Occupational Respiratory Health Symptoms and Associated Factor among Street Sweepers in Addis Ababa, Ethiopia

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: May 03, 2017; : July 21, 2017; : August 01, 2017

: Occupational hazards are becoming the major concern for public health. Occupational health awareness in Ethiopia not well informed. And this resulted in extensively high prevalence of occupational respiratory symptoms. This research is aiming to assess occupational respiratory health symptoms and associated factors among street sweepers in Addis Ababa.

A cross-sectional study was conducted from January 2016 to march 2016 from five sub cities, and three weredas were selected using random sampling system. Univariate analysis, logistic regression analysis was performed to select all the independent variables with 95% Confidence Interval (CI) and p<0.05. Epinfo version 3.5.1 and SPSS Version 20 used for data entry and analysis.

The overall prevalence of respiratory symptoms among street sweepers were 279(68.9%), and respiratory symptoms cough 180(44.4%), shortness of breath 137(33.8%), and manifestation of eye discomfort 193(47.7%), sneezing 181(55.3%), and nose irritation 134(33.1%). Respiratory symptoms were associated with Age 28-37 (AOR=2.65; 95% CI: 1.362, 5.166) and 38-47 (AOR=2.051 95% CI: 1.018, 4.132), past history of emphysema (AOR=2.53 95% CI: 1.072, 5.97) and TB (AOR=7.24 95% CI 1.584, 3.065).

Respiratory symptoms were highly prevalent among street sweepers. Thus, pre-employment, on job training; improving hygienic practices and proper utilization of PPE are necessary measures to reduce the health hazards facing street sweepers in Addis Ababa.

Occupational hazard; Coughing; Phlegm; Asthma; Street sweepers; Dust; Mist

Introduction

According to the world health organization (WHO) 2014, non-communicable diseases (NCD) were the leading explanation for death leading to loss of life concerning thirty eight million (68%) individuals globally in 2012 out of the entire f fy six million. Concerning forty two percent of all NCD deaths globally occurred before the age of seventy years old. In high-income countries twenty eight percent and in low and middle fnancial gain countries concerning forty eight percent deaths were in people aged less than seventy years [1]. In low and middle fnancial gain country, as well as Africa, occupational respiratory symptoms and sm ḥ ṇoand ӓ0cr ęR ƙ Ƭw r a ᵀ mȳ - opm ᵽᴀ

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Different countries and components of Ethiopia move in view of socio-economic, cultural and political activities [7]. The perpetually escalating population has lead to the assembly of enormous quantity of solid waste that cause major problem within the city surroundings. According to the Minister of Urban and housing of Ethiopia [2012] an estimation of thirty to fifty percent solid waste created in urban areas is left uncontrolled.

This waste will blocks evacuation channels that cause water stagnation and overflow that will increase the health risks of illness outbreaks, permanent damages, unpleasant odors and smells to urban population [8]. And in low financial gain countries like Ethiopia municipal waste management, that's waste assortment, street sweeping, employment and composition may be a major problem. This can be attributable to lack of resources, technologies, low customary of living, low level of education and poor planning [9].

The WHO [2005] estimated that 300 million people were suffering from asthma and 255, 000 of them died. On the other hand, asthma is under diagnosed and under-treated disease, creating a substantial economic and health burden to individuals and families. It also possibly restricts individuals' activities for a lifetime. Moreover, the major challenge is getting the expensive drugs which are taken for a lifetime [10]. According to the ILO [2000] other working environment related factors include exposure to diesel exhaust, dust, traffic accidents, sun heat and glare, smell, noise, harassment and street crime were commonly reported. Overall, street sweepers experience diseases symptoms including flu, cough, eye irritation, skin rush, chronic coughing, stomach upset and diarrhea are also reported. This shows that street sweepers are affected by more than one type of illness [11].

Street sweeping is to sweep and throw away materials scattered out of your wits at public streets. it is considered as unhealthy occupation as workers are constantly exposed to agents in the urban waste that lead them to different health problems [12]. They are exposed to significantly more amount of dust, fumes, decayed materials, microorganisms, road dust, toxins and vehicle exhausts while performing their daily activity in their workplace [13].

Road dust is suspended large size particles which is greater than 100 micro meter in diameter and fine particles with 2.5 micro meter in diameter can pass through our lungs into our blood supply [14,15]. The effects of the dust to people is chronic occupational respiratory system such as inflammation of lung tissues, chronic bronchitis, asthma [16,17]. An acute effects including runny nose, watery eyes, and sneezing for larger sized particles [18]. Currently Addis Ababa is under heavy construction with a lot of dust and suspended matter. Moreover, it has poorly networked roads, crowded and transport jams are everywhere. At the same time, the poorly protected street sweepers work on these roadsides. Thus we hypothesize that the street sweepers are facing respiratory diseases as a result of exposure to these pollutants. With this background, and fortified the prevalence of respiratory symptoms among street sweepers isn't addressed in Ethiopia. To the best of our knowledge this is the first work to address the prevalence of respiratory health symptoms among street sweepers in Ethiopia.

Method and Material

A cross-sectional study was conducted in Addis Ababa 5 selected sub cities from Dec twenty, 2015 to march thirty, 2016. AA is that the capital town of Ethiopia that geographically lays 9°1⁄48″N latitude and 38°44⁄24″E line of longitude and is found at the guts of the country. The area covered about 526.99 km^2. It is the most important town in African country, with associate calculable population of 3352000, 1765000 are female and therefore the rest 1587000 are male.

The city has ten sub cities and 116 weredas. It is center for commerce, banking, national offices, small scale business embrace street seller, shop sales, craf men, demolition and construction of massive building are settled, that indicates high movement of individuals from totally different components of the planet, rural and peripheral areas for trying socioeconomic.

Due to a lot of movement of individuals and vehicle traffic, each related to abundant production of wastes and a lot of vehicle traffic which ends to fumes, aerosol, bio aerosol and dirt which can contributive to will increase prevalence of metabolism health symptoms among street sweepers WHO exposed eight hours per day for whole week while not correct and acceptable PPEs.

Sample size determination

The sample size of the study participants was determined based on single population proportion formula (Substituting in Kish Leslie (1996). In our understanding there were no similar studies previously done in Ethiopia, the prevalence of respiratory symptoms of 0.5 was taken as 50% with the aim of getting maximum sample size. With 95% confidence interval (CI) and marginal error (d) of 5%, the calculated sample size (n) was 384.

Data collection technique

For data collection, a structured questionnaire St. George's Respiratory Ruestionnaire, European community Respiratory, ATS DLD–78 Questionnaire (Annex I) was modified from British Medical Research Council Questionnaire, were made to serve our purpose. The questionnaire was translated into Amharic (Annex II) and back into English to check the consistency of meaning.

The questionnaire had four parts: socio-demographic characteristics, past history of respiratory symptoms, availability and utilization of personal protective equipment. For data collection, a structured form St. George's respiratory form, European respiratory, ATS DLD–seventy eight form (Annex I) was changed from British Medical analysis council form were created to serve our purpose. The form was translated into Amharic (Annex II) and into English to examine the consistency of that means. The form had four parts: socio-demographic characteristics, past history of metabolism symptoms, handiness and utilization of non-public protecting instrumentality.

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- Season: some of the respiratory symptoms show seasonality

Result

A total of 405 participants, 82(20%) were males and 323(80%) were females. T e mean (+SD) age of the study population was 36.4+9.4

Exposure to Dust		
Yes	402	99.3
No		

No	224	55.3
Yes	181	44.7

in India, Karnataka (36.6%), (13.3) respectively, and cough in Nigeria (25.5%). T is discrepancy in the prevalence explained cough and shortness of breathing linked to the di f erence between the countries in level of development, status of workforce, strengths of occupational health and safety services and diversity and complexity of work tasks, and environments.

T e current study shows that eye discomfort 47.7%, and sneezing 55.3% were explored from the street sweepers is higher than a similar study in India, sneezing (46.6%) and higher than that of done in Tanzania (6%). T is di f erence may link to street sweepers had no awareness about the occupational health hazards associated with their work and they totally denied access to any of occupational health and safety trainings in Ethiopia. T ey also had other respiratory symptoms like phlegm and wheezing in mild form.

Studies showed an association between dust exposure and respiratory symptoms. Street sweepers extremely exposed to dust due to characteristics of their task, personal attitude toward proper use of personal protective equipment, awareness and understanding of impact of health hazard on their activity. And also street sweepers reported that high prevalence of eye discomfort and sneezing may link

References

1. Global action plan for the prevention and control of non-communicable diseases 2013−2020. Geneva: World Health Organization.
2. Global strategy for prevention and control of non-communicable diseases (2000) Geneva: World Health Organization.
3. Global status report on non-communicable diseases (2011) Geneva: World Health Organization.
4. From burden to “best buys”: Reducing the economic impact of non-communicable diseases in low-and middle-income countries (2011) Geneva: World Health Organization.
5. Public Health agency of Canadian Best practice portal report(2014).
6. Mickey L (2015) BrookTeklehaimanot Addis Ababa Housing Development project o f ce.
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