Occupational Health Concerns for Sanitary Workers in Varkala Municipality Thiruvananthapuram

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KEYWORDS

Sanitary Workers, Occupational Health, Health Morbidities, Public Health

ABSTRACT:

Sanitation personnel are crucial to public sanitation work, yet they are exposed to risks under hazardous working conditions that can cause various physical, psychological, and social health consequences. This will start by providing a detailed profile of the socio-demographic background of the workers, including age, gender, education, and family structure, as components of the comprehensive background profile. Occupational health concerns in this area range from respiratory problems to musculoskeletal disorders and infectious diseases, but the concerns are not limited to only these. They also include psychological stress and social stigma. The findings suggested that the workers lack appropriate safety measures, have less health care access, and incur an emotional impact because of their profession. The findings demand improved health and safety standards, empowering health care support, and policy intervention to protect sanitation workers' health and dignity. It is such research that coincidentally brings home great insights for use by interventions in the health policy reformation aimed at improving sanitation workers' working conditions and overall lives within the region.

Introduction

Sanitary workers are increasingly vital to public health and sanitation, just as sanitation and waste management have become a more significant concern. They carry out their duties amid various social conditions in urban and rural settings. Yet, irrespective of why sanitary workers are underrated, such work tends to be filled with many occupational-related hazards that can compromise physical and mental well-being. The hygienic workers in India, especially those from Varkala municipality in Thiruvananthapuram, are exposed to several health risks. Such include exposure to toxic substances, infectious diseases, musculoskeletal disorders, respiratory disorders, and psychological stress due to their nature of work, coupled with inadequate protective measures and poor working conditions. Moreover, exposure to these hazards poses a long-term risk to their health; hence, it is pertinent to study the workers' prevailing health conditions.

The occupational morbidities of sanitary workers in Varkala municipality,
Thiruvananthapuram, because sanitary workers arise from the most marginalized and stigmatized communities, they tend to be among the most deprived and unable to obtain just primary health care and safety equipment. While previous research highlighted the need to improve conditions at work and provide the necessary healthcare support, knowledge about the issues the sanitary workers face remains sparse in that region. The first aim of the research has been to study the socio-demographic parameters of hygienic workers, such as age, gender, educational level, and family composition, to illuminate the context of living and working conditions. The health risks associated are reasonably vast, from acute through subacute conditions such as infections to chronic ones such as respiratory problems and musculoskeletal pains. The impact on mental and emotional well-being is seldom addressed since working with stigma and risk. From health morbidity assessment, the study will gather information that provides insight into daily hazards while highlighting how safety protocol configurations can be improved and providing recommendations to further improve their health and working

conditions. Such research will add to the body of knowledge on the occupational health challenges faced by sanitation workers, which will help make positive work and health environments more of a reality.

Review of Literature

1. **Chandra K & Arora V K (2018)** the studies showed markedly higher rates of respiratory symptoms and impaired pulmonary function tests among sewage workers, with higher rates of morbidity for those working in closed channels, drainage systems, pump stations or filter units, and sludge handling units, as well as more extended employment. Regarding lung cancers associated with their jobs, the results were not definitive. The pathophysiological pathways that have been hypothesised involve oxidative stress and persistent respiratory irritation caused by exposure to endotoxins and toxic bioaerosols as indicators of respiratory damage brought on by exposure to sewage work, sulfa-haemoglobin, surfactant proteins A and D, Clara cell, and malondialdehyde (MDA) have all been studied.
2. **Karan K et al. (2022)** The study used thirty members of the sample size who are sanitary workers. The findings indicate that most of the sample (16.66%) of sanitary workers had inadequate knowledge, followed by average knowledge (63.33%) and strong knowledge (20%). The current study's findings can guide future research. It is possible to do interventional research to educate the sanitary staff. One such research topic is the prevention of specific health issues.
3. **Meena G. & Priyanka T. (2021)**, the current study aims to assess the attitudes of sanitary workers toward social service based on their age. Despite their heavy burden, they continue to serve society because of their familial atmosphere. Even while sanitary workers use sanitation to benefit the community, their everyday lives nonetheless present significant challenges. This study showcases cleaning sector employees' social service mindset and efforts. Its goal is to clean the infrastructure of rural highways, towns, and streets. Sanitary personnel must carry out specific activities or acts in their everyday lives.
4. **Tiwari R (2008)** emphasises the societal injustices these workers experience, as their line of work exposes them to specific health risks. Exposure to toxic gases like methane and hydrogen sulphide, cardiovascular degeneration, musculoskeletal conditions like osteoarthritis and intervertebral disc herniation, infections like helicobacter, leptospirosis, and hepatitis, skin issues, respiratory system issues, and altered pulmonary function parameters are some of these health hazards. Providing this group of workers with an efficient occupational health service can partially help achieve this. Regular awareness campaigns should also be held to spread knowledge about using personal protection equipment and safer work practices.

Objectives

1. To study the socio-demographic profile of the sanitary workers
2. To examine the occupational health-related morbidities of sanitary workers.

METHODOLOGY FOR THE STUDY

TOOLS FOR THE STUDY: Data was collected from respondents using a structured questionnaire and direct interview method

SAMPLE SIZE

The Samples for this study were collected from 100 respondents from Sanitary Workers in Varkala municipality Thiruvananthapuram.

HYPOTHESES OF THE STUDY:

- H_0: - There is no significant association between Gender and Monthly Income
- H_0: - There is no significant association between Gender and Hours of Work
- H_0: - There is no significant association between Age and Hours of Work
- H_0: - There is no significant difference between educational qualification and Monthly Income

- H_0: - There is no significant difference between Educational Qualification and Hours of Work
- H_0: - There is no significant relationship between Gender, Hours of work and Occupational health morbidities
- H_0: - There is no significant relationship between marital status, educational qualification, monthly income and Occupational health morbidities

RESULTS AND DISCUSSIONS

DEMOGRAPHIC PROFILE

Frequency distribution table

Table 1

	Age	
Age	**Frequency**	**Per cent**
18-28	17	17.0
29-39	28	28.0
40-45	16	16.0
Above 51	39	39.0
Total	100	100
	Gender	
Male	70	70.0
Female	30	30.0
Total	100	100
	Marital Status	
Unmarried	19	19.0
Married	68	68.0
Separated	13	13.0
Total	100	100.0
	Educational Qualification	
Secondary	28	28.0
Higher Secondary	59	59.0
Graduation	13	13.0
Total	100	100.0
	No of children	
One	22	22.0
Two	72	72.0
Three	3	3.0
None	3	3.0
Total	100	100.0
	Monthly Income	
less than 15000	27	27.0
15000 – 20000	28	28.0
20001-25000	16	16.0
25001-30000	15	15.0
Above 30000	14	14.0
Total	100	100.0

Table 1 contains 100 people's age, gender, marital status, education level, number of children, and monthly income. Most persons (39%) are 51 years or older, followed by 28% between the ages of 29 and 39, and the smallest group (16%) between the ages of 40 and 45. Men outnumber women by 70% to 30%. Most persons are married (68%), with 19% unmarried and 13% separated. Approximately 59% have completed high school, 28% have completed middle school, and 13% have graduated college. Most people (72%) have two children, whereas 22% have one kid and 3% have none. Monthly income varies, with 28% earning between ₹15,000 and ₹20,000 and 14% earning above ₹30,000.

CHI-SQUARE TESTS

H_0: - There is no significant association between Gender and Monthly Income

Table -2

Chi-Square Tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	23.286[a]	4	.000
Likelihood Ratio	22.601	4	.000
Linear-by-Linear Association	.337	1	.562
N of Valid Cases	100		

The Chi-Square test analysis focused on the association between gender and monthly income. The results demonstrated a significant association between gender and monthly income since the Pearson Chi-Square value obtained was 23.286, with 4 degrees of freedom (df) and a p-value of 0.000. This implies that the distribution of income levels is different for different genders. The Likelihood Ratio also supports this finding with a p-value of 0.000. The same trend is, however, not extended to gender and monthly income in the form of a justification for why. The Linear Association value was 0.337, with its associated p-value being 0.562, which indicates that no linear relationship exists between the two variables, Gender and Monthly Income, either positively or negatively. All in all, there is a strong relationship between gender and income levels, but such a relationship is not a straightforward linear one.

H_0: - There is no significant association between Gender and Hours of Work

Table -3

Chi-Square Tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	1.786[a]	1	.181
Continuity Correction[s]	1.240	1	.265
Likelihood Ratio	1.826	1	.177
Fisher's Exact Test			
Linear-by-Linear Association	1.768	1	.184
N of Valid Cases	100		
b. Computed only for a 2x2 table			

The Chi-Square test looked at how Gender and Hours of Work connect. The Pearson Chi-Square value of 1.786 with 1 degree of freedom (df) and a p-value of 0.181 shows no strong link between gender and hours worked because the p-value is higher than the 0.05 cutoff. The Continuity Correction and Likelihood Ratio tests also indicate no clear connection (p-values of 0.265 and 0.177). The Linear-by-Linear Association test backs this up, with a p-value of 0.184 showing no clear linear relationship. Ultimately, these findings hint that gender doesn't significantly impact this dataset's number of hours worked.

H_0: - There is no significant association between Age and Hours of Work

Table -4

Chi-Square Tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	7.111[a]	4	.130
Likelihood Ratio	7.440	4	.114
Linear-by-Linear Association	.299	1	.585
N of Valid Cases	100		
a. three cells (30.0%) have an expected count of less than 5. The minimum expected count is 3.20.			

The Chi-Square test looked at how Age and Hours of Work relate to each other. The Pearson Chi-Square value reached 7.111 with 4 degrees of freedom (df) and a p-value of 0.130. This shows that age and hours worked don't have a strong link since the p-value is higher than the 0.05 significance level. The Likelihood Ratio test (p = 0.114) and the Linear-by-Linear Association test (p = 0.585) also point to no essential connections. These findings suggest that age doesn't significantly determine how many hours people work in this dataset.

H_0: - There is no significant difference between educational qualification and Monthly Income

Table -5

Chi-Square Tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	6.689[a]	8	.571
Likelihood Ratio	6.723	8	.567
Linear-by-Linear Association	.018	1	.894
N of Valid Cases	100		
a. eight cells (53.3%) have an expected count of less than 5. The minimum expected count is 1.82.			

The Chi-Square test looked at how Educational Qualification and Monthly Income are connected. The Pearson Chi-Square value reached 6.689 with 8 degrees of freedom (df) and a p-value of 0.571. This shows that educational qualification and monthly income don't have a strong link, as the p-value is way above the 0.05 mark we use to decide if something's important. The Likelihood Ratio test (p = 0.567) and the Linear-by-Linear Association test (p = 0.894) also point to no extensive connections. These findings tell us that in this dataset, your educational qualification doesn't considerably affect how much you earn each month.

H_0: - There is no significant difference between Educational Qualification and Hours of Work

Table -6

Chi-Square Tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	.237[a]	2	.888
Likelihood Ratio	.234	2	.890
Linear-by-Linear Association	.106	1	.744
N of Valid Cases	100		
a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 5.20.			

The Chi-Square test examined the connection between Educational Qualification and Hours of Work. The Pearson Chi-Square value was 0.237 with 2 degrees of freedom (df) and a p-value of 0.888, indicating no significant association between educational qualification and hours worked, as the p-value is significantly higher than the 0.05 threshold for significance. The Likelihood Ratio test (p = 0.890) and the Linear-by-Linear Association test (p = 0.744) reinforce this finding, showing no significant relationship. These results imply that educational qualification does not significantly influence the number of hours worked in this dataset.

Independent sample t-test

H_0: - There is no significant relationship between Gender, Hours of work and Occupational health morbidities

Table -7

Independent sample t-test		**Gender**					**Hours of work**				
		Levene's Test for Equality of Variances		**t-test for Equality of Means**			**Levene's Test for Equality of Variances**		**t-test for Equality of Means**		
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**F**	**Sig.**	**t**	**df**	**Sig. (2-tailed)**
respiratory issues such as coughing or shortness of breath	Equal variances assumed	11.521	.001	1.250	98	.214	.177	.675	-1.566	98	.121
	Equal variances are not assumed.			1.103	42.758	.276			-1.573	84.959	.119
suffer from skin conditions like rashes or dermatitis	Equal variances assumed	.312	.578	.434	98	.665	.463	.498	-.034	98	.973
	Equal variances are not assumed.			.431	54.134	.668			-.033	81.123	.973
gastrointestinal problems such as nausea or vomiting	Equal variances assumed	.239	.626	1.020	98	.310	.018	.893	.521	98	.603
	Equal variances are			1.020	54.979	.312			.522	83.993	.603

	not assumed.										
headaches or migraines	Equal variances assumed	3.367	.070	.576	98	.566	.769	.383	.334	98	.739
	Equal variances are not assumed.			.528	45.737	.600			.341	88.863	.734
musculoskeletal pain or discomfort	Equal variances assumed	.454	.502	.882	98	.380	.001	.976	-.794	98	.429
	Equal variances are not assumed.			.859	51.774	.394			-.788	81.352	.433
symptoms of fatigue or exhaustion	Equal variances assumed	.698	.405	3.227	98	.002	.087	.769	.807	98	.422
	Equal variances are not assumed.			3.090	49.979	.003			.818	87.572	.415
eye irritation or vision problems	Equal variances assumed	.284	.595	-.113	98	.910	2.340	.129	-2.205	98	.030
	Equal variances are not assumed.			-.112	53.190	.912			-2.174	79.625	.033
stress or anxiety related to your job	Equal variances assumed	.852	.358	-.071	98	.944	.462	.498	1.709	98	.091

	Equal variances are not assumed.			-.068	50.401	.946			1.740	88.700	.085
depression or mood disorders	Equal variances assumed	.121	.729	-.713	98	.477	5.176	.025	-.976	98	.331
	Equal variances are not assumed.			-.723	56.621	.473			-1.010	92.592	.315
allergies or allergic reactions	Equal variances assumed	.148	.701	1.282	98	.203	.328	.568	-2.190	98	.031
	Equal variances are not assumed.			1.286	55.321	.204			-2.176	81.871	.032
heat-related illnesses	Equal variances assumed	1.797	.183	-.199	98	.843	.456	.501	.304	98	.761
	Equal variances are not assumed.			-.190	49.726	.850			.302	81.227	.764
cold-related illnesses such as hypothermia or frostbite	Equal variances assumed	.449	.504	1.154	98	.251	3.758	.055	-.624	98	.534
	Equal variances are not assumed.			1.126	52.056	.265			-.642	91.415	.523

Most health problems, such as respiratory problems, skin problems, headaches, pain, and stress, do not show a significant relationship to gender or the number of hours worked according to the independent sample t-tests. Gender reveals differences in being tired ($p = 0.002$). One group is significantly more tired than the others. Hours worked also significantly affected eye problems ($p = 0.030$) and allergic reactions ($p = 0.031$), but gender did not affect substantially any previously mentioned issues. Other health issues were depression, mood problems, and heat-related illnesses, which showed no significant differences between genders or amounts of time worked.

ANOVA TEST

H_0: - There is no significant relationship between marital status, educational qualification, monthly income and Occupational health morbidities

Table -5

ANOVA		**Marital Status**		**Educational Qualification**		**Monthly Income**	
		F	Sig.	F	Sig.	F	Sig.
respiratory issues such as coughing or shortness of breath	Between Groups	.193	.825	.095	.909	2.113	.085
	Within Groups						
	Total						
suffer from skin conditions like rashes or dermatitis	Between Groups	.346	.708	.233	.792	1.471	.217
	Within Groups						
	Total						
gastrointestinal problems such as nausea or vomiting	Between Groups	.038	.963	3.231	.044	1.255	.293
	Within Groups						
	Total						
headaches or migraines	Between Groups	.026	.974	.126	.881	1.013	.405
	Within Groups						
	Total						
musculoskeletal pain or discomfort	Between Groups	2.586	.080	.878	.419	3.469	.011
	Within Groups						
	Total						
symptoms of fatigue or exhaustion	Between Groups	.565	.570	.646	.526	.139	.967
	Within Groups						
	Total						
eye irritation or vision problems	Between Groups	.459	.633	.030	.970	2.085	.089
	Within Groups						
	Total						

stress or anxiety related to your job	Between Groups	3.018	.053	.104	.901	3.691	.008
	Within Groups						
	Total						
depression or mood disorders	Between Groups	.545	.582	.118	.889	1.061	.380
	Within Groups						
	Total						
allergies or allergic reactions	Between Groups	.679	.510	3.629	.030	1.884	.120
	Within Groups						
	Total						
heat-related illnesses	Between Groups	1.082	.343	.516	.598	.540	.707
	Within Groups						
	Total						
cold-related illnesses such as hypothermia or frostbite	Between Groups	.422	.657	1.411	.249	.647	.630
	Within Groups						
	Total						

The analysis explored the relationship between demographic variables (Marital Status, Educational Qualification, and Monthly Income) and various health conditions. It found that Monthly Income significantly affected musculoskeletal pain, respiratory conditions, and work-related stress, while Educational Qualification was linked to gastrointestinal problems and allergies. Marital status showed a marginal effect on work-related stress. Other conditions, such as skin problems, headaches, fatigue, and depression, were not significantly influenced by any demographic variables. Overall, demographic factors notably impacted certain health conditions, especially those related to income and education, while others remained unaffected.

Findings

Analysis of various health issues related to gender and work hours revealed some significant trends. Gender was correlated with fatigue and exhaustion, with higher levels of tiredness reported by women than men ($p=0.002$). Eye irritation or vision problems were more prevalent in people who worked for more extended hours ($p=0.030$); however, the impact of sex on this condition was not significant. Allergies or allergic reactions revealed a substantial relationship with hours worked ($p=0.031$), indicating that long working hours may contribute to increased allergic reactions. On the other hand, some health conditions, diseases, skin sickness, gut problems, head pain, musculoskeletal troubles, stress depression, and heat health problems revealed non-significant differences in gender or hours worked, possibly indicating that these members are influenced less by these two factors.

Suggestions

Within these results, organisations might consider their policies regarding fatigue, which most notably affects women. Given the reports of more significant fatigue among women, policies

that provide flexible working hours, wellness programs, or enhanced access to mental health support might be helpful. Many organisations whose employees work longer hours need to take preventive action to lessen eye irritation and allergic reactions by offering eye-friendly resources, encouraging regular breaks, and improving the working environment via proper ventilation or other strategies to reduce allergens. Little statistical linking was shown among gender, hours worked, and general health considerations of respiratory problems or musculoskeletal pain. Ergonomically sound workspaces and work-life balance may be helpful, although the statistical correlation is weak. Regular health check-ups, including mental health evaluations, therefore, can catch and address problems like stress and depression before these escalate into more severe issues.

Conclusion

The study noted that many health issues do not strongly correlate with gender or hours worked, yet conditions like fatigue, eye irritation, and allergic reactions seemed to be more influenced by such variables. The implication is that though some health issues are common across many demographic groupings, others would require a more customised set of interventions for women and longer working-hour employees. By addressing these specific issues, organisations could improve employee well-being, productivity, and job satisfaction. Exploring these factors would help build a healthier, more supportive work environment for any employee.

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