

# **A Study on Occupational Health Hazards of Sanitary Workers in Greater Chennai City Corporation**

**\*S. Ajith,**

Ph. D Research Scholar, Department of Economics, Annamalai University, Chidambaram, Tamil  
Nadu. Email: [ajithsubbraman@gmail.com](mailto:ajithsubbraman@gmail.com)

**\*\*Dr. V. Rajendran,**

Assistant Professor (Deputed), Department of Economics, Periyar Govt. Arts College, Cuddalore,  
Tamil Nadu

## **Article Info**

**Page Number:** 7324 - 7338

**Publication Issue:**

**Vol 71 No. 4 (2022)**

## **Article History**

**Article Received:** 25 March 2022

**Revised:** 30 April 2022

**Accepted:** 15 June 2022

**Publication:** 19 August 2022

## **Abstract**

An estimated 1.2 million scavengers are working in the country to keep our environment safe. These sanitary workers' working conditions have remained virtually unchanged for over a century. Apart from the social atrocities that these workers face, their occupation exposes them to certain health risks. Exposure to dangerous gases such as methane and hydrogen sulphide, cardiovascular degeneration, musculoskeletal disorders such as osteoarthritis and intervertebral disc herniation, infections such as hepatitis, leptospirosis, and helicobacter, skin problems, respiratory system problems, and altered pulmonary function parameters are among the health risks. This paper made an attempt to identify the occupational health hazards on sewage workers in Chennai Corporation.

---

## **INTRODUCTION**

The abolition of manual scavenging, the degrading practice continues. Between 2002 and 2003, the Indian Ministry for Social Justice and Empowerment admitted to the existence of 676,000 scavengers. However, these figures may have been underestimated because scavenging is illegal. According to one survey by Bezwada Wilson of the Safai Karmachari Association, an estimated 12 lakh (1.2 million) scavengers are present in the country. According to Sulabh, four to five million people were working as scavengers in 2005 and were often employed by the local civil bodies to clean excrement in public places. The working conditions of the sanitary workers have remained virtually unchanged for over a century. Using only a stick broom and a small tin plate, the sanitary

workers clear feces from public and private latrines onto baskets or other containers, which they then carry on their heads to dumping grounds and disposal sites. A few, however, are provided with wheelbarrows or carts by the municipal authorities. Apart from the social atrocities that these workers face, they are also exposed to certain health problems by virtue of their occupation. These health hazards include exposure to harmful gases, cardiovascular degeneration, musculoskeletal disorders, infections, skin problems and respiratory system problems.

## **EXPOSURE TO HARMFUL GASES**

The workers are commonly exposed to gases like hydrogen disulfide, methane, ammonia and carbon monoxide. studied 26 sewer workers exposed to smell and found that 53.8% developed sub-acute symptoms including sore throat, cough, chest tightness, breathlessness, thirst, sweating, irritability and loss of libido. Richardson studied exposure to hydrogen sulfide in 68 sewer workers and found that the FEV1/FVC values were lower in sewer workers who had a high H<sub>2</sub>S exposure.

## **HARMFUL EFFECTS OF HYDROGEN SULFIDE**

The flammable gas hydrogen sulphide burns with a blue flame to produce sulphur dioxide, a very unpleasant gas with a distinctive odour. Hydrogen sulphide and air mixtures in the explosive range have the potential to explode violently. Hydrogen sulphide irritates the eyes and respiratory system even at low amounts. Hyperacute, acute, subacute, or chronic intoxication are all possible. Through the respiratory system, hydrogen sulphide enters the body and quickly oxidises to produce molecules of minimal toxicity. Elimination happens through the intestine, urine, and exhaled air; there are no accumulating issues. Following exposure between 10 and 500 ppm, symptoms of mild poisoning may include a headache that lasts for many hours, leg pain, and, in rare circumstances, loss of consciousness. In severe poisoning (between 500 and 700 ppm), there will be a brief loss of consciousness but no respiratory distress. If the poisoning is severe, the victim enters a profound coma and exhibits dyspnea, polypnea, and a slate-blue cyanosis until breathing is resumed. both tonic and tachycardia. There are clonic spasms. Massive amounts of hydrogen sulphide inhaled will quickly cause anoxia, which will lead to asphyxia and death. The person may experience epileptiform convulsions, become seemingly asleep, and maybe pass away without another movement.

## MUSCULOSKELETAL DISORDERS

Among these professionals, osteoarthritic alterations and intervertebral disc herniation are the most often observed spine problems. Friedrich examined 255 sewage workers to assess how often spinal issues were (i.e., neck, upper back and lower back pain [LBP]). According to him, the prevalence rates for neck, upper back, and LBP were 52.4%, 54.8%, and 72.8%, respectively, over a 12-month period. As people aged, spinal problems became more common. Age, disability, weekly duration of stooping and lifting five years prior, and higher abnormal illness were all significantly positively linked with work disability during the previous twelve months due to LBP. behaviour ratings (odds ratio between 1.26 and 0.94).

## INFECTIONS

According to the different illnesses, there are the following exposure methods: The most typical method is by mouth-to-hand contact while eating, drinking, or smoking. Other popular methods include cleaning the face with dirty hands or gloves, licking skin droplets, or wiping the face with infected hands. by skin-to-skin contact, such as from discarded hypodermic needles, scrapes, scratches, or other piercing wounds. The surfaces of the nose, mouth, and eyes are all points of entry for some organisms into the body. As dust, aerosol, or mist, by inhaling them. Leptospirosis, hepatitis, and *Helicobacter pylori* infection are some of the illnesses that are frequently investigated in this group of professionals.

## LEPTOSPIROSIS

A serious occupational illness that affects persons who come into touch with animals and their excretions is leptospirosis. The likelihood of infection at one's place of employment is correlated with both the organism's adaptability to the environment to which the worker is exposed and the environment itself. *Leptospira* is typically carried by rats, which are common in underground sewers. The sewers in that area are probably contaminated by the urine of the rodents and other animals that live there. The urine of animals with *leptospira* infection contains the parasite. Leptospirosis is thus a concern that sewage workers may encounter. (Ambekar et al.) Utilizing a microagglutination test, 78 sewer employees from five different municipal wards in Pune were examined to look for signs of previous *leptospira* infection. A 16.6% prevalence incidence was discovered. Sewer workers in the city's rodent- and stray-animal-infested areas showed the greatest evidence of leptospiral infection. According to De Serres et al., sewer workers exhibited higher prevalences of leptospirosis antibodies than controls (12% vs. 2%,  $P = 0.003$ ).

## HEPATITIS

The Hepatitis A (HA) virus is the most common vaccine-preventable illness. Although acute hepatitis A is often self-limiting, it is associated with significant morbidity and economic impact. Few studies have found an elevated HAV antibody titer among sewage employees, while other research suggests that workers in the solid waste business may only theoretically be at an increased risk of contracting infectious diseases on the job. Even Glas et al.'s research found no evidence of an elevated risk of clinical HA among sewage employees. According to Vaidya, there was a substantial increase in anti-hepatitis E virus positive (P 0.05) in sewage employees who had worked for more than 5 years. Another case study raises the possibility that sewer employees face a higher risk of acquiring hepatitis C. Only exposure to sewage was independently related with positivity for hepatitis B virus (HBV) infection, according to a second study by (Arvanitidou et al.) among workers of a sewage company (P 0.001). Therefore, they advised considering an HBV immunisation for employees who were exposed to sewage.

## HELICOBACTER PYLORI

The respiratory health of sewage workers has been the subject of numerous research, all of which have found that respiratory problems are widespread among this group of employees. The examinations of respiratory function also showed that these workers had aberrant respiratory functioning. These symptoms might be brought on by bioaerosol exposure to endotoxins and airborne microorganisms. According to (Zuskin et al.), sewage employees' baseline ventilatory capacity was much lower than the levels that were expected. Particularly, the values for FEF<sub>25-50</sub> decreased, indicating obstructive alterations in smaller airways. They said that sewage employees are exposed to a variety of occupational hazardous chemicals, which may result in the development of chronic pulmonary function abnormalities. In conclusion, chemical and biological dangers are the principal causes of suffering for sewage and sanitation workers. Through engineering, medical, and governmental efforts, this can be avoided. Making the process more mechanistic should be the main goal of the engineering solution. The occupational health services that should include pre-placement and ongoing health monitoring should also be provided to these personnel. Manual scavenging will be eliminated with the support of continued, efficient execution of the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993. Additionally, regular awareness campaigns should be held to spread knowledge about the usage of personal protection equipment and safer working practices.

## Objectives

1. To portray the socio- economic conditions of the field workers.
2. To analyses the impact of occupational health hazards of earnings of the scavengers processing workers.
3. To study the factors influencing occupational health hazard of the scavengers processing workers.

### Methodology

The present study on “occupational health hazards of scavengers in Chennai Corporation and Chennai district”. – is a survey type and analytical study. Based on the objectives, hypotheses have been framed and researcher confined to collect information pertaining to occupational health hazards of scavengers processing their problems in earnings in the study area. For this Chennai Corporation are selected from the Chennai district. In Chennai Corporation 2699 are involved in crushing and processing of scavengers.

### TOOLS OF DATA COLLECTION

Pre-tested interview schedule was used to collect the primary data. The interview schedule consists of questions related to socio-economic characteristics of the respondents, working hours, working environment, occupational health hazards, occupational health diseases and income earned by them through the processing of scavengers.

### SOURCES OF DATA

The study is based on primary data were collected from the 90 scavengers processing from Chennai corporation of Chennai district.

### Analysis and Discussion

**Table – 1**

#### Socio- economic characteristics

Age group	Permanent	On contract	total
<35 years	4 (9.0%)	31(69.0%)	35 (39.0%)
36-55 years	32 (71.1%)	12 (27.0%)	44 (49.0%)
>56years	9 (20.0%)	2 (4.4%)	11 (12.2%)
Community			
BC	11 (24.0%)	4 (9.0%)	15 (17.0%)
MBC	5 (11.0%)	4 (9.0%)	9 (10.0%)

SC	16 (36.0%)	17 (38.0%)	33 (37.0%)
ST	13 (29.0%)	20 (44.0%)	33 (37.0%)
<b>Education level</b>			
Illiterate	11 (24.0%)	10 (22.0%)	21 (23.0%)
Primary school	13 (29.0%)	7 (16.0%)	20 (22.2%)
Middle school	12 (27.0%)	14 (31.1%)	26 (29.0%)
High school	9 (20.0%)	10 (22.2%)	19 (21.1%)
HSC	0 (0%)	3 (7.0%)	3 (3.3%)
Others	0 (0%)	1 (2.2%)	1 (1.1%)
<b>Family ownership</b>			
Own	23 (51.1%)	21 (47.0%)	44 (49.0%)
Rented	22 (49.0%)	24 (53.3%)	46 (51.1%)
<b>Annual income</b>			
<20000	10 (22.2%)	45 (100%)	54 (60.0%)
20001-40000	15 (33.3%)	0 (0%)	15 (17.0%)
>40001	21 (47.0%)	0 (0%)	21 (23.3%)
<b>Annul expenditure</b>			
<50000	6 (13.3%)	2 (4.4%)	8 (9.0%)
50001-75000	9 (20.0%)	15 (33.3%)	24 (27.0%)
>75000	30 (67.0%)	28 (62.2%)	58 (64.4%)

*Source: Compiled from Primary Data*

## Age

Age is a demographic curable, which influence the utilization of health services indirectly it is observed that nearly half of (39.0%) respondents belong to the age group 25 to 35 years and (49.0%) percent of the respondents belong to the age group of 36 to 55 years. Only (12.2%) percent of them belong to the age group of above 56 years.

## Community

Community is the social stratification variables which is to be considered in studying the traditional and modern practices related to health behavior they exercise tremendous influence over the over the values, ideas, attitudes practices and behavior of the people. It is found that nearly half of (37.0%) the respondents belong to SC community (37.0%) belong to ST community (17.0%) belong to BC community (10.0%) and only percent of them belong to MBC community.

## Occupation

Occupation is another important socio-economic variable which affects the economic development and standard of living of the family. It is observed that more than half-of them (100%) are filed workers.

## Levels of Education

Education is one of the indicators which determine the health status and quality of life. It plays a crucial role in influencing the health behavior of the people. It is found that all the respondents are literate. Among them (4.4%) percent of the respondents are studied up to middle school level and percent them student up to primary school. None of them creased above high school level.

## Annual Income

An over whelming percentage of respondents belong to the wealth range Rs. 20,000 to 40,000 and above 40,000. Regarding annual household income it is observed from the table that 60 percent of sample households belong to the income category of below Rs 20000. 23 percent of them belong to the income categories of above Rs.40000. As their annual income and very few households have their income of above Rs. 40000.

## Annual expenditure

Nearly half-of the respondent's annual household expenditure lies between Rs. 50,000 and 75,000 Respondents 27.0% respondents are with the expenditure of below Rs.50,000 And only 64.4% of them spent above Rs. 75,000 As their annual family expenditure.

**Table 2**

**Type of disease affected (Physical Hazards) and Employment status of the Respondents**

Type of disease affected (Physical Hazards)	Employment Status				Total
	Permanent		Contract		
	Yes	No	Yes	No	
Electric shocks	22 (24.4%)	23 (25.6%)	28 (31.1%)	17 (18.9%)	90 (100.0%)
Burns	10 (11.1%)	35 (38.9%)	11 (12.2%)	34 (37.8%)	90 (100.0%)
Sleep Disorders	11	34	3	42	90

	(12.2%)	(37.8%)	(3.3%)	(46.7%)	(100.0%)
Headache	26 (28.9%)	19 (21.1%)	31 (34.4%)	14 (15.6%)	90 (100.0%)
Nervous	10 (11.1%)	35 (38.9%)	1 (1.1%)	44 (48.9%)	90 (100.0%)
Hearing impairment	12 (13.3%)	33 (36.7%)	8 (8.9%)	37 (41.1%)	90 (100.0%)
Hearing loss	18 (20.0%)	27 (30.0%)	17 (18.9%)	28 (31.1%)	90 (100.0%)

Source : Primary data

Table 2 shows the details of the Type of disease affected (Physical Hazards). With regard to the permanent workers, 24.4 percent of the respondents are affected Electric shocks while 25.6 percent of the respondents are from not affected Electric shocks. Also 11.1 percent of the respondents are affected Burns while 38.9 percent of the respondents are not affected Burns. Further 12.2 percent of the respondents are affected Sleep Disorders while 37.8 percent of the respondents are not affected Sleep Disorders. Like wise 28.9 percent of the respondents are affected Headache while 21.1 percent of the respondents are not affected Headache. Also 11.1 percent of the respondents are affected Nervous while 38.9 percent of the respondents are not affected Nervous. Further 13.3 percent of the respondents are affected Hearing impairment while 36.7 percent of the respondents are not affected Hearing impairment. Further 20.0 percent of the respondents are affected Hearing loss while 30.0 percent of the respondents are not affected Hearing loss.

With regard to the contract workers, 31.1 percent of the respondents are affected Electric shocks while 18.9 percent of the respondents are from not affected Electric shocks. Also 12.2 percent of the respondents are affected Burns while 37.8 percent of the respondents are not affected Burns. Further 3.3 percent of the respondents are affected Sleep Disorders while 46.7 percent of the respondents are not affected Sleep Disorders. Like wise 34.4 percent of the respondents are affected Headache while 15.6 percent of the respondents are not affected Headache. Also 1.1 percent of the respondents are affected Nervous while 48.9 percent of the respondents are not affected Nervous. Further 8.9 percent of the respondents are affected Hearing impairment while 41.1 percent of the respondents are not affected Hearing impairment. Further 18.9 percent of the respondents are affected Hearing loss while 31.1 percent of the respondents are not affected Hearing loss. The table clearly shows that out of the sample population, most of the respondents are affected Physical Hazards through Electric shocks as the highest score is 31.1 percent in contract works.



**Table 3****Type of disease affected (Mechanical Hazards) and Employment status of the Respondents**

Type of disease affected (Mechanical Hazards)	Employment Status				Total
	Permanent		Contract		
	Yes	No	Yes	No	
Varicose veins	18 (20.0%)	27 (30.0%)	17 (18.9%)	28 (31.1%)	90 (100.0%)
Back pain	28 (31.1%)	17 (18.9%)	35 (38.9%)	10 (11.1%)	90 (100.0%)
Torsions	30 (33.3%)	15 (16.7%)	33 (36.7%)	12 (13.3%)	90 (100.0%)
Fractures	11 (12.2%)	13 (14.4%)	34 (37.8%)	32 (35.6%)	90 (100.0%)
Pain in the neck	35 (38.9%)	10 (11.1%)	39 (43.3%)	6 (6.7%)	90 (100.0%)
Ligament rupture	13 (14.4%)	32 (35.6%)	9 (10.0%)	36 (40.0%)	90 (100.0%)
Not exposed	9 (10.0%)	36 (40.0%)	6 (6.7%)	39 (43.3%)	90 (100.0%)

*Source : Primary data*

Table 3 shows the details of the Type of disease affected (Mechanical Hazards). With regard to the permanent workers, 20.0 percent of the respondents are affected Varicose veins while 30.0 percent of the respondents are from not affected Varicose veins. Also 31.1 percent of the respondents are affected Back pain while 18.9 percent of the respondents are not affected Back pain. Further 33.3 percent of the respondents are affected Torsions while 16.7 percent of the respondents are not affected Torsions. Like wise 12.2 percent of the respondents are affected Fractures while 14.4 percent of the respondents are not affected Fractures. Also 38.9 percent of the respondents are affected Pain in the neck while 11.1 percent of the respondents are not affected Pain in the neck. Further 14.4 percent of the respondents are affected Ligament rupture while 35.6 percent of the respondents are not affected Ligament rupture. Further 10.0 percent of the respondents are affected exposed while 40.0 percent of the respondents are not exposed.

With regard to the contract workers, 18.9 percent of the respondents are affected Varicose veins while 31.1 percent of the respondents are from not affected Varicose veins. Also 38.9 percent of the respondents are affected Back pain while 11.1 percent of the respondents are not affected Back pain. Further 36.7 percent of the respondents are affected Torsions while 13.3 percent of the

respondents are not affected Torsions. Like wise 37.8 percent of the respondents are affected Fractures while 35.6 percent of the respondents are not affected Fractures. Also 43.3 percent of the respondents are affected Pain in the neck while 6.7 percent of the respondents are not affected Pain in the neck. Further 10.0 percent of the respondents are affected Ligament rupture while 40.0 percent of the respondents are not affected Ligament rupture. Further 6.7 percent of the respondents are affected exposed while 43.3 percent of the respondents are not exposed. The table clearly shows that out of the sample population, most of the respondents are affected Mechanical Hazards through Pain in the neck as the highest score is 43.3 percent in Contract workers.

**Table 4**

**Type of disease affected (Biological Hazards) and Employment status of the Respondents**

Type of disease affected (Biological Hazards)	Employment Status				Total
	Permanent		Contract		
	Yes	No	Yes	No	
Diarrhea	6 (6.7%)	39 (43.3%)	15 (16.7%)	30 (33.3%)	90 (100.0%)
Respiratory system diseases	8 (8.9%)	37 (41.1%)	9 (10.0%)	36 (40.0%)	90 (100.0%)
Eye infection	12 (13.3%)	33 (36.7%)	9 (10.0%)	36 (40.0%)	90 (100.0%)
Hepatitis virus	6 (6.7%)	39 (43.3%)	6 (6.7%)	39 (43.3%)	90 (100.0%)
Dyspepsia	2 (2.2%)	43 (47.8%)	2 (2.2%)	43 (47.8%)	90 (100.0%)
Bowel ulcers	12 (13.3%)	33 (36.7%)	13 (14.4%)	32 (35.6%)	90 (100.0%)
Typhoid diet	10 (11.1%)	35 (38.9%)	8 (8.9%)	37 (41.1%)	90 (100.0%)
Food poisoning	10 (11.1%)	35 (38.9%)	2 (2.2%)	43 (47.8%)	90 (100.0%)
Others	6 (6.7%)	39 (43.3%)	1 (1.1%)	44 (48.9%)	90 (100.0%)

*Source : Primary data*

Table 4 shows the details of the Type of disease affected (Biological Hazards). With regard to the permanent workers, 6.7 percent of the respondents are affected Diarrhea while 43.3 percent of the respondents are from not affected Diarrhea. Also 8.9 percent of the respondents are affected Respiratory system diseases while 41.1 percent of the respondents are not affected Respiratory system diseases. Further 13.3 percent of the respondents are affected Eye infection while 36.7 percent of the respondents are not affected Eye infection. Like wise 6.7 percent of the respondents are affected Hepatitis virus while 43.3 percent of the respondents are not affected Hepatitis virus. Also 2.2 percent of the respondents are affected Dyspepsia while 47.8 percent of the respondents are not affected Dyspepsia. Further 13.3 percent of the respondents are affected Bowel ulcers while 36.7 percent of the respondents are not affected Bowel ulcers. Also 11.1 percent of the respondents are affected Typhoid diet while 38.9 percent of the respondents are not affected Typhoid diet. Further 11.1 percent of the respondents are affected Food poisoning while 38.9 percent of the respondents are not affected Food poisoning. Also 6.7 percent of the respondents are affected Others disease while 43.3 percent of the respondents are not affected Others disease.

With regard to the contract workers, 16.7 percent of the respondents are affected Diarrhea while 33.3 percent of the respondents are from not affected Diarrhea. Also 10.0 percent of the respondents are affected Respiratory system diseases while 40.0 percent of the respondents are not affected Respiratory system diseases. Further 10.0 percent of the respondents are affected Eye infection while 40.0 percent of the respondents are not affected Eye infection. Like wise 6.7 percent of the respondents are affected Hepatitis virus while 43.3 percent of the respondents are not affected Hepatitis virus. Also 2.2 percent of the respondents are affected Dyspepsia while 47.8 percent of the respondents are not affected Dyspepsia. Further 14.4 percent of the respondents are affected Bowel ulcers while 35.6 percent of the respondents are not affected Bowel ulcers. Also 8.9 percent of the respondents are affected Typhoid diet while 41.1 percent of the respondents are not affected Typhoid diet. Further 2.2 percent of the respondents are affected Food poisoning while 47.8 percent of the respondents are not affected Food poisoning. Also 1.1 percent of the respondents are affected Others disease while 48.9 percent of the respondents are not affected Others disease. The table clearly shows that out of the sample population, most of the respondents are affected Biological Hazards through Bowel ulcers as the highest score is 14.4 percent in Contract workers.

**Table 5****Type of disease affected (Chemical Hazards) and Employment status of the Respondents**

Type of disease affected (Chemical Hazards)	Employment Status				Total
	Permanent		Contract		
	Yes	No	Yes	No	
Burns	43 (47.8%)	2 (2.2%)	44 (48.9%)	1 (1.1%)	90 (100.0%)
Chest Allergy	8 (8.9%)	37 (41.1%)	7 (7.8%)	38 (42.2%)	90 (100.0%)
Eye Allergy	0	45 (50.0%)	8 (8.9%)	37 (41.1%)	90 (100.0%)
Choking	10 (11.1%)	35 (38.9%)	15 (16.7%)	30 (33.3%)	90 (100.0%)
Inflammation of the skin	14 (15.6%)	31 (34.4%)	20 (22.2%)	25 (27.8%)	90 (100.0%)
Cough	3 (3.3%)	42 (46.7%)	2 (2.2%)	43 (47.8%)	90 (100.0%)
Breathing difficulties	17 (18.9%)	28 (31.1%)	15 (16.7%)	30 (33.3%)	90 (100.0%)
Two approaches	43 (47.8%)	2 (2.2%)	38 (42.2%)	7 (7.8%)	90 (100.0%)

*Source : Primary data*

Table 5 shows the details of the Type of disease affected (Chemical Hazards). With regard to the permanent workers, 47.8 percent of the respondents are affected Burns while 2.2 percent of the respondents are from not affected Burns. Also 8.9 percent of the respondents are affected Chest Allergy while 41.1 percent of the respondents are not affected Chest Allergy. Further 50.0 percent of the respondents are not affected Eye Allergy. Like wise 11.1 percent of the respondents are affected Choking while 38.9 percent of the respondents are not affected Choking. Also 15.6 percent of the respondents are affected Inflammation of the skin while 34.4 percent of the respondents are not affected Inflammation of the skin. Further 3.3 percent of the respondents are affected Cough while 46.7 percent of the respondents are not affected Cough. Also 18.9 percent of the respondents are affected Breathing difficulties while 31.1 percent of the respondents are not affected Breathing difficulties. Further 47.8 percent of the respondents are affected Two approaches while 2.2 percent of the respondents are not affected Two approaches.

With regard to the contract workers, 48.9 percent of the respondents are affected Burns while 1.1 percent of the respondents are from not affected Burns. Also 7.8 percent of the respondents are affected Chest Allergy while 42.2 percent of the respondents are not affected Chest Allergy. Further

8.9 percent of the respondents are affected Eye Allergy while 41.1 percent of the respondents are not affected Eye Allergy. Like wise 16.7 percent of the respondents are affected Choking while 33.3 percent of the respondents are not affected Choking. Also, 22.2 percent of the respondents are facing Inflammation of the skin while 27.8 percent of the respondents did not face Inflammation of the skin. Further 2.2 percent of the respondents are affected Cough while 47.8 percent of the respondents are not affected Cough. Also 16.7 percent of the respondents are affected Breathing difficulties while 33.3 percent of the respondents are not affected Breathing difficulties. Further 42.2 percent of the respondents are affected Two approaches while 7.8 percent of the respondents are not affected Two approaches. The table clearly shows that out of the sample population, most of the respondents are affected Chemical Hazards through Burns as the highest score is 48.9 percent in Contract workers.

**Table 6**

**Type of disease affected (Psychological Hazards) and Employment status of the Respondents**

Type of disease affected (Psychological Hazards)	Employment Status				Total
	Permanent		Contract		
	Yes	No	Yes	No	
Stress and Nervous Tension	17 (18.9%)	28 (31.1%)	19 (21.1%)	26 (28.9%)	90 (100.0%)
Repeated Absence	8 (8.9%)	37 (41.1%)	5 (5.6%)	40 (44.4%)	90 (100.0%)
Job Dissatisfaction	4 (4.4%)	41 (45.6%)	6 (6.7%)	39 (43.3%)	90 (100.0%)
Family Problems	20 (22.2%)	25 (27.8%)	30 (33.3%)	15 (16.7%)	90 (100.0%)
No exposure	14 (15.6%)	31 (34.4%)	12 (13.3%)	33 (36.7%)	90 (100.0%)

Source : Primary data

Table 6 shows the details of the Type of disease affected (Psychological Hazards). With regard to the permanent workers, 18.9 percent of the respondents are affected Stress and Nervous Tension while 31.1 percent of the respondents are from not affected Stress and Nervous Tension. Also 8.9 percent of the respondents are affected Repeated Absence while 41.1 percent of the respondents are not affected Repeated Absence. Further 4.4 percent of the respondents are affected Job Dissatisfaction while 45.6 percent of the respondents are not affected Job Dissatisfaction. Like wise

22.2 percent of the respondents are affected Family Problems while 27.8 percent of the respondents are not affected Family Problems. Also 15.6 percent of the respondents are affected No exposure while 34.4 percent of the respondents are not affected No exposure.

With regard to the contract workers, 21.1 percent of the respondents are affected Stress and Nervous Tension while 28.9 percent of the respondents are from not affected Stress and Nervous Tension. Also 5.6 percent of the respondents are affected Repeated Absence while 44.4 percent of the respondents are not affected Repeated Absence. Further 6.7 percent of the respondents are affected Job Dissatisfaction while 43.3 percent of the respondents are not affected Job Dissatisfaction. Like wise 33.3 percent of the respondents are affected Family Problems while 16.7 percent of the respondents are not affected Family Problems. Also 13.3 percent of the respondents are affected No exposure while 36.7 percent of the respondents are not affected No exposure. The table clearly shows that out of the sample population, most of the respondents are affected Psychological Hazards through Family Problems as the highest score is 33.3 percent in Contract workers.

## Conclusion

The study concludes that almost all the demographic variables directly or indirectly influence the health status, health utilization and quality of life of the sanitary workers in Greater Chennai city corporation. The study also concludes that both permanent and contract workers are affected by the sanitary work. The permanent and contract sanitary workers are facing a lot of physical health hazards. Apart from the physical health hazards, they are also facing the mechanical, chemical and biological hazards due to the sanitary work.

## References

1. ILO. Encyclopaedia of Occupational Health and Safety, International Labour Organisation, Geneva: 1970. p. 1251-3.
2. Friedrich M, Cermak T, Heiller I. Spinal troubles in sewage workers: Epidemiological data and work disability due to low back pain. *Int Arch Occup Environ Health* 2000;73:245-54.
3. Zaidi A. India's shame. *Frontline* 9-22 September 2006
4. The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993. Available from: [http://www.commonlii.org/in/legis/num\\_act/eomsacodla1993779/-](http://www.commonlii.org/in/legis/num_act/eomsacodla1993779/-). [assessed on 2008 Oct 20].

5. Watt MM, Watt SJ, Seaton A. Episode of toxic gas exposure in sewer workers. *Occup Environ Med* 1997;54:277-80.
6. Levin M, Froom P, Trajber I, Lahat N, Askenazi S, Lerman Y. Risk of hepatitis A virus infection among sewage workers in Israel. *Arch Environ Health* 2000;55:7-10.
7. Brautbar N, Navizadeh N. Sewer workers: Occupational risk for hepatitis C-report of two cases and review of literature. *Arch Environ Health* 1999;54:328-30.
8. Arvanitidou M, Constantinidis TC, Doutsos J, Mandraveli K, Katsouyannopoulos V. Occupational hepatitis B virus infection in sewage workers. *Med Lav* 1998;89:437-44.
9. Brugha R, Heptonstall J, Farrington P, Andren S, Perry K, Parry J. Risk of hepatitis A infection in sewage workers. *Occup Environ Med* 1998;55:567-9.
10. Tooher R, Griffin T, Shute E, Maddern G. Vaccinations for waste-handling workers: A review of the literature. *Waste Manag Res* 2005;23:79-86