) was Veg and egg. In Occupation majority people were belongs to landholder. Data regarding substance abuse habits were also collected. Among the study participants (43,18.9%) were using tobacco and prevalence of smoking was (22,9.6%) A minority of (22,9.6%)consumed alcohol on daily basis while others had it occasionally.

Table 2: Household Level Information

Category	**Number**	**Percentage (%)**
Sufficient air and Sunlight in your rooms		
Yes	121	53.1
No	107	46.9
Separate room which is used as a kitchen		
Yes	185	81.1
No	43	18.9
Fuel is used generally in your house for cooking?		
Wood	19	8.3
Electricity	11	4.8
LPG	198	86.8
Chulha		
Joint	72	31.6
Nuclear	156	68.4
Total	228	100.0
What type of material has been used for the construction of roof, walls; floor of the house?		
Kaccha	56	24.6
Pucca	172	75.4

Table 2 shows data on Household level information, provides data on availability of sufficient air and sunlight in household room,121 households(53.1%)report having sufficient air and sunlight in their rooms,107 households(46.9%)report lacking sufficient air and sunlight in their rooms.185 households(81.1%) have separate room designated as a kitchen and 43 households(18.9%) do not have a separate

kitchen, households (8.3%) use type wood, household(4.8%) use Electric ,the majority 198 households(86.8%)use type LPG. 72 households (31.6%) have a shared family structure ,156 household (68.4%) are nuclear family 56 household (24.6%) have kaccha house,172 household (75.4%) have pucca house.

Graph:1- Main source of water your household uses for bathing & washing

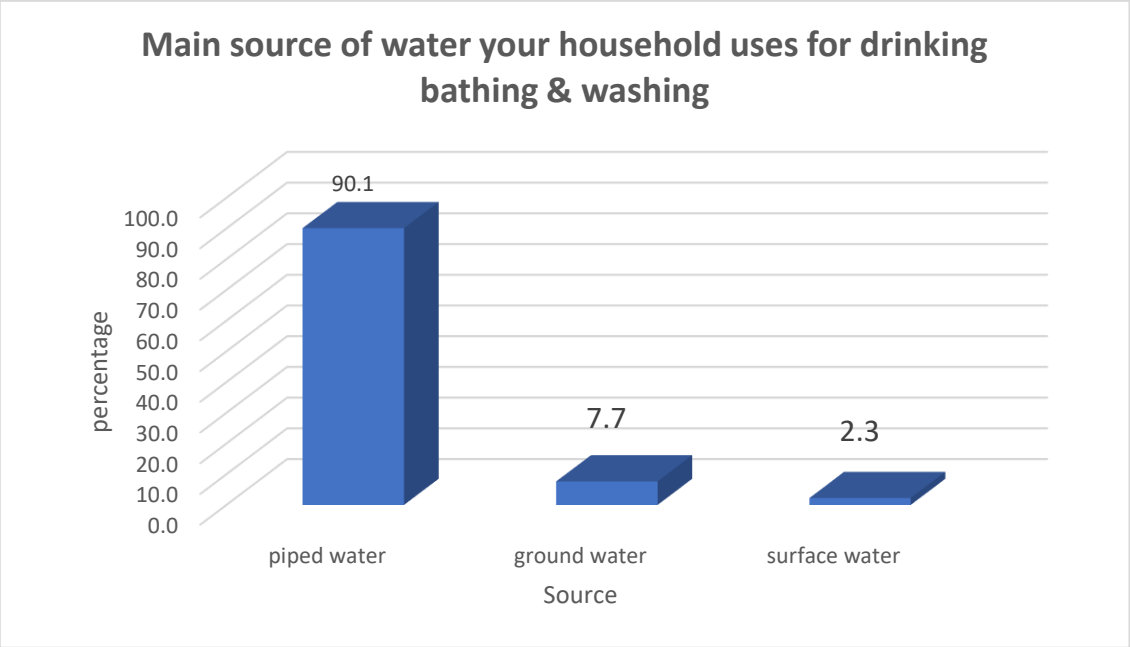

Table 3: Main source of water your household uses for Drinking, Bathing & Washing

	Main source of water your household uses for bathing & washing			
	piped water	**ground water**	**surface water**	**Chi Square, P value**
Age				
18-28	20	2	1	0.84
29-39	36	5	1	
40-50	59	4	2	
41-60+	85	6	1	
Marital Status				
Unmarried	11	0	0	0.684
Married	173	15	4	
Divorced	0	0	0	
Widow/Widower	16	2	1	
Separated	0	0	0	
Religion				
Hindu	173	15	4	0.042
Muslim	26	1	1	
Sikh	0	0	0	
Chistian	1	0	0	
Others	0	1	0	
Caste				
SC	63	7	1	0.123
ST	105	6	2	
OBC	11	3	0	
Others	21	1	2	
Education				
Illiterate	46	4	3	0
Semi Lit	0	2	0	
Primary	55	7	1	

High School	74	2	1	
Intermediate	1	1	0	
Graduate and above	24	1	0	
Miraz				
Dhamvi	58	4	0	0.667
Balghami	50	3	2	
Safravi	45	6	2	
Saudavi	47	4	1	
Diet				
Veg	61	6	0	0.151
non-Veg	104	11	3	
Veg+- egg	35	0	2	
Occupation				
None	7	0	0	0.431
Landholder	28	5	1	
Agriculture	8	1	0	
Unskilled	13	0	1	
Skilled Labourer	16	3	1	
Business	20	1	0	
Student	2	0	0	
Housewife	51	3	2	
Unemployed	6	0	0	
Retired	46	2	0	
Others	3	2	0	
Addictions				
None	80	6	2	0.539
Tobacco	35	4	2	
Snuff	22	1	0	
Smoking	19	2	1	
Bhang	14	0	0	
Alcohol	21	1	0	
Others	9	3	0	
Nature of supply of water				
Continuous	**108**	**7**	**0**	**0.038**
interrupted	92	10	5	
not supply	0	0	0	
Do you store water?				
Yes	102	14	5	0.005
No	98	3	0	

This analysis explores the primary water sources used for bathing and washing in households, categorized into piped water, groundwater, and surface water, across various demographic and socio-economic factors. The chi-square test results indicate significant associations in several areas. Notably, religion ($p = 0.042$), education ($p = 0$), the nature of water supply ($p = 0.038$), and water storage practices ($p = 0.005$) show significant relationships with the choice of water source. This suggests that religious affiliation, educational attainment, the consistency of water supply, and whether households store water significantly influence the type of water source used.

On the other hand, factors like age group ($p = 0.84$), marital status ($p = 0.684$), caste ($p = 0.123$), temperament (Miraz) ($p = 0.667$), diet ($p = 0.151$), occupation ($p = 0.431$), and addictions ($p = 0.539$) do not show a significant association with water source preference. This implies that these variables have a less pronounced impact on the choice of water sources, indicating a more uniform usage pattern across these groups. The findings highlight the complex interplay between socio-economic factors and household water source preferences.

DISCUSSION

There was study was conducted by Jagdish et al. show that in northern Maharashtra 42% were nuclear and 29 % joint family. And that study showed that 22% person are illiterate. In our study was conducted in five different villages from Navi Mumbai (6). The study analysed 228 families, revealing that 68.4% were nuclear, 31.6% were joint. The rural community had 23.2% non-literate and 27.6% persons up to12th standard,11.8% persons graduated and above. Most families (90.1%) received piped water, 7.7% were received ground water and 2.3% surface water.

The 23.2% non-literacy is a major problem, but we cannot ascertain the age structure of this group, possibly that may be an older group._Nuclear families are a major portion of this study group.

The National Sample Survey (2019) report shows that LPG is the primary energy source for 49.4% of rural households. Our study shows 86.8% use of LPG at HH level (7), which is encouraging as a development features, and how progress has happened in the last three years. This has major importance for women and their health.

In this study, 90.1% families were using tap water as the main source of drinking water. According to the National Statistical Survey which was conducted in 2019 about 42.9% of the households in the rural areas used hand pump as the principal source of drinking water. It might be the result of Jal Jeevan Mission which was launched in 2019 and now Nal-Jal Yojna giving piped water to households. This also reduces women's hard daily labour and water-safety for health. It shows that these schemes are working on the ground.

Declaration by Authors

Ethical Approval: Not Required

Acknowledgement: The Central Council for Research in Unani Medicine (CCRUM)

Source of Funding: None

Conflict of Interest: The Central Council for Research in Unani Medicine (CCRUM) for their invaluable support and guidance in the execution of this research.

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How to cite this article: Shabnam Khan, Nirmala Devi, Ziaur Rahamn, Piyush Yadav. A cross-sectional study to determine the sociodemographic profile, water and energy resource in rural area of Navi Mumbai. *Int J Health Sci Res.* 2025; 15(3):25-31. DOI: *https://doi.org/10.52403/ijhsr.20250304*

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