

EXPLORING DESIGN THINKING SOLUTION FOR ADDRESSING SANITATION WORKERS CHALLENGES IN COIMBATORE

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ABSTRACT:

Sanitation workers face challenges in their role of maintaining public health and hygiene. These challenges include gear and safety measures, which put them at risk of health issues due, to exposure to hazardous waste and pathogens. The difficulties are further compounded by wages, job insecurity and the additional burden of discrimination and social stigma often faced by marginalized communities who disproportionately fill these positions. The demanding nature of the job also leads to health problems worsened by the lack of access to healthcare. Moreover there is often a lack of awareness and appreciation for the work performed by sanitation workers. Additionally their daily lives are affected by waste management infrastructure and a lack of sanitation facilities. Addressing these challenges necessitates measures such as improving safety standards ensuring wages providing social support and promoting community education to foster respect and understanding, for the invaluable contributions made by sanitation workers.

KEYWORDS: Hazardous

waste, Pathogens, Sanitation workers, Safety measures, Health problems and Design thinking

INTRODUCTION

In the world, total waste dumped according to the United Nation. We dump million tons of waste every year. Total waste in the world is enormous. Some of it is recycled but a lot is simply dumped. India is now among the top countries that generating the highest amount of solid waste due the growing urbanization and high consumption. India's urban population of 429 million citizens produce a whopping 62 million tons of garbage every year. Coimbatore Municipality is a town located in the North centre part of Tamil Nadu State. It has more than fifteen thousand families as residents and a host of business and office/bank establishments and educational institutions. It is the headquarters of Coimbatore District hence it has a large floating population also. As a result of all these factors, a lot of solid waste is generated in the town. Sanitation workers collect materials discarded as waste and encompasses a wide range of activities including

collecting garbage, collection, sorting recyclable materials, collection and processing of commercial and industrial waste, Risk occur at every step in the process from the point of collection at homes. During transformation and at the sites of recycling disposal. They are exposed to occupational health and accident risk related to the content the material they handled, emission from those materials, and the equipment being

used. The sanitation workers are also facing physical and institutional problems too.

Sanitation workers related their occupational health problems such as musculoskeletal problems, skin problems respiratory problems, vision and hearing problems etc when compared to their peers in their communities.

EMPATHY

Design Thinking Stage	Potential Questions
Empathy	How do the Sanitary workers survive in this society?
	What was the level of satisfaction in their job?
	How do they manage their routine?
	What are the problems faced by Sanitary workers?

OBJECTIVES OF THE STUDY:

- To understand the Socio Demographic Profile and Economic Status of the Sanitary Workers in Coimbatore.
- To find out Health Status of the Sanitary Workers.
- To understand the occupational health related problem faced by the Sanitary Workers.
- To study the nature of job of the sanitary workers.
- To study the working condition of sanitary workers.

time for conducting interviews by meeting them in municipal corporation.

- Respondents were not ready to reveal all their problems.
- Researcher could not meet the top most municipal officers.

RESEARCH METHODOLOGY:

Research methodology is the specific procedures or techniques used to identify, select, process, and analyse information about a topic. In a research paper, the methodology

LIMITATIONS OF THE STUDY:

- Researcher lacks the sufficient

section allows the reader to critically evaluate a study's overall validity and reliability. The methodology section answers two main questions, how was the data collected or generated? How was it analysed?

TOOLS USED:

- Percentage analysis
- Chi-square
- ANOVA

DEFINE PROBLEM STATEMENT

Design Thinking Stage	Interference
Define	1. What are the problems faced by sanitary workers? 2. What are the solutions to be provided for the problem faced by the sanitary workers?

SCOPE OF THE STUDY:

From this study, the performance and problems of the customer can be analysed. The study helps to know the factors influencing the workers to choose this job. This study helps to know the necessary change in their mind and about the feeling of the sanitary workers.

REVIEW OF LITERATURE

Thayyil Jayakrishnan , **Mathummal Cherumanlil Jeeja and Rao Bhaskaran(2013)** A study entitled "Occupational Health Problems" of sanitation workers in India .The sanitation workers face several

STATEMENT OF THE PROBLEM:

Sanitation workers serve a vital role in society. Weight against other professions. Sanitation workers require more mental stability. Even though this provides good income and other benefits. Workers in this profession face many socio- psychological problems. They deal with many difficulties and generally do not get the recognition they deserve. So, the researcher took this topic for the undergraduate study.

occupational health problems. The work-related health problems were reported to be high. The prevalence of respiratory, dermatologist, eye problems and injury, musculoskeletal problems were reported to be high among the sanitation workers.

Sukanya Rangamani Kannamali Bheemappa Obalesha (2015)in their study based on Health Issues of sanitation workers in a town in Karnataka . There researchers attempted to understand the nature of health problems of sanitation workers using a lay epidemiological process. A descriptive analysis by done to map the occupational

health status. Health care seeking practices, and the social support mechanism in place. Injuries and chest pain were the most commonly reported illness.

Narmadha S (2016) conducted a study among sanitary workers in Trichy. The sanitary workers have no promotions and job enrichment till their retirement. They were happy with what they possess. The municipal corporation has the policy to promote the lower level workers to the higher level jobs, if the employees are equipped with training and additional qualifications.

Raj Kumar Josh and Sirajudheen Ahmed (2017) A sociological study on status and challenges Municipal solid waste management of sanitation in India. In this paper, an attempt is made to evaluate the major parameters of MSW's. In addition to a comprehensive review of MSW generation, its characterization,

collection and treatment option as practiced in India.

Chellamma P et al (2018) conducted a cross sectional morbidity study among all sanitation workers corporation area. They studied the morbidity profile of sanitary workers in Thrissur Corporation, Kerala and to study the treatment seeking behaviour in these persons. To study their practices regarding personnel protective measures they were interviewed using pre tested structured schedule. Workers were interviewed after obtaining informed consent.

RESEARCH GAP

Sanitation workers studies encompasses inadequate research on their occupational and mental health, safety measures, socioeconomic status, policy effectiveness, and gender disparities. Bridging these gaps is crucial for improving the well-being of sanitation workers.

DATA ANALYSIS AND INTERPRETATION

TABLE 1.1 WHAT ARE CHALLENGES FACED AT THE TIME OF WORK?

	Observed N	Expected N	Residual
Skin problem	15	14.5	.5
Respiratory problem	17	14.5	2.5
Musculoskeletal problem	17	14.5	2.5
Others	9	14.5	-5.5
Total	58		

Test Statistics

	Challenges faced
Chi-Square	2.966 ^a
Df	3
Asymp. Sig.	.397

a.0 Cells(.0%) have expected frequencies less than 5. The minimum expected cell frequency is 14.5.

INTERPRETATION

The above table indicates that 15% of the respondents are

faced Skin problem, 17% of the respondents are faced Respiratory problem, 17% of the respondents are faced Musculoskeletal problem, 9% of the respondents are faced Others.

TABLE 1.2 JOB ROLE FOR SANITARY WORKERS?

	Observed N	Expected N	Residual
Spetic tanks and drains	13	14.5	-1.5
Drives a garbage truck	17	14.5	2.5
Sweeping	18	14.5	3.5
Others	10	14.5	-4.5
Total	58		

Test Statistics

	Job role
Chi-Square	2.828 ^a
Df	3
Asymp. Sig.	.419

a.0 Cells(.0%) have expected frequencies less than 5. The minimum expected cell frequency is 14.5.

INTERPRETATION

The above table indicates that job role 13% of the respondents are Septic tanks and Drains, 17% of the respondents are Drives a garbage truck, 18% of the respondents are Sweeping, and remaining 10% of the respondents are Others.

TABLE 1.3 LIST OUT THE WELFARE AND SAFETY MEASURES PROVIDER?

Descriptive

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Insurance	16		
Gloves	29	1.1034	.30993	.05755	.9856	1.2213	1.00	2.00
Mask	8	1.3750	.51755	.18298	.9423	1.8077	1.00	2.00
Shoes	3	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
Others	2	1.5000	.70711	.50000	-4.8531	7.8531	1.00	2.00
Total	58	1.1552	.36523	.04796	1.0591	1.2512	1.00	2.00

ANOVA

	Sum of Squares	D f	Mean Square	F	Sig.
Between Groups	.789	4	.197	1.534	.206
Within Groups	6.815	53	.129		
Total	7.603	57			

INTERPRETATION

The above table indicates that 16% of the respondents are Insurance, 29% of the respondents are Gloves, 8% of the respondents are Mask, 3% of the respondents are Shoes, 2% of the respondents are Others.

TABLE 1.4 DO YOU HAVE SUFFICIENT WELFARE AND SAFETY MEASURES?

Descriptive

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Yes	49		
No	9	2.4444	1.23603	.41201	1.4943	3.3945	1.00	5.00
Total	58	2.0690	.97084	.12748	1.8137	2.3242	1.00	5.00

ANOVA

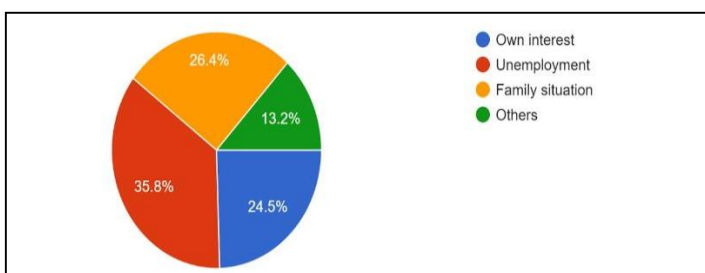
	Sum of Squares	D f	Mean Square	F	Sig.
Between Groups	1.502	1	1.502	1.611	.210
Within Groups	52.222	56	.933		
Total	53.724	57			

INTERPRETATION

The above table indicates that 49% of the respondents says Yes and 9% of the respondents says No.

TABLE 1.5 IF YES REASON FOR CHOOSING THIS JOB

PARTICULARS	NO OF RESPONDENTS	PERCENTAGES%
Own interest	13	24.5
Unemployment	19	35.8
Family situation	14	26.4
Others	7	13.4
TOTAL	53	100%



INTERPRETATION

The above table indicates that reason for choosing this job 24.5% of the respondents are Own interest, 35.8% of the respondents are

Unemployment, 26.4% of the respondents are Family situation, 13.4% of the respondents are Others.

FINDINGS

Majority (17%) of the respondents faced Respiratory problem and muscular skeletonproblem at the time of work.

Majority (18%) of the respondents job role are Sweeping.

Majority (29%) of the respondents uses Gloves for safety and welfare measures.

Majority (49%) of the respondents says Yes for welfare and safety measures.

Majority (35.8%) of the respondents are choosing this job for Unemployment.

SUGGESTIONS:

The support mechanisms should be worked out more efficiently.

More such mechanisms for improving their mental and physical health should beintroduced by Governmental plans.

The government should consider them as a government employers.

They should be given proper training for continuing sters and managing dual role efficiency.

They should have more freedom on their work place.

CONCLUSION:

Today, sanitation workers are the major group in our society. In fact, they play a significant role in keeping our cities and towns way clean, neat and tidy. We can say, they are the major group, but at the same time, they face more problems in the society like physical, mental and social etc.. The study titled challenges faced by the sanitation workers. This study also helps to find out the support mechanisms provided by the higher authority or government.

4.

Every sanitation workers face high or little amount of stress But, their families gave good support for them. Some of the workers are satisfied with the mechanics provided by the government. Even though they face many challenges, but they done their work for their livelihood.

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