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Morbidity profile of Street Sweepers and Scavengers of selected municipalities in Malappuram District : A Cross Sectional Study

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ABSTRACT

Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. Street sweeping is a lowly and filthy occupation. In developing countries street sweepers and scavengers play important role in solid waste management system. Street sweepers are unaware of the use of protective devices in most of the areas. Unhygienic environment cause acute health risk of respiratory system and eye, accidents, injuries, cuts and wounds, skin infections, and animal bites. The present study intends to assess the morbidity profile of the sweepers and scavengers of Malappuram district by conducting a survey through personal interview method. The design is descriptive cross sectional study with sample of both genders satisfying the inclusion criteria (selected by stratified random sampling technique). The number of sweepers in each municipality is different so proportion based calculation is used for the detection of sample size. The data collected by telephonic interview method using questionnaire of the study of occupational health analysis of conservancy workers analyzed using the chi square test. Among the participants 78% experienced musculoskeletal symptoms, 60% experienced dermatological symptoms and 41% experienced respiratory symptoms. Less than 5% of the participants experience Cough, Cold, Fever, Chickenpox, Leptospirosis, Typhoid, Pneumonia and Dengue. 31% of the workers had headache.

Key words: Cross sectional study, Occupational morbidities, street sweepers, scavengers.

INTRODUCTION

Occupational health is one of the major areas of community medicine. It is a multidisciplinary field concerned with safety, health and welfare of people at work. Main aim of occupational health is maintenance and promotion of complete physical, mental and social wellbeing of the workers and protecting the workers from health problems by providing a healthy work place.^[1] Improvement in the occupational health of

workers in each sector helps to the better utilization of the resources and maximization of the output.

Occupational street sweepers (conservancy workers) are the main working force to enhance traffic safety by removing harmful pollutant.^[2] They are working in an environment full of microbes, pollutants, organic and nonorganic wastes. Manual system of sweeping and scavenging expose them under high level of risk for developing infections and other morbidities through dust, harmful gases and infective garbage materials.^[3]

The important health issues reported to the conservancy workers are falls (63.6%) accidents (22%), injuries (73.2%) musculoskeletal morbidities (17-39%) and water borne disease (7.1%).^[4] Street sweepers play a major role in protection of our environment from pollution. Improper sweeping affects the living environment by the outbreak of epidemics.

Usage of personal protective measures and utilization of health services by the sweepers and sanitary workers are deficient in most of the areas in the present scenario.^[5] So the present study intends to

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assess the morbidity profile (health status) of the sweepers and scavengers of Malappuram district by conducting a survey through personal interview method. Such studies helps to provide powerful data that may influence clinical practice, guide future research development or drive the development and provision of needed programs and services.

METHODOLOGY

The study followed cross sectional design and was approved by Institutional Ethics Committee V.P.S.V. Ayurveda College, Kottakkal, Approval no: Ref IEC/CI/27/19; Dated 06-05-2019. Written informed participant's consent was obtained. Assessment tool was structured questionnaire of a study of occupational health analysis of conservancy workers.^[6] Data analyzed using SPSS software.

Inclusion criteria

set up to age group 31-60 years, both genders were included, only Permanent workers were selected, Municipality street sweepers and scavengers having at least 1 year experience were selected.^[7] Those who were willing to give written consent were selected. Providing those who are on leave for more than six months and workers having congenital diseases were excluded.

Study sample

A survey study with telephonic interview method was conducted among 88 sanitary workers employed in various municipalities of Malappuram district, Kerala. A structured questionnaire of occupational health analysis of conservancy workers was given, the responses were collected and analyzed statistically to find out the health profile related to occupation.

OBSERVATIONS

All the respondents were permanent government employees, working in the time slot 7 AM to 1 PM, 6 days a week. All participants performed the task of garbage collection, cleaning streets and rag picking. Cleaning of Manholes was performed by more than 65% of participants. 74% of the participants were employed in sewer cleaning. Only 26% reported of

handing bio medical waste. 65% of participants indicated of not having any injuries during work. 18% of the workers encountered accidents during work. Only 16% of the participants were received training in sanitation work. Of which 13% received the one- week training and 3% received a two-week training. Ninety percent of the respondents were not covered under any medical benefit scheme in case of accidents. Eighty Seven percent of the workers were unaware of any government scheme. 89% were unaware of any legal benefits they are eligible for in case of accidents. Eighty five percent of the respondents were poor, 15% Belonged to the middle class. Most of the sweepers belonged to lower socio economic class.^[8]

91% of the participants have not been absent for more than 6 months. 28% of the workers indicated to have paid back the cost medical benefits received from their monthly salary. Low education and no training were major factor hindering people to stick to the job of a sanitary worker. Majority of the participants had to encounter hazardous substance in waste frequently. Hazardous waste and obnoxious waste were encountered by less than 50% of the sweepers.

The most common problems faced were presence of feces in nappies, animal waste, domestic waste, dead or rotten animals and broken glass in waste. Ninety percent of the people who had insurance had more than one member enrolled in the insurance. Almost all participants used protective gears. Only 2 participants hesitated to use gumboots and one participant hesitated to use safety gloves. All Participants were provided with protective gears like, helmet, Mask, Uniform, Safety gloves, gum boots, brooms and mops. All the participants indicated they wash hands before eating, drinking, smoking and all activities.

Figure 1: Distribution of participants by age

	Frequency	Percent
< 35	2	2.3
35 - 40	1	1.1
40 - 45	7	8.0
45 - 50	27	30.7

50 - 55	26	29.5
55 - 60	25	28.4
Total	88	100.0

Figure 2: Distribution of musculoskeletal issues during work

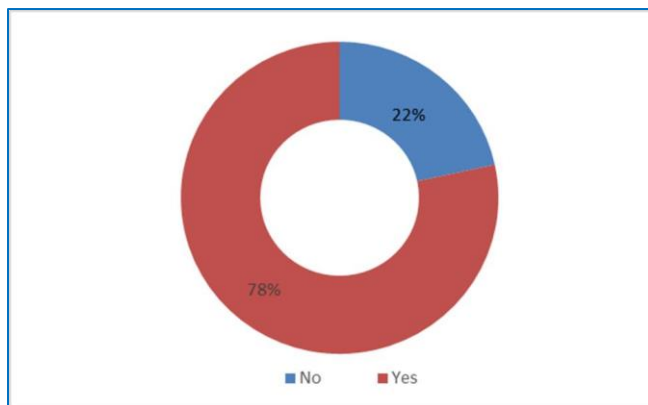


Figure 3: Distribution of generally experienced symptoms during work

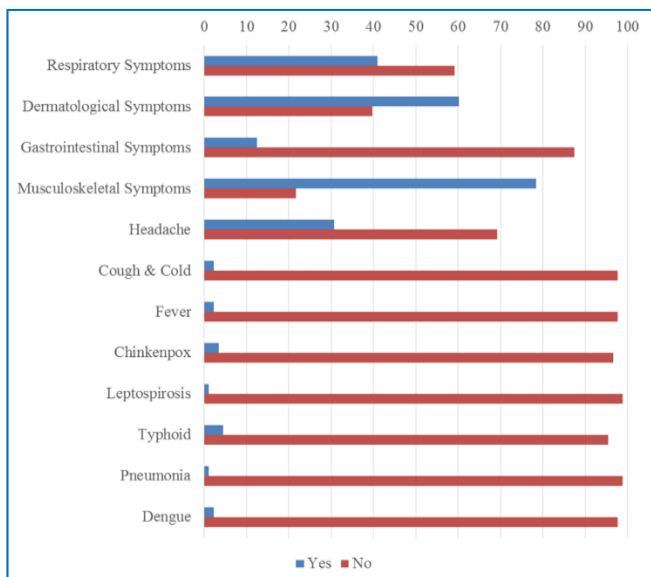
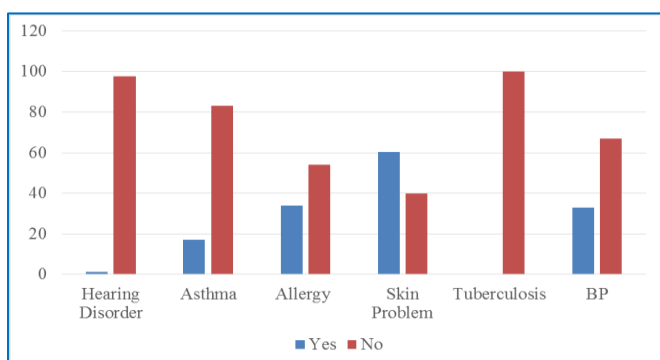


Figure 4: Distribution of Other disease or symptoms



RESULTS

Musculoskeletal issues (78%), dermatological symptoms (60%), and respiratory problems (41%) were the most prevalent symptom among sanitary workers. Cough & Cold, Fever, Chickenpox, Leptospirosis, Typhoid, Pneumonia and Dengue were very minimal.

Table 1: Morbidity profile

Morbidities	Percentage
Rhinitis	9%
Sneezing	3%
Cough and cold	2.3%
Allergy problems	33%
Asthma	17%

Table 2: Morbidity profile

Diseases	Chi-Square value	P value	Percentage
Musculoskeletal	23.218	P<0.05	78%
Dermatological	1.157	P>0.05	60%
Respiratory	3.018	P>0.05	41%
Headache	1.857	P>0.05	31%
Gastrointestinal	1.002	P>0.05	12%
Cough	0.177	P>0.05	2%
Fever	0.177	P>0.05	2%

Table 3: Musculoskeletal symptoms

Symptom	Frequency	% of Musculoskeletal
Knee Joint Pain	49	66%
Lower Back Pain	48	65%
Shoulder	15	20%
Wrist Pain	12	16%
Elbow Joint Pain	8	11%
IVDP	7	9%

DISCUSSION

Nature of work and smoking is having a significant relation with the presence of musculoskeletal issues. According to present study Thirty-one per cent of the workers had headache that may be due to the stressful working environment. As Covid 19 pandemic was prevalent during the study period, all workers used double masks, gloves, and boots, which brought down respiratory complaints and skin problems. After the report of sanitation workers tested covid 19 positive in Trissur District, the workers became extra careful in handling waste. They always had a fear of infection at the duty time. Leptospirosis was more predominant in workers cleaning wet markets and food centers, reconfirming the findings of LP de Almeida et al 1994.^[9] Sanitary workers also reported few Dengue fever cases, which reaffirms the study result of the presumed vulnerability of waste handlers to dengue fever due to poor sanitary conditions in the workplace.^[10] Though exposed to traffic and other noise pollution, the hearing disorder reported was very minimal (1.1%). Some workers had contact with hot ashes at combustion site as seen in a study by Steven Jerie *et al.* 2016.^[11]

Allergic symptoms

The most common allergic situation is Rhinitis and Sneezing. The other occupational hazard they face is overexposure to cold or heat, wind, UV radiation, dust, carbon monoxide and nitrogen oxide. This led to irritation to the respiratory tract as well as the eyes.^[12] Of the 17% participants who indicated of Asthma/ Bronchitis 80% of them have been having it for more than 5 years. Sweeping may increase respiratory health symptoms among them.^[13] Transfer of waste from bin to bag causes double exposure to dust and bio aerosols.^[14]

Skin problems

The predominantly reported skin problems are Dermatitis (70%) and Tinea pedis (26%). Skin irritations are probably due to direct contact with wastes without using protective devices.^[15]

Continuous exposure to high humidity, high temperature, lack of personal hygiene and the use of

detergent makes them vulnerable to skin manifestation.^[16] Jayakrishnan et al. 2013 reported that street sweepers and scavengers had skin lesions, maybe due to allergic (Dermatitis, eczema) or infective causes (Bacterial, fungal).^[17]

Musculoskeletal issues during work

Knee joint pain (66%), Lower Back Pain (65%) were the most reported musculoskeletal disorders. The higher prevalence of musculoskeletal symptoms in municipal sanitation workers is due to the long duration of employment, nature of their job (lifting, pulling loads and frequent bending and twisting activities). Education also impacts the health hazards faced as less-educated workers were unaware of the problems and impacts associated with collection methods.^[18] Repetition of similar movements of hands and arms while lifting and disposing of waste containers causes joint pains, as observed by yang et al 2001.^[19]

Job rotation, change in the place of work, taking curative measures, early treatment may reduce the risk of musculoskeletal disorders and related disabilities. By implementing a sweeping machine, we can reduce the risk of musculoskeletal disorders in street cleaning staff to a considerable level.

Non-Communicable Disease

13% of the participants reported of having diabetes. While 1% had cancer (Thyroid cancer) and 1% had heart block. Non communicable diseases like cardiovascular diseases, diabetes mellitus were reported among sanitary workers. Now the trend of morbidity of sanitary workers shifting from communicable diseases to non-communicable diseases as stated by Bharti et al 2016.^[20]

CONCLUSION

Among street sweepers and scavengers of municipalities in the Malappuram district, musculoskeletal disorders were the predominant occupational health issues. Dermatological symptoms, respiratory problems, non communicable diseases were also reported among them. This study concludes that the problem faced by sweepers and sanitary workers may be due to unsuitable working posture and

incorrect broom sticks and lack of awareness regarding health problems.

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