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Cross sectional analysis of disease pattern among sanitary workers of hospitals of Lahore, Pakistan

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Abstract

The present study aimed to highlight the health problems faced by the sanitary workers while handling hospital waste in the public and private sector hospitals of Lahore City. A cross-sectional descriptive study design was selected, and 65 hospitals of Lahore city were surveyed during October 2016 to January 2017. 325 sanitary workers were selected through quota sampling technique and were interviewed through fully structured questionnaire. Permission was acquired from respective hospital authorities prior to data collection. Inquiries were made from the sanitary workers regarding health awareness, hygiene practice, precautionary measures adopted while handling hospital waste and the diseases they suffered from within the lapse of a year. The collected data was arranged and analyzed by using Microsoft Excel 2013, SPSS Version 22. All sanitary workers were male, 56.5% of study participants aged between 31 to 40 years and 61.7% had a working experience of more than 11 years. 57.5% got proper training, 61.2% practiced hand washing, 62.2% were vaccinated against Hepatitis B. Tetanus etc. and 75.2% of them had faced infections like Hepatitis B & C, Typhoid, Skin allergies, Ocular infections. During last one year. The overall health situation of sanitary workers was poor, and they were at greater risks of developing serious infections due to lack of awareness and improper use of preventive methods. The study recommends the existing hospital waste management practices should be improved and proper training and awareness should be disseminated among hospital sanitary workers.

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Introduction

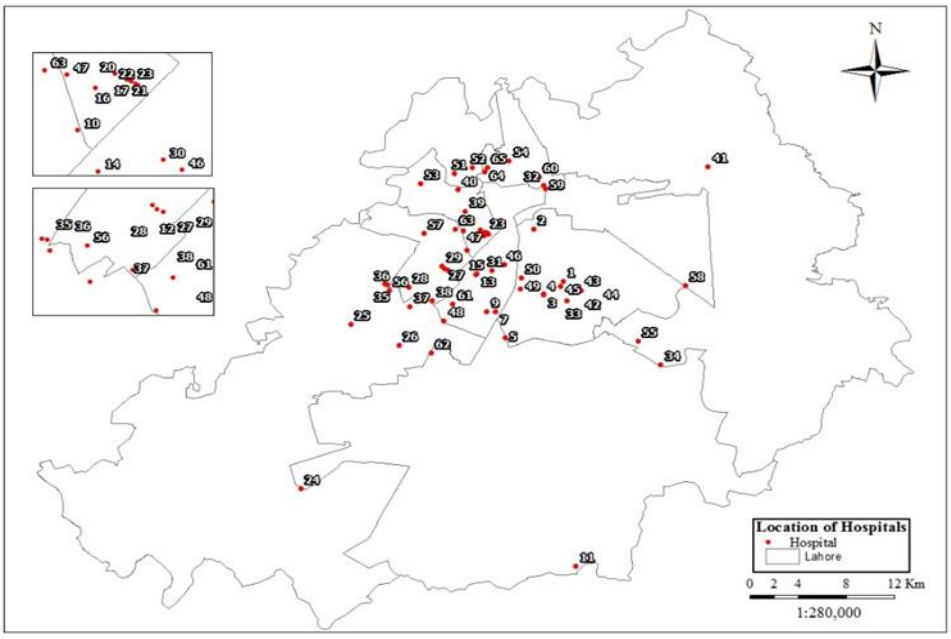
Hospital waste is one of the major concerns all over the world owing to its infectious and precarious nature that poses serious threats on its surroundings as well as on the human health (Askarian *et al.,* 2004). Approximately 70-80% of the waste generated by healthcare activities is non-infectious and comparable to domestic waste and can be disposed through standard municipal waste methods. While as the rest of the 20-30% of the hospital waste is considered to be hazardous or infectious and can result in environmental and occupational health problems (Sutusu & Semerci, 2019, WHO, 2009). The persons at high risk are the healthcare workers including sanitary workers, nurses, doctors, hospital maintenance personnel, visitors and patients of healthcare centers that can attain infections through this contaminated waste (Iqbal *et al.,* 2018). Previous studies confirm that out of the all healthcare workers, the sanitary workers are at greatest risk of getting infected by hospital waste due to careless and manual handling, lack of precautionary measures and working under critical working conditions (Moro *et al.,* 2007, Schibye *et al.,* 2001, Drda *et al.,* 2002, Wouters *et al.,* 2002). For instance, a study stated that in Asian countries there was a growing apprehension about the development of infectious sicknesses in the sweepers and the sanitary workers such as tuberculosis, hepatitis B and C virus, diphtheria and cholera caused by contact with infected waste materials (Jang, 2011). According to another report from United States, the sanitary workers engaged in management of hospital waste have a 2.7 - 4 times more chance of getting infected by HIV as compared to other staff working inside a healthcare facility (Turnberg, 1996). Mochungong (2010) reported that in surveyed hospitals in Cameroon, sanitary workers were having eye burns, skin related diseases, asthma and pneumonia due to unavailability of protective clothing. Abd El-Salam (2010) stated that in more than half of surveyed hospitals, clinical waste was handled by hand by the sanitary workers without protective methods which increased the potential risk of calamities and personal injury from sharps and other accidents. There are studies which show different health complaints reported by sanitary workers working in waste handling such as respiratory infections (Yang *et al.,* 2001, Almers *et al.,* 2000, Heldal *et al.,* 2003), an increased risk of hepatitis A, B and C (Dounias *et al.,* 2007) certain skin diseases through dermal contact (Kuusisto *et al.,* 2007), musculoskeletal, weakness, gastrointestinal, and hearing complaints (Kuijer *et al.,* 2002) and so on.

Pakistan being a developing nation and the sixth most populous country of the world (Ali *et al.,* 2017) undergoes the same issues pertaining to hospital waste and resulting hazards. According to a study conducted in 2010 the hospitals of Pakistan are producing 250,000 tons of hospital waste per year and 2kg of waste per bed and 0.8 million tons of waste is produced on daily basis in which 10%-25% is based on infectious waste (Kumar *et al.,* 2010). The growing number of hospitals, clinics, and laboratories are prominent to increase the generation of waste and are intimidating the environment and health (Khan, 1998) and people accompanying with the hospital waste in the country, present the highest incidence of Hepatitis B & C (Arvanitidou *et al.,* 1998). According to WHO 25% of HIV and 40% of Hepatitis B and C virus among health workers are transported through needle stick injuries (WHO, 1999). There has been relatively less literature available regarding the waste associated health hazards faced by sanitary workers working in hospitals of the study area. Therefore, the present study was aimed to find out the health problems faced by sanitary workers due to hospital waste handling within Lahore, Pakistan.

Materials and methods

Selection of study area

The present research was a cross-sectional descriptive study that was conducted during October 2016 to January 2017 in Lahore city. A sample of 65 hospitals (see Fig. 1) was taken by using the sample size method as mentioned by Gay (2000). Out of the 65 selected hospitals, 14 hospitals were government, 07 were semi government and 44 hospitals were private and having bed facility lying within 100 to 700 beds with hospital waste generation ranging between 100 to 900kg per day.



1. Fauji Foundation
2. CMH Hospital
3. Adil Hospital
4. Rasheed Hospital
5. General Hospital
6. Children Hospital
7. Punjab Social Security
8. Gulab Devi Chest
9. Ittefaq Hospital
10. Wapda Teaching Hospital
11. Arif Memorial
12. Shiekh Zayed Hospital
13. Zainab Memorial
14. Hamid Latif Hospital
15. Masood Hospital
16. Fatima Memorial
17. Omar Hospital
18. OMC Hospital
19. Punjab Institute of Cardiology
20. Services Hospital
21. Institute of Mental Health
22. Mid-City Hospital
23. Raza Hospital
24. Sharif Medical Hospital
25. Farooq Hospital
26. Shaukat Khanum Hospital
27. Inmol Hospital
28. Mumtaz Bakhtawar Trust
29. Salma Sarfraz Hospital
30. Hijaz Hospital
31. United Christian Hospital
32. Shalamar Hospital
33. National Hospital
34. Avicenna Hospital
35. Rehmatul lil Alamin
36. Nawaz Sharif Social Security
37. Doctors Hospital
38. Jinnah Hospital
39. Sir Ganga Ram Hospital
40. Mayo Hospital
41. Ghurki Trust hospital
42. Mustam Hospital
43. Iltaf Siyaal Hospital
44. Geo Hospital
45. Ayesha Hospital
46. Al-Razi Hospital
47. Naz Hospital
48. Iqra Medical Complex
49. Shifa Hospital
50. Cavalry Hospital
51. Said Mitha Hospital
52. Rabia Welfare Hospital
53. Mian Munshi Hospital
54. Kot Khwaja Saeed Hospital
55. The Indus Hospital
56. Al-Khidmat Mansoorah Hospital
57. Lahore Psychiatric Hospital
58. Sharif Hospital
59. Ali Hospital
60. Musarat Razzaq Hospital
61. Saira Memorial
62. Wazir Hospital
63. Hamza Hospital
64. Tariq Hospital
65. Ayesha Saddiqa Hospital

Fig. 1. Location and names of surveyed hospitals in Lahore city.

Data collection and analysis

Keeping in the objective of the research, quota sampling technique was adopted, and 5 sanitary workers were selected from each hospital which altogether made a sample of 325. A fully structured questionnaire was prepared which consisted of 4 sections and 22 close ended questions regarding the age, gender, educational attainment, working experience, hygiene practices, preventive measures, health problems faced by the sanitary workers etc. The questionnaires were filled by interviewing the sanitary workers who volunteered to provide information with permission of their concerned administrative authorities. Afterwards the collected data was further arranged and tabulated through Microsoft Excel 2013 and SPSS version 22. Moreover, GPS device was used to get the geographical coordinates of the location of the surveyed hospitals and location map was prepared by using Arc Map 10.1.

Results

During the survey, no female sanitary worker could be interviewed as they refused to volunteer for interview; therefore, all the 325 sanitary workers were male, with age ranging between 21 to 50 years while most of them i.e. 56.5% aged between 31 to 40 years. Amongst the 325 sanitary workers 71.3% were married, moreover, 28.7% of the total workers were illiterate, 55.7 were middle and only 15.7% were found to be matriculate. Nearly 61.7% of the sanitary workers had a working experience of more than 11years in the same field and the rest of 38.3% sanitary workers had a working experience of 5 to 10 years.

In order to fully understand the health issues of sanitary workers, certain inquiries were made from the study participants related to their practice of hospital waste handling, type of preventive measures used while dealing with hospital waste, type of infection caught or any needle pricking or sharp injury faced in recent past and some other details of which can be seen in Table 1.

Table 1. Responses of the study participants.

Sr.	Inquiry	No.	%
1	Acquired training for careful hospital waste handling	187	57.5
2	Hand Washing after handling hospital waste	199	61.2
3	Use of Gloves while handling hospital waste	272	83.7
4	Use of mask while handling hospital waste	262	80.6
5	Use of Scarf while handling hospital waste	177	54.5
6	Use of Leather shoes while handling hospital waste	44	13.5
7	Accidental needle or sharp injury during handling hospital waste	26	8.0
8	Got infected due to needle /sharp injury in recent past	23	7.1
9	Vaccination received against infectious diseases	202	62.2
10	Awareness about health risks associated with waste handling	205	63.1
11	Suffered from any infectious disease during last one year	246	75.7
12	Recovered from disease	190	77.2
13	Provision of any medical facility by the hospital	279	85.8

It can be seen from table 1 that amongst the 325 sanitary workers only 57.5% had acquired proper training for handling the hazardous hospital waste in a protective way. While as 61.2% of the sanitary workers were following the practice of washing their hands after dealing with the waste. 83.7% workers used gloves, 80.6% of them used face masks, 54.5% of the sanitary workers used head scarfs and only 13.5% were using leather shoes as a preventive measure to safeguard them while picking and further handling the hospital waste. Only 8.0% of the sanitary workers reported that they had experienced a needle prick or sharp injury while dealing with the hospital waste. Moreover, the 7.1% of the total had an experience of getting infected by various infections such as due to pricking of needle of injuries caused by sharp objects found in the hospital waste.

Besides, 62.2% of the sanitary workers confirmed that they had been vaccinated against certain infections particularly Tetanus, Hepatitis B, Typhoid etc. However, the most alarming thing was despite of using precautionary measures, careful handling methods, and vaccination against certain infectious diseases still 75.7% of the sanitary workers had suffered from many acute infections during a lapse of one year and this happened due to their close interaction with the hazardous hospital waste. The most common infections were Hepatitis B& C, Ocular infections and Typhoid while as the least commonly reported infections reported by sanitary workers were Tonsillitis, Cholera and Chronic Obstructive Pulmonary disease (COPD). HBV and HCV were reported by 50 (20.3%) respondents, ocular infections were mentioned 49 (19.9%) respondents and Typhoid was found in 42 (17.1%) sanitary workers. However, Tonsillitis was mentioned by only 7 (2.8%) respondents, Cholera by 5 (2.0%) and COPD by only 4 (1.6%) sanitary workers. The other infections caught by sanitary workers while handling hospital waste were Tuberculosis (TB), Dermatitis; skin allergies, Eczema, food poisoning (see Fig. 2).

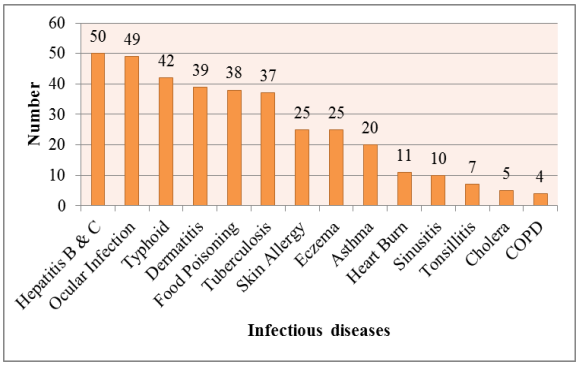


Fig. 2. Details of infections caught by sanitary workers.

Among the 246 infected sanitary workers, 190 (77.2%) had fully recovered from their acute infections, however the rest of 56 (22.8%) sanitary workers were still suffering from these infections which had entered into chronic stage and were mainly HBV, HCV, TB, Asthma and COPD. Moreover, 63.1% of the sanitary workers were found to have some awareness about the toxic effects of hospital waste on their health. Another important aspect was mentioned by 279 (85.8%) sanitary workers that they were provided with different

medical facilities by their respective hospitals in the form of medical allowance, medical leave and treatment facility as well.

Discussion

Inappropriate handling of infectious hospital waste by untrained staff can lead to transmission of serious infections not only to healthcare workers only but to other population at risk. The present study reflected due to lack of proper training and basic education, a large proportion of the sanitary workers were found to be hygienically challenged and at a greater risk of developing any serious infections. Malpractices were found by 138(42.5%) sanitary workers for not washing their hand after waste handling and carelessness was seen in the use of precautionary measures as 53 (16.3%) sanitary workers were not using gloves, 63(19.4%) were not using masks, 177(45.5%) of the workers were not wearing head scarf and 281(86.8%) of them did not use any proper leather shoes to protect themselves from sharp and harmful objects of hospital waste. Moreover, nearly 123(37.8%) of the sanitary workers were never been vaccinated against any infection which was a major cause behind their current health problems. Though Accidental needle or sharp injury was reported by very few sanitary workers but still the prevalence of disease among sanitary workers was found to be very high. It was observed that most of the sanitary workers had suffering from multiple infections during the past year such as 61(18.9%) of the sanitary workers had more than two infectious diseases at the same time, while as 148 (45.4%) had suffered from two infections within the same time and (35.7%) of them were caught by a single infection in recent past.

On overall basis, it was observed that the sanitary workers of government and semi-government hospitals were found to be more trained, had better hygiene practices and nearly all of them were using precautionary measures as gloves and masks. On the other side, some of the sanitary workers of private hospital were found to be complaining about non-provision of gloves, masks or other preventive measures by their respective hospitals which was ultimately affecting their health. Moreover, most of the sanitary workers of private hospitals were not trained at all and their knowledge, awareness regarding proper handling of hospital waste was found quite low.

Conclusion

Due to lack of proper training, less educational attainment, insufficient use of preventive measures and less awareness, the sanitary workers working in the hospitals of Lahore were found to be facing a lot of acute infections and at greater risks of developing serious chronic infections and their further transmission into other population at risk. The study recommends that the process of hospital waste management should be improved according to the guidelines of WHO and proper training and awareness among sanitary workers should be ensured by the relevant hospital authorities.

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