Abstract

Introduction: Waste generated in hospitals and other healthcare facilities is one of the sources of infection transmission due to the presence of infectious agents. At the end of 2019, COVID-19 emerged as a global pandemic, raising increasing concerns about healthcare waste management. This study focuses on quantitatively assessing the healthcare waste generated in hospitals admitting COVID-19 patients in the major city of Tabriz, from the period before the outbreak of the disease (beginning of 2018) to the crisis conditions during the disease outbreak (September 2022). Additionally, to ensure proper waste segregation, this issue requires continuous training and retraining on the job descriptions of relevant staff and medical waste management guidelines. Therefore, in this research, awareness assessment, attitude evaluation, and staff performance in hospitals regarding waste management were also addressed.

Methods: This descriptive-cross-sectional study collected data on the amount of waste from six hospitals to determine the quantitative changes in waste generation before and during the COVID-19 pandemic. Quantitative waste data were extracted from the environmental health unit archives of the hospitals and analyzed using Excel. To validate waste weighing data, daily monitoring of hospital waste for four months (from June to September 2022) was conducted using scale calibration. Furthermore, a researcher-made questionnaire with validated reliability (Cronbach's alpha approximately 0.86) was administered and completed among hospital staff to assess their awareness, attitude, and performance in waste management. The total number of participants in this assessment was 328 out of 5802 individuals, calculated using the Cochran formula.

Results: The per capita waste generation in the studied hospitals, both before and during the COVID-19 pandemic, was on average 3.75 kilograms per bed/day. Before the COVID-19 outbreak, 37.3%, and during the outbreak, 58.6% of the total waste generated was infectious. In this study, 54.6% of the participants in the awareness assessment were women. The highest frequency distribution was related to official personnel with a bachelor's degree in the nursing profession with less than 10 years of work experience. The average (standard deviation) awareness, attitude, and performance of the staff were 3.81 (3.16), 44.86 (7.22), and 24.40 (9.32), respectively. Considering the average age of 36 years for the participants,

their attitude towards waste management appeared to be better. Overall, 46.6% of the individuals had both poor awareness and performance, while 7.6% had moderate awareness and performance.

Conclusion: According to the results of this study, the per capita hospital waste generation in Tabriz did not change significantly before and during the COVID-19 pandemic; however, the categorization of waste types and source segregation faced challenges, leading to an increase in infectious waste production. The results indicate a lack of proper and systematic implementation of laws and regulations related to hospital waste management, necessitating a revision in their execution. Additionally, the low level of awareness and poor performance suggest that hospital personnel are not paying adequate attention to waste management training programs. Therefore, hospital training departments should pay special attention to the implementation of these courses. Furthermore, the presence of larger budgets and capital in private and social security hospitals, along with the flexibility and freedom of managers in budget allocation and utilization, enables them to undertake more diverse activities to increase patient satisfaction and implement waste management guidelines.

Keywords: Waste Management, Coronavirus, Hospital, Staff Awareness, Tabriz.