

High disease burden among sanitation workers of Shimla Municipality in Himachal Pradesh, India - A leading cause of adult mortality

Abstract

The aim of this paper was to explore the work practices, injuries, illnesses, working conditions and other hazards faced by Shimla city municipal solid waste collectors in the course of discharging their duties. The sample for the study constituted of three hundred and eighty (380) solid waste collectors, drainage cleaner and septic tank cleaners selected through convenient sampling technique. Their supervisors also formed part of the sample population.

During July 27, 2012 to Nov 27, 2014 a total of 16 sanitary workers including two women, died of various ailments, which means death of one worker every two months. Majority were in their mid forties and suffered cardiovascular ailments like heart attacks. A total of 33 sanitary workers died within 2 years of their retirement that is before reaching the age of 61 years, most of them due to heart attack.

It was therefore recommended that the workers should be provided with the right protective equipments suitable to the tasks and also monitored to ensure their usage at work. Amongst other recommendations was the need for periodic health surveillance to detect early signs of non-communicable diseases and educate them regarding balanced diet and risk of excessive alcohol and smoking.

Introduction

Himachal Pradesh is primarily a rural state. Though the share of urban population to the total population is consistently rising over the years, the state has only one Municipal Corporation, 29 Municipal Council and 20 Nagar Panchayats constituting approximately 10% of state population. Municipal Corporation Shimla, which apart from the state capital is the erstwhile summer capital of the British India having 0.1 million as floating tourist population and the local city population is 0.16 million as per 2011 census. The urban growth is not limited to the municipal limits of these towns and cities, but peri-urban population put load on the existing sanitation infrastructure of urban populace. The floating population within the city and high tourist influx require city managers to make cleanliness and sanitation related arrangements within limited available resources. Any failure in discharging this obligatory function of the municipality may result in adverse public health outcomes.

The Shimla city does not have regulations and mechanisms for managing septage which results in groundwater quality issues. Manual scavenging practices involved in informal septage management are controlled significantly after adoption of related Act. Percentage of urban

households practicing open defecation in the city is 3.0 %. Repeated Jaundice outbreak in the city of Shimla and other towns in last decade is a serious cause of concern to ponder of. Various attempts have been made in this regard from time to time but such outbreaks are pointer towards poor sanitation and poor water quality that need to be addressed completely in specific pockets of the city. The absence of scientific treatment and landfilling for municipal solid waste is cause of concern for the city managers. Coverage of households in terms of door to door garbage collection services is inadequate and segregation of waste not practiced. The accessibility of the households for essential civic services like lifting of garbage, street sweeping, septage management, cleaning of clogged drains, sewer maintenance and other related public utilities is categorically difficult in the hilly terrain and Shimla city has no exception.

Sanitation being the state subject, Municipal Corporation Shimla (MCS) is entrusted to keep the city clean and livable. To discharge this obligatory function, municipal workers have many categories namely garbage collector, drainage cleaner and sewerage/septic tank cleaners. The city government has procured the advanced machines and tools from time to time to equip the municipal workers for their facilitation. The use of such machines and tools are limited to certain part of the city which are accessible through roads only. Absence of roads in the hilly terrain leads to the intense physical labour. This also increases the risk of direct exposure with filth in absence of machines and equipments in such terrains. Municipal workers are at particular risk for all injuries due to a wide variety of high-risk activities and locations. Such Work related accidents and occupational hazardous cause substantial human and economic cost to the urban local bodies.

Garbage collectors in this study area manually lift and dump containers into the operational trucks. Garbage collection is laden with health hazards. They are exposed to foul odours, dust, ants, flies and they get dirty easily even when they wear protective clothing if any. Since no segregation takes place and all household garbage is mixed by the residents or by the garbage collectors, other hazards include chemical burns, injuries from disposable needles, broken glasses, falling objects from overloaded containers and the diseases that accompany solid waste. It is a very common sight to see refuse collectors on truck overflowing with solid wastes sitting unsupported on top of the refuse while the truck is moving. Complaints about poor design, storage and transport of tools and equipment are also reported from time to time. The sanitation department within the municipal corporation reports problems in recruiting and holding on to new employees. The average sick leave rates among employees in this sanitation specific sector are higher than among employees in other occupations within the urban local bodies. Various studies^{1, 2} has reported Low back injuries cause more absence from work than any other injury or disease. Studies have also reported increased risks of sanitary workers using pain killers and getting their organs damaged³. One worker in our municipality was confirmed to have kidney failure as he was chronically taking pain killers for backache for the last 10 years.

The hilly state also does not have regulations and mechanisms for managing septage which results in groundwater quality issues. Manual scavenging practices involved in informal septage management are controlled significantly after adoption of related Act. Percentage of urban households practicing open defecation in the state of Himachal Pradesh is 6.88%. Una (22.79%), Kangra (14.71%) and Chamba (9.26%) districts having highest percentage of urban households practicing open defecation.

Literature review:

Kanitz et al⁴ have studied HBV infection in solid waste collectors in Genoa. The results revealed a higher prevalence of HbsAg and anti-HCB than in the general population. Available data reveal an alarming and extremely high rate of work related deaths and injuries in both the developed and developing nations. Work related injuries among municipal workers cause an estimated number of 3,400,000 disabling injuries. Each week day, a fatal injury occurs every 2hrs and a disabling injury every 8hrs among municipal workers^{5, 6}. The International Labor Organization (ILO) estimates that each year, around 2.3 million workers die as a result of occupational accidents and work-related diseases and fatal occupational accidents are about 0.35 million every year and fatal work-related diseases are around 1.95 million per year^{7, 8, 9}.

Occupational health risk studies on waste pickers across India have presented dismal picture. Tuberculosis, bronchitis, asthma, pneumonia, dysentery, parasitosis, and malnutrition are the most commonly experienced diseases among waste pickers based on health studies of waste pickers conducted in Bangalore¹⁰. About 180 waste pickers at the Calcutta open dumps were studied¹¹ in 1995. During the course of one year, 40% had chronic cough, and 37% had jaundice. The average quarterly incidence of diarrhea was 85%, of fever was 72%, of coughs and colds was 63%. Eye soreness or redness occurred quarterly in 15% and skin ulcers in 29%. A comparative study of waste pickers¹² working at Calcutta's Dhapa dump and nearby farmers who use organic solid waste as fertilizer, showed that pickers reported higher prevalence of respiratory diseases (pickers: 71% vs. farmers: 34%), diarrhea (pickers: 55% vs. farmers: 28%) and protozoal and helminthic infestation (32% vs. 12%). As per survey by Kanno et al 95 solid waste workers were examined at the Mumbai open dumpsites¹³. 80% had eye problems, 73% had respiratory ailments, 51% had gastrointestinal ailments, 40% had skin infections or allergies, and 22% had orthopedic ailments. Based on clinical examination, 90% had decreased visual acuity. Most workers complained of eye burning, diminished vision, redness, itching, watering. Clinical examination showed 27% had skin lesions, of which 30% were determined to be directly occupation related.

World Bank (2006) compilation¹⁴ based on above studies of waste pickers conducted in various parts of the country reported that 38% of women pickers have lost one child and 10% have lost 3 or more. According to these women, the main causes of their infant deaths were diarrhea, tetanus, smallpox, bronchitis and virus infections. The aim of this paper was to determine the high disease burden among sanitation workers in line with the above facts. An attempt has been made to explore the work practices, injuries, illnesses, working conditions and other hazards faced by Shimla city municipal solid waste collectors in the course of discharging their duties.

Material and methods

All municipal workers (380) who face occupational hazard were taken as study participants. Data were collected by face to face interview using pre-tested standard questionnaire which was developed based on the related published studies with certain modification. The questionnaire marked responses related to physical fitness, stress management, psychological and mental health issues, nutrition and dietary related issues and alcohol and tobacco dependency. Two health camp were organised to assess the health situation of these municipal workers with support of Department of Health, Government of Himachal Pradesh.

Results :

(i) Availability of PPEs

Questionnaire responses were analyzed using descriptive statistics of frequency counts, percentages and tables. Results revealed that out of the total respondents of three hundred and eighty (380), 30 % agreed that their protective equipments were of the right quality and suitable to the task, 11 % were undecided while 59% disagreed. This implied that their protective equipments were not of the right quality and also not suitable to the tasks. Qualitative data revealed that not all the workers were given the protective equipments. Physical observation of the waste components revealed broken glasses and bottles, empty tins with serrated edges, broken plates, hypodermic needles and other sharp objects amidst several other forms of wastes. Two hundred and thirteen respondents representing 76.3 % of the total population agreed that they had sustained injuries from sharp objects in the course of packing refuse with bare hands. The hazards they experienced ranged from injuries of all kinds, musculoskeletal and hearing disorders to respiratory and gastro intestinal tract infections. One of them even reported to have his back burnt due to acid put in the garbage by some household.

(ii) Mortality Trends

Not much data is available for direct relationship of sanitary work and mortality/ Morbidity; However a small overservation made by Municipal Corporation Health Officer MC Shimla during his tenure of 28 months is as follows:

Sectioned Strength of Sanitation Workers-	380
Sanitation workers presently deployed-	380
No. of deaths reported in last 28 Months -	16

(on an average 1 death of a sanitary worker occurs in less than two months during service and need serious health related interventions)

Majority of Deaths were sudden due to heart attack . the others reasons were Alcoholic hepatitis, accidents, Brain Haemorrhage, Kidney Failure and Cancer. During July 27, 2012 to Nov 27, 2014 a total of 16 sanitary worker including two women, died that is one worker every two months. majority were in their mid forties and suffered cardiovascular ailments like heart attacks, brain haemorrhage etc. A total of 33 sanitary workers died within 2 years of their retirement that is before reaching the age of 61 years, most of them due to heart attack.

(iii) Disease Burden

Alarmed at high mortality in adult age groups a health check up camp was organised and out of 180 sanitary workers screened at the camp for cardiovascular risks like Blood pressure and blood sugar, 33 out of 180 (18.5%) were found to be having blood pressure more than prescribed limit of 140/90 and one was found to be having random sugar level more than 200 mg%, though majority had a diabetic tendency and higher blood sugar levels. In 2013 a total of 23 sanitary workers were persuaded to get their sputum examined and two were found to be positive for Tuberculosis, a rate of 8.7%. None of the workers was taking any medicines for these ailments despite indication to that effect.

In another project two out of six sanitary workers were found to be having rabies antibodies in their blood without any vaccination as they were carrying the dead bodied of animals for burial. Incidentally six animals reported dead were tested for rabies antigen¹⁵ and all were found to be carrying the rabies virus in their brains as tested with FAT at CRI lab in Kasauli.

Despite repeated reminders many sanitary workers did not turn up for medical examination or tests for TB and rabies antibodies. Even for free compulsory medical insurance only 200 turned up. For sanitation related Trainings only half of them turned up.

Conclusion and recommendation

The burden of communicable diseases is high among the sanitation workers but is managed by repeated medicine use and absence from the work. The shifting of pattern of disease from communicable to non- communicable ones is a emerging new trend and need to be taken care of by organizing repeated health check up camps to detect early warning signs. This will save many sanitary workers from the “sudden death phenomenon”. They need to be compulsory medical examination and health card without which they should not be allowed to indulge in sanitation work. Many of them can be found cleaning clogged sewer lines with bare hands and without masks. Health promotion activities and health workers' knowledge and personal protective practices must therefore be improved and the supply of protective equipment supported. With Employee wellness programs, city government can ultimately save money on workers' compensation claims. We recommend that documentation of health status and illness of each health worker need to be started to estimate the disease burden and save the workers with early intervention, especially by persuading them to undergo regular health checkups and take regular medicines. Health education activities on their dietary habits are need of the hour as they tend to eat more non vegetarian fatty foods thinking it to be protective and helping raise immunity. Also educating them of harms of excessive smoking and drinking need to be stressed.

Pics: Workers being examined for signs of non communicable diseases (Pic 1) and being trained to wash hands in a proper manner (Pic 2).

(Pic 1)

(Pic 2)



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