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Health Implications of Occupational Hazards for Street Cleaners in Eldoret Town, Uasin Gishu County, Kenya

Samuel Kwame Njeru

Senior Public Health Officer, Disease Surveillance and Malaria Control Coordinator
Uasin Gishu County-Kenya
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Abstract: This study sought to investigate the effects of occupational health hazards on street cleaners' health in Eldoret town of Kenya. The researcher adopted a crosssectional descriptive survey design involving 70 street cleaners and 1 public health staffing officer from the department of environment in Uasin Gishu County who were purposively sampled. Data was analysed through descriptive statistics with the aid of statistical package for social sciences (SPSS)version 23.0 and the results presented in frequency tables, pie charts and bar graphs. It was established that various occupational health hazards were affecting street cleaners including: exhaust, chem icals (acids and bases), noise (from vehicles, motorbikes and human) welding lights decomposed foods and falling objects from constructions and moving vehicles carrying materials. The study also found that most street cleaners have little knowledge on possible ways infections and diseases are being transmitted within their working environment. The study concluded that occupational health hazards has led to coughs, chest pains, body injuries (broken leg/hand), hearing problems, skin irritation, low back pain , joints pain, eye irritation and loss of eyesight among the street cleaners. The study recommends that an awareness creation program coupled with behaviour change counselling (BCC) activities be prioritized as appropriate intervention to address the lack of knowledge on health hazards and low risks perception among street cleaners.
Keywords: Occupational Health, Hazards, Street Cleaners, Kenya

Introduction

Poor sanitation is a multidimensional problem that comprises a wide variety of infrastructural and daily human activities including improper waste disposal throughout the world (Ewis *et al*. 2013). In developing countries, the wastes and refuse still comprise a major public health threat; and many of the health problems experienced by

residents of different communities are traceable to the poor sanitary environment (Bernardo, 2008). Despite street cleaning practice being associated with health hazards, it ranks among the oldest practices used by governments to ensure a clean environment within the urban centres (Law *et al*., 2008). For street cleaners, work related safety and health hazards are a major public health concern worldwide and are under-researched especially in low and middle income countries (Kabir *et al*. 2015; Bleck & Wettberg, 2012). Street cleaners play a major role for keeping the urban centres clean. Their works entail removing of debris from streets, collecting solid waste, disposing and recycling waste material (Kabir *et al*. 2015).

Street cleaners are integral in enhancing traffic safety for removing harmful pollutants from the streets in urban centres (Seera, 2005). Globally, there are 2.9 billion street cleaners workers who are exposed to hazardous risks at their work places (Meswani, 2008).

International labor Organization (2000) observed that the world's total occupational hazards burden is much higher up to 250 million infections and injuries. Studies on work-related diseases in cleaners found from Belgium, Denmark, Finland, Germany, Norway, Portugal, Spain, Sweden, and the UK indicate that MSDs, respiratory diseases and skin diseases are the most common negative work-related health outcomes found in cleaners. In addition, it seems that the incidence rate of disability is higher amongst cleaners than in other workers' groups, and that long-term diseases are more common in the cleaning sector.

In the USA, Schilling (2005), maintains that high-efficiency street cleaning and associated operations may lead to a 70% removal of water pollutants. Minton *et al*. (1998) had earlier observed that motorised sweeping removes an average of 220,000 of debris from the street before it goes into the storm drains. Street sweeping is perceived to lead to improvements in the environmental conditions of urban waterways by preventing pollutants deposited on streets from entering the storm water systems (Walker and Wong, 1999).

In developing countries it is estimated that 1.2 million workers die due to work related injuries each year of which 335,000 results from occupational injuries and the rest work related diseases. According to Machinda and Biachoo (2001) more than 160 million workers fall ill thereby causing absence from work and economic loss. The economic loss related to these accidents and disease is estimated to amount to 4% of worlds (GNP) gross national products. Muchiri (2005) observed that of the 3 million workers in the world over 85% work and live without having access to occupational health services statistics on coverage is also very unreliable and subject to variations in the definitions and measurement methods. Industrialized countries have significantly reduced occupational health effects on street cleaners by applying standardized waste management processes (Dall'Agnol *et al*. 2007). However, in developing countries, the health-related underpinnings of solid waste management still need to be addressed (Cointreau-Levine, 2009).

In India, culture has stigmatized street cleaning, particularly sweeping as a filthy and lowly occupation. The medical problems of street cleaners are further compounded by various socio-economic factors such as poverty, lack of education, poor housing conditions and poor diet (Yogesh *et al*., 2008). According to Zock, (2005) occupational health hazards street cleaners can be exposed to are: physical chemical, biological, psychosocial and ergonomic hazards. Physical hazards encountered by street cleaners include injuries from constructions, any falling objects, slippers floors and many more. Biological hazards stimulates from microorganisms that cleaners are exposed to during their work. These may include bacteria, viruses, moulds and fungal contact. Decomposition from pits, exposure to some animals such as rats and dropping from birds and insects also causes biological

hazards for the workers. Psychological health hazards are commonly intangible, which affects the psychological wellbeing of the worker. It relates to the way the work is designed, managed, economic and social context of the work. Street workers work for long hours or do a lot of work in limited time, have to invest a lot of emotional strength to perform their duty as well as most get their jobs under precarious contracts. These factors are part of what exposes them to psychological hazards which not only affect individuals but the society in terms of productivity and emergence of negative behaviour.

Lastly ergonomic hazards are physical factors within the work environment that affect musculoskeletal system. Street health workers are exposed to these when they engage in repetitive movements like bending, sweeping, long walks picking dirt which is part of their work. Noise, dust and light rays from welding also fall under ergonomic hazards. In general, street cleaners use brooms and a dustpan for cleaning up waste on the road and footpaths.

Street cleaners are exposed to a variety of health risk factors in their working environment such as dust volatile organic matter, bio-aerosols and mechanical stress, which cause them to develop certain occupational disease (Sabde & Zodpey, 2008).

1.2 Statement of the Problem

Occupational health hazards among street cleaners have long been a cause for concern at all levels from the individual workplace to the national and international arena. Measures and strategies designed to prevent, control, reduce or eliminate occupational health hazards on street cleaners have been developed and applied continuously over the years to keep pace with technological and economic changes. However, such strategies have not addressed accordingly the needs of street cleaners.

Despite investment of technological and economic strategies, there is slow improvement and diseases on street cleaners are still too frequent and their cost in terms of human suffering and economic burden continues to be highly significant. Despite such health burden, street cleaners have been largely ignored by researchers and interventions, with little or no attention paid to their health status. Very little research has been conducted on the effects of occupational health hazards on street cleaners. It is on this basis that the researcher sought to investigate the effect of occupational health hazards on street cleaners' health in Eldoret town, Uasin Gishu County, Kenya.

2.0 Research Methodology

The researcher adopted a cross-sectional descriptive survey design involving 70 street cleaners and 1 public health staffing officer from the department of environment in Uasin Gishu County who were sampled purposively. Data was analysed using descriptive statistics with the aid of statistical package for social sciences (SPSS version 23.0) and the results presented in form of frequency tables, pie charts and bar graphs.

3.0 Findings and Discussions

3.1 Period worked as Street Cleaners

The duration that the respondent had worked on the streets was considered. The importance of this was to determine duration of exposure to particular hazards in work station/work site. It was also necessary for ascertaining the accuracy of the information provided by the respondent. The findings of this item are as shown in Figure 1.1 below

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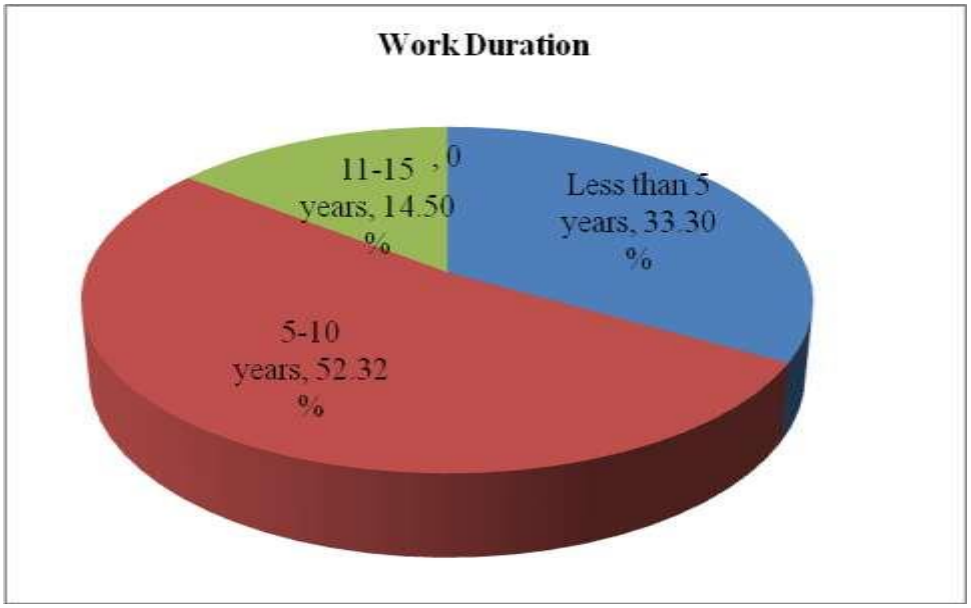

Figure 1.1: Duration and Work Experience as Street Cleaner

Analysis in Figure 1.1 above indicated that 52.3% of the respondents have worked as street cleaners for 5 - 10years, 33.3% have worked for less than 5 years as street cleaners while 14.5% had worked for 11-15 years as street cleaners. The available data shows that 5 to 10 years as active years in which clean street workers are exposed to hazards within their work environment. Few are working beyond ten years which would attribute to many factors. These results also shows that the group studied have acquired the necessary competencies and consistency in their work based on the number of years they have been at the same work. Therefore street cleaners have a prolonged exposure to health hazards on the streets, hence, risking their health to infections and diseases. This concurs with Benjamin (2008), who found that prolonged exposure to health hazards such as chemical has been associated with skin cancer.

3.2 Types of Health Hazards street cleaners are exposed to

3.2.1 Response on Street Cleaners Exposure to Health Hazards

Street cleaners were asked to indicate whether they have ever been exposed to health hazards in the course of their working. All (70) agree to have been exposed to health hazards in one way or the other, whenever they are on duty. This shows that there is high hazard exposure to street cleaners which is caused by the nature of their work which is usually involves direct exposure to waste, dust, and other human activities in the streets.

3.2.2 Major Health Hazards Employees are exposed to

The respondents were asked to indicate the major hazards they have been exposed to in the course of their work and the results were as shown in table 1.1 below.

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Table 1.1 Major Health Hazards Employees are exposed to	N=70
Major Health Hazards	**Frequency**	**Percentage**
Toxic substances	45	65.2
Exhaust fumes	39	56.5
Dust particles	36	52.2
Frequent infections and injuries	34	49.3
Extreme noise	13	18.8

Analysis in Table 1.1 shows that majority 65.2%of the respondents reported that they are exposed to toxic substances, 56.5 % of the responds indicated that they were exposed to exhaust fumes, 52.2% were exposed to dust particles, and 49.3% cited frequent infections and injuries, while a minority 18.8 % indicated exposure to extreme noise. The results shows street cleaners exposure to health hazards of all categorizes; chemical, mechanical, physical, biological, psychosocial and ergonomics at their working environment. An interview with the environment official from the county also confirmed these as he mentioned that no special programs or equipment are put in place for the cleaners. Tools used for cleaning are basic such as masks while in worst case no protective gears are used or provided to the workers.

3.2.3 Frequency of Exposure to Health Hazards

The respondents were asked to indicate how often they get exposed to occupational health hazards. A majority 69% of street cleaners are exposed to health hazards on a daily basis, while 18% were exposed on a weekly basis as their work schedules are weekly 13% did not respond to this question. It was also evident that there were different types of hazards encountered by street workers that affect their health. Table 1.3 below shows the different types of hazards that affect health of street workers and their proportion.

Table 1.3 Hazards affecting Health of the Street Workers

Type of Hazards	Frequency	Percent (%)
Exhaust fumes	10	14.5
Chemicals (acids and bases)	16	23.2
Noise (from vehicles, motorbikes and human)	8	11.6
Overworking/no offs	7	10.1
Welding lights	10	14.5
Decomposed food	12	17.4
Falling objects from construction and moving vehicles carrying materials	6	8.7
Total	69	100

Analysis in Table 1.3 indicates that 23.2% of the respondents cited chemicals (acids and bases) as one of the health hazards they that affect their health and 17.4% indicated decomposed food. Other health hazards reported by the respondents were exhaust as mentioned by 14.5% of the respondents, welding lights as cited by 14.5% of the respondents, noise (from vehicles, motorbikes and human) according to 11.6%, overworking/no offs as reported by 10.1% of the respondents and the remaining 8.7% cited falling objects from construction and moving

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vehicles carrying materials. The results indicated that ergonomic was ranked as a major hazard and followed by psychological hazard, chemical hazard, biological hazard and physiological hazard respectively.

3.4 Awareness of Hazards Prevention Measures among street cleaners

The respondents were asked to rate their awareness of Hazards Prevention Measures and they cited as follows.

Table 1.4 Awareness of Hazards Prevention Measures among street cleaners N=70

	5		4	3		2		1	
Awareness	F	F	%	F	%	F	%	F	%
	%								
Street cleaners are provided with personal protective equipment		8	11.6			48	69.6	13	18.8
There are administrative procedures regarding the management of hazard exposure and recovery periods		12	17.4			46	66.7	11	15.9
There is well developed preventive maintenance programs in order to avoid failures resulting in a hazard		5	7.2			50	72.5	14	20.3
There is a work plan in place that allows rotation of street cleaners so as to prevent them from being exposed to the same hazards for long		10	14.5			50	72.5	9	13
There a planned regular medical checkups for street cleaners		15	21.7			36	52.2	18	26.1
The desire for more work flexibility is also a reaction to the rigors of working		22	31.9			38	55.1	9	13
Employers are already legally required to offer flexible hours to select employees		9	13			50	72.5	10	14.5
Workers look for jobs that give them the flexibility to allocate their work hours and locations		24	34.8			28	40.6	17	24.6
Older workers do not have difficulty hearing a particular		16	23.2			50	72.5	3	4.3

voice or sound in a noisy environment.						
Protection techniques make it impossible to counter a hazardous occurrence	20	29.0	40	58.0	9	13.0
Of all the existing prevention techniques, the elimination of a hazard is the most effective	6	8.7	29	42	34	49.3
Any person assigned to implement ergonomics-related prevention measures	13	18.8	38	55.1	18	26.1

Analysis above show that Majority of the respondents, 69.6% disagreed that street cleaners are provided with personal protective equipment. Further, 66.7% disagreed with the statement that there are administrative procedures regarding the management of hazard exposure and recovery periods and the management of work patterns and methods as part of the preventive measures. A bigger percentage of the respondents disagreed with the statement that there is well developed preventive maintenance programs in order to avoid failures that could result in a hazard to street cleaners and 72.5% disagreed with the statement that there is a work plan in place that allows rotation of street cleaners so as to prevent them from being exposed to the same hazards for a long period. Slightly more than half 52.2% of the respondents disagreed with the statement that there is a planned regular medical checkups for street cleaners, 55.1% disagreed that the desire for more work flexibility is also a reaction to the rigors of working for globally distributed cleaning companies and 72.5% disagreed with the statement that employers are already legally required to offer flexible hours to select employees. Less than half of the respondents disagreed with the statement that workers look for jobs that give them the flexibility to allocate their own work hours and locations also 72.5% disagreed with the statement that older workers do not have difficulty hearing a particular voice or sound in a noisy environment.

The respondents indicated the reasons for not using protective clothing as being too expensive to buy, the protective clothing were not provided by the employer and that there was no need to use them. The study findings disagree with the regulations of International Organization for Standardization (1996) who reported that to reduce health risks due to exposure to chemical and physical agents, both collective and individual preventive measures are currently adopted, together with the implementation of medical surveillance programmes that provide clinical evaluation at least once a year.

4.0 Conclusion and Recommendations

From the findings of the study, it was established that there are various occupational health hazards that affect street cleaners which include exhaust, chemicals (acids and bases), noise (from vehicles, motorbikes and human) welding lights, decomposed foods and falling objects from constructions an moving vehicles carrying materials. Most street cleaners have little knowledge about the possible ways of transmitting infections and diseases. An

awareness building program coupled with behaviour change counselling (BCC) activities would be an appropriate intervention to address the lack of knowledge on health hazards and low risks perception.

The study concluded that occupational health hazards has led to health problems to street cleaners such as coughs, chest pains, body injuries (broken leg/hand), hearing problems, skin irritation, low back pain, joints pain and eye irritation loss of eyesight. In relation to challenges affecting adoption of safe working conditions for street workers, it was concluded that there is lack knowledge on occupational health hazards and safety, there is no practice on occupational health and safety as well as no clear policy on street workers' occupational health and safety.

Based on the findings and conclusions of the study, the researcher recommended that street cleaners should be treated as a vulnerable group that needs a special care. This care can be summarized as providing them pre-placement and in-service orientations about their tasks and health education about the health hazards they are being exposed to while emphasizing the preventive measures to improve their knowledge, attitudes and practices.

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