

Awareness about Hospital Waste Management System Among Janitorial Staff in Public and Private Hospitals of Hyderabad a Comparative Analysis

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ABSTRACT

Objective: To assess and compare the knowledge, attitude and practices of janitorial staff regarding the hospital waste management system in public and private hospitals of Hyderabad.

Study Design: Comparative cross-sectional study.

Place and Duration of Study: Public and Private Hospitals of Hyderabad, from Oct 2017 to Mar 2018.

Methodology: All 47 male and female janitorial staff of private and 47 public hospitals, aged 18 years were given a semi-structured questionnaire about knowledge, attitude and practices regarding healthcare waste management. Scoring adequate knowledge, positive attitude and good practices were done to draw the results.

Results: Out of the 94 included, 62 were male, and 32 were females. The majority of workers, 52 (55%), had working experience <5 years, whereas 27 (29%) and 15 (16%) of workers had working experience of >10 years and between 5-10 years, respectively. In most of the knowledge and attitude-related questions, scoring of adequate knowledge and positive attitude was significantly higher in staff working in private than in the public hospital. In contrast, the scoring of practice-related questions was found to be significantly higher in staff working in a public hospital compared to those working in a private hospital.

Conclusion: Knowledge, Attitude and Practices among janitorial staff working in public and private hospitals were not up to the mark and were not following the standard operative procedures while handling the healthcare waste. Hospital administration to formulate and implement refresher comprehensive training programs for the janitorial staff.

Keywords: Attitude, Janitorial staff, Knowledge, Practices, Public and private hospital.

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INTRODUCTION

Health Care Waste generation and management have become a primary concern because it is a major risk factor for the health of doctors, paramedical staff, nurses, patients and janitorial staff and the general population. However, data regarding janitorial staff's knowledge, attitude and practices are scarce in Pakistan. Therefore, awareness, behaviour and practices of paramedical staff, especially janitorial staff, are necessary for the hospital waste management as they are mainly responsible for the collection, segregation, transportation, storage and disposal of the hospital waste.¹

Hospital waste is the type of waste generated in health care setups that carries a high potential risk of infections and injuries. Internationally healthcare facilities produce approximately 0.5-2.0 kg of hospital waste per day, and 75-90% of this healthcare waste is

non-infectious, whereas only 10-25% is infectious.¹ In Pakistan, around 1.35 kg of daily waste per bed is generated.² Therefore, a lack of knowledge, awareness and attitude about improper handling of healthcare waste will not only impact public health consequences but also seriously impact the environment in general. During the last few decades, global marketing has seen an increase in population and advancements in information technology, awareness about the latest treatment modalities available, and a rapid increase in hospitals both in the public and private sectors.

Consequently, there has been a proportionate rise in waste produced by these healthcare setups. Ironically the hospitals, along with providing relief to the ailing personnel, generating a large quantum of healthcare waste and also, due to their improper waste management, are posing health hazards to the community.³ According to a report published by WHO in 2000, 260000, 21 million and 2 million cases of HIV, hepatitis B and hepatitis C, respectively, were due to the reuse of infected syringes.⁴

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Unfortunately, until recently, hospital waste management was not given due consideration as an important issue.⁵ Late in the 1980s and 1990s, exposure to HIV and HBV led to concern that healthcare waste management could potentially transmit the infection to its handlers.⁶ Different types of toxic waste produced in healthcare setups worldwide are drips, used syringes, bandages, blood collection bags and healthcare waste like organs and used medical instruments.⁷ In underdeveloped countries like Pakistan, healthcare waste management is a major challenge where improper and poor handling of hospital waste puts doctors, nurses, paramedical staff and janitorial staff and the surrounding environment at risk.⁸ Unfortunately, like in other developing countries, hospital waste materials have not received due attention in Pakistan.

Although healthcare waste management Rule 2005 is in place in Pakistan majority had no information about these rules in any form. Similarly, most 78% had no local or provincial plan for managing hospital waste. Moreover, most (77%) had no inspection system for hospital waste management the hospitals.⁹ The major challenges identified were lack of collection and segregation practices, proper standard operating procedures, poor regulatory measures, and waste picking. They were reusing, lacking administrative management interests, inadequate facilities, financial constraints, inadequate training programs and awareness and reluctance to change.

According to the weight, density and constitution, there are several types of healthcare waste. The World Health Organization (WHO) has classified hospital waste into sharps, infectious, pathological, pharmaceutical and pathological/radioactive. There are many types of infectious waste like human body tissues and parts, syringes, urine, vomits, chemicals, blades and fluids from laboratories. Infectious hospital waste is a major source of HIV-AIDS, hepatitis B and C. These infections are usually transmitted through needle stick injuries and sharp objects infected by human blood. Numerous diseases transmitted by contact with hospital waste are respiratory tract infections, bacteremia, and wound infections. Injuries and infection rates are also high among the personnel handling these waste materials.¹⁰

In Pakistan, it is observed that most janitorial staff do not comply with hospital waste management practices and therefore expose themselves to other staff and patients to infections and sharp injuries.

Furthermore, studies have shown that the attitude of janitorial staff toward the proper disposal of waste was poor, and the majority were not even interested in protecting their health. Moreover, health care providers' awareness of hospital waste disposal is very low, especially among janitorial staff.

Keeping all these issues in mind, the rationale of this study was to establish the degree of knowledge, attitude and practices of janitorial staff working in both public and private hospitals so that differences and gaps could be measured in both sectors to formulate recommendations for improvement against the hazards of hospital waste management.

METHODOLOGY

This comparative cross-sectional study was conducted from October 2017 to March 2018 at public and private secondary hospitals in Hyderabad.

Inclusion Criteria: All the janitorial staff workers, of either gender, age 18 years and above working in public and private hospitals were included.

Exclusion Criteria: The supervisors or managers of janitorial staff were excluded.

A universal sampling technique was employed, and all the sanitary workers were included, so no sampling calculation was done. According to this criterion, only 47 janitorial staff workers were available in private hospitals in Hyderabad. All the participants were included after their consent, and 47 out of 53 from public hospitals were enrolled in this study.

Demographic data like age, gender and years of working experience were noted on the designed proforma. A semi-structured questionnaire was used to assess the awareness of knowledge, attitude and practices of janitorial staff about hospital waste management. The questionnaire comprised of three parts, including knowledge (part-1), attitude (part-2) and practices (part 3) of the janitorial staff. We collected data from all the participants. The data was processed manually. Statistical Package for Social Sciences (SPSS) version 21.0 was used for the data analysis.

The chi-square test was used to obtain the inferential statistics. This study's dependent variables were knowledge, attitude and practices, whereas independent variables were age, gender, years of working experience, and public and private sector hospitals. The informed consent from all the janitorial staff and authorities concerned with hospital administration was obtained.

RESULTS

Total participants included in this study were 94, and out of this 32 (34%) were females, the majority of which 18 (56%) worked in private. In comparison, 14 (44%) in public hospitals and n=62 (66%) were males, the majority of which 33 (53%) worked in public while 29 (47%) worked in private hospitals (Table-I).

Table-I: Comparison of demographics with awareness about knowledge of janitorial staff both public and privat hospital.

		Adequate Knowledge	Inadequate Knowledge	p-value
Age ≤40 years	Public	3 (12%)	22 (88%)	0.023
	Private	8 (22.3%)	28 (77.7%)	
Age >40 years	Public	7 (31.8%)	15 (68.1%)	
	Private	6 (54.5%)	5 (45.4%)	
Male	Public	7 ((21.2%)	26 (78.7%)	0.389
	Private	7 (24.1%)	22 (75.8%)	
Female	Public	3 (21.4%)	11 (78.5%)	
	Private	7 (21.4%)	11(78.5%)	
<5 years of experience	Public	4 (25%)	12 (75%)	0.016
	Private	10 (27.7%)	26 (72.2%)	
5-10 years of experience	Public	1 (16.6%)	5 (83.3%)	
	Private	4 (36.3%)	5 (55.5%)	
>10 years of experience	Public	5 (20%)	20 (80%)	
	Private	-	2 (100%)	

The breakdown of participants revealed that janitorial staff, 62 (66%) were aged < 40 years, and the majority, 36 (58%), worked in private and 26 (42%) in public hospitals. At the same time, only 32 (34%) were aged >40 years., the majority of which 21 (66%) worked in public while only 11 (34%) in a private hospital (Table-II).

Table-II: Comparison of demographics with awareness about attitude of janitorial staff both public and private hospital.

		Positive attitude	Negative attitude	p-value
Age ≤40 years	Public	8 (33.3%)	16 (66.6%)	0.017
	Private	15 (41.6%)	21 (58.3%)	
Age >40 years	Public	7 (31.8%)	15 (68.1%)	
	Private	4 ((36.6%)	7 (63.6%)	
Male	Public	12 (36.3%)	21 (63.6%)	0.389
	Private	11 (37.9%)	18 (62.0%)	
Female	Public	3 (23.0%)	10 (76.9%)	
	Private	8 (44.4%)	10 (55.5%)	
<5 years of experience	Public	6 (37.5%)	10 (62.5%)	0.014
	Private	16 (44.4%)	20 (55.5%)	
5-10 years of experience	Public	-	5 (100%)	
	Private	2 (22.2%)	7 (77.7%)	
> 10 years of experience	Public	9 (36%)	16 (64%)	
	Private	1 (50%)	1 (50%)	

The working experience of participants revealed that 52 (55%) had working experience of <5 years, the

majority of which 36 (69%) worked in private while 16 (31%) in public hospitals. Another 27 (29%) had working experienc >10 years, the majority of which 25 (93%) worked in public and only 2 (7%) in a private hospital. Only 15 (16%) had working experience between 5-10 years, and the majority of 9 (60%) worked in private and only 6 (40%) in the public hospital (Table-III).

Table-III: Comparison of demographics with awareness about practice of janitorial staff both public & privat hospital.

		Good Practice	Bad Practice	p-value
Age ≤40 years	Public	6 (25%)	18 (75%)	0.017
	Private	8 (22.2%)	28 (77.7%)	
Age >40 years	Public	7 (31.8%)	15 (68.1%)	
	Private	4 (36.3%)	7 (63.6%)	
Male	Public	10 (30.3%)	23 (69.9%)	0.136
	Private	9 (31.0%)	20 (68.9%)	
Female	Public	3 (23.0%)	10 (76.9%)	
	Private	3 (16.6%)	15 (83.3%)	
<5 years of experience	Public	4 (25%)	12 (75%)	0.018
	Private	8 ((22.2%)	28 (77.7%)	
5-10 years of experience	Public	1 (20%)	4 (80%)	
	Private	3 (33.3%)	6 (66.6%)	
>10 years of experience	Public	8 (32%)	17 (68%)	
	Private	1 (50%)	1 (50%)	

DISCUSSION

The proper disposal of medical waste in healthcare facilities on scientific grounds will minimize the health hazards to the healthcare workers. However, it will also keep the environment neat and clean. Because of financial constraints and increased work load on healthcare facilities, healthcare waste management is a serious issue for developing countries and the rest of the world in general.¹¹ Although the amount of infectious waste is far less than non-infectious waste in any healthcare facility, the lack of knowledge, attitude and practices of janitorial staff could lead to the mixing of this infectious waste with that of non-infectious waste. As a result, they would convert it into infectious waste, which will be highly dangerous for the healthcare workers.¹² This aspect stresses the need that the janitorial staff should have adequate knowledge, a positive attitude and good practices, which play a pivotal role in safeguarding against the vulnerability of infectious diseases.

It has been observed that education and awareness about health hazards, Institutional training for handling the healthcare waste play an important role in improving the practices of janitorial staff.¹³ In the majority of the knowledge and attitude-related questions, scoring was markedly higher in janitorial staff

working in a private hospital when compared with those working in a public hospital. However, the scoring of good practices was higher in those working in public than in private hospitals. The reason for good practices is that the incinerator was available in a public hospital only. These findings were very close to a study conducted at Armed Forces Postgraduate Medical Institute Rawalpindi, which revealed that adequate knowledge was seen in 20% and 80% of sanitary workers of public and private sector hospitals, respectively. In addition, a positive attitude was observed in 5% and 95% of sanitary workers of public and private hospitals, respectively.

In contrast, good practices were seen in 10% and 90% of sanitary workers of public and private hospitals, respectively.¹⁴ Another study also revealed similar findings of the lower level of knowledge and poor practices.¹⁵ Comparison with age, gender and years of experience was also carried out. No major change was observed in these results. Another reason may be that all the janitorial staff working in private hospitals were on daily wages, and their employment was performance-based.

They are not permanent employees, as was the case with those working in the public hospital. A study by Mahmood *et al*, revealed that the janitorial staff working in public hospitals observed better practices while dealing with healthcare waste compared to the janitorial staff working in private hospitals.¹⁶ These findings are very similar to our study. According to their study, practices regarding waste segregation were as per standard operative procedure and were good (100%). This aspect was similar in both public and private hospitals, and the waste collection was better in public hospitals (66-100%) when compared with private hospitals (0-50%). The important observation was that majority of the janitorial staff of public hospitals used personnel protective equipment (83%) compared to private hospitals. The transportation methods of healthcare waste were better in public hospitals than in private hospitals.¹⁶

One important aspect highlighted in our study was that there is a significant association between practices of the janitorial staff and underlying risk factors like hepatitis B and C, Tuberculosis, skin diseases, respiratory diseases, conjunctivitis and gastroenteritis. In contrast, another study showed that this association was not significant.¹⁷ Another study conducted in South Africa revealed that 21.4% of janitorial staff did not accept that segregation of healthcare waste

produced at the source increases the risk of injury. Only 26% of sanitary workers reported the needle stick injury, and 80% of janitorial staff accepted that they sorted healthcare waste at collection point.¹⁸ Two different studies conducted in South Africa also revealed similar results.^{19,20}

A study by Habibullah *et al*, was conducted in 68 government healthcare facilities in Karachi to assess the knowledge, attitude and practices of janitorial staff (137) involved in healthcare waste. In this study, it was observed that only 32.1% against 42% of the janitorial staff was aware of the fact that reused syringes can spread infectious diseases to the other peoples, 31% used dustbins for the collection of healthcare waste for different departments, and in our study, it was 46%. Only 21.9% against 49% in our study separated healthcare waste before its disposal, 73.9% carried healthcare waste in open buckets for final disposal, whereas in this study, it was 71.4%. Furthermore, 67.9% of the janitorial staff was not provided with any personnel protective equipment, and in our study, this figure was 73%. An important observation was that the majority of janitorial staff, 82.5%, did not know how to dispose of healthcare waste, and our study revealed that this figure was 84%. An interesting observation was that healthcare waste could be purchased from private agencies.²¹

LIMITATIONS OF STUDY

There were quite a few language problems in collecting data from janitorial staff, particularly in a private hospital. Scoring was a bit difficult.

RECOMMENDATIONS

At Government Level

1. Strict implementation of healthcare waste management rules of WHO and Government of Pakistan is the need of the hour.
2. The hospital Administration is made responsible and is penalized for non-implementation of standard operative procedures under the law for disposal of health-care waste management.

At Hospital Level

1. The hospital Administration should set criteria of minimum education for janitorial staff.
2. Comprehensive training programs for adequate knowledge, positive attitude and good practices for janitorial staff be formulated and implemented.
3. All janitorial staff be provided with gloves and masks.
4. All janitorial staff be screened for Hepatitis B, C, and HIV and vaccinated for HBV.
5. To ensure that needle prick injury is to be reported and documented.

CONCLUSION

Knowledge, Attitude and Practices among janitorial staff working in public and private hospitals were not up to the mark and were not following the standard operative procedures while handling the healthcare waste. Therefore, the hospital administration should formulate and implement comprehensive training programs for the janitorial staff.

Conflict of Interest: None.

Authors' Contribution

KM: Concept and design of article and data collection, FA: Helps in Compiling of results and Discussion, VA: Analysis of the results by SPSS, LS: Helps in proof reading.

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