

EVALUATION OF PERCEIVED DANGERS OF HEALTHCARE WASTES AMONG PATIENTS AND THE WORKERS IN OSUN STATE HEALTHCARE FACILITIES, NIGERIA

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Abstract

The study specifically examined the various wastes generated in healthcare facilities among workers and patients in Ile-Ife and Ilesha. It assessed the workers and the patients' knowledge about healthcare wastes management in the study area; determined the healthcare wastes management practices among workers and patients in the study area; and assessed the perceived health dangers of healthcare wastes among the patients and workers in the study area. The study adopted a descriptive survey research design. The sample consisted of 200 workers and 400 patients at different healthcare facilities. The research instrument used was a self-designed which consisted section 'A' and 'B' The questionnaire was to collect information from the respondents was placed on agreed and disagreed. Data collected were presented and analyzed using simple percentage statistical analysis of t-test table. The finding showed that there were various waste generated among workers and patients in healthcare facilities, the patients were not knowledgeable about the healthcare waste management, majority of the workers had good practice of healthcare wastes disposal than the patients. Finally there was a significant difference in the perceived dangers of healthcare wastes between the patients and workers. It was recommended that the 3 tiers of government should educate the healthcare giver that wastes should be handled with proper care.

Key Words: Perceived Dangers, Healthcare Wastes, Patients/Workers, Healthcare Facilities

Introduction

Healthcare Wastes /Hospital Wastes are wastes created in the healthcare facilities as a result of various health care activities during laboratory diagnosis, vaccination, diagnosis of diseases, treatment of patients and other wastes produced by human beings in the healthcare centers as well as minor wastes sources from healthcare centers, and others such as used or unused needles, syringes, surgical blades, minor blades, and broken glasses. Pathological wastes are human tissues containing blood, and body fluid contaminated wastes and animal carcasses. Nigeria is a developing country that has health cases that are challenging for limited resources. Therefore, less attention and preference are given to the healthcare wastes by the management (Abah & Ohimain, 2011).

Universally, the dangers connected with healthcare wastes management have improved tremendously from health practitioners and non-practitioners. Segregation of healthcare waste helps in the reduction of quantity of wastes that are hazardous and disposal of infectious wastes done do not pose any harm to health workers, patients and the environment (Chartier & World Health Organization [WHO], 2014). Healthcare wastes are contagious materials created in the health facilities (hospitals) that can cause illnesses or diseases. Many healthcare facilities are usually located in the heart of the cities and if not suitably managed can cause dangerous infections and potential threats to the health workers and the residents of the environment and to the public (Chartier & WHO, 2014; Dehghani, Azam, Changani & Fard 2019).

Infectious wastes; this are wastes known of suspected to contain pathogen such as blood, and body contaminated wastes, laboratory cultures and excreted fluids. Medical wastes are often disposed in the dumpsite openly along with municipal wastes and the practice make the members of the community gain access to it which may lead to outbreak of infectious diseases (Alagöz & Kocasoy, 2008). Few healthcare facilities in Nigeria have documented policy for the protection of occupational hazards as regards healthcare wastes among workers (Anozie et al., 2017). Chartier & WHO (2014) reported that 15% of total wastes generated in the healthcare facilities are hazardous and should be properly separated where it was generated to prevent the whole healthcare facility to become 100% hazardous.

Huber et al. (2011) stated that the ability of people to adjust to their situation as regards health is the personal hygiene and wellbeing of individuals; this differs from one person to another depending on the context and their desires. Healthcare Services could be termed as the establishment of medical, surgical, and other materials used and very helpful to care and ease suffering (Janik-Karpinska, Brancaloni, Niemcewicz, Wojtas, Foco, Podogrocki, & Bijak, 2023). Poor management of health care wastes do expose health care workers, waste handlers, patients and the community at large to injuries, infections, toxic, and dangers of contaminating the environment. It is very significant that all medical waste materials are separated at the point of generation, and disposed of carefully (WHO, 2018; Janik-Karpinska et al., 2023).

Sorting of Healthcare Wastes showed that 80% of wastes created in the healthcare centers are general wastes, and the remaining 20% is considered hazardous materials that may be infectious, toxic or radioactive. Not all the needles and syringes used in the healthcare facilities are usually properly disposed (Centers for Disease Control and Prevention {CDC}, 2024). There are variations of harmful wastes which due to its pathogenic nature, can result to human health threats, which could be assumed as infectious wastes and may contain several pathogenic micro-organisms (Makajic-Nikolic et al., 2016). The implementation of safety measures and compulsory training programs for healthcare professionals can reduce the occurrence of diseases and related infections (Matsubara et al, 2017).

Unwanted or expired chemicals and medications used in healthcare systems can be hazardous when not properly disposed (Chartier & WHO, 2014). Chemical waste affects human health negatively and may cause threats to some parts of the

body such as the eyes, skin and lubricated membranes of the respiratory tract (Shetty et al., 2023). The majority of workers handling wastes in healthcare facilities are deficient in knowledge in terms of working tools and infection control materials which has also shown that the activities of waste managers in healthcare facilities are very rarely subjected to scrutiny or supervision (Anozie et al 2017). According to Environmental Protection Agency {EPA} (2016), release of chemicals or hazardous emissions into the air should be given consideration in locations where there are adequate properties to operate, maintain and dispose the treated waste (EPA, 2016).

Statement of the Problem

Dumping of untreated hospital wastes indiscriminately in the health facilities and the public place bins decrease the chances of survival and increase of pathogenic micro-organism among individuals. This can lead to spread of epidemic disease and incidence of communicable diseases in the public. It is therefore important to research into the indiscriminate dumping of hospital wastes in Ile-Ife, Ilesha and the environment the health dangers; hence this study.

The objectives stated for this study were;

- i. To examine the various wastes generated in healthcare facilities among workers and patients in Ile-Ife and Ilesha in Osun State;
- ii. To assess the workers and the patients' knowledge about healthcare wastes management in the study area;
- iii. To determine the healthcare wastes management practices among workers and patients in the study area;
- iv. To assess the perceived health dangers of healthcare wastes among the patients and workers in the study area.

Methodology

Descriptive design was employed for this study. The target population for this study comprised the healthcare facilities in Ile-Ife and Ilesha in Osun State. Stratified sampling technique was used to select 20 healthcare facilities from all the health facilities in the study areas. Two hundred workers and 400 patients were also used for the study. Therefore, 10 workers and 20 patients were selected from all the 10 healthcare facilities making a total of 200 workers and 400 patients using simple random sampling technique. The research instrument used was a self-designed questionnaire for both Workers and residents. This questionnaire was used to collect relevant information from the respondents with Strongly Agree and Strongly Disagree format. The instrument was validated by experts and the reliability of the instrument was determined by the use of test-retest technique which was reliable at 0.87 with the Pearson Product Moment Correlation Coefficients of Reliability. The instrument was administered with the help of 8 research assistants to the respondents. The questionnaires were all returned. The administered research instruments were analyzed with t-test analysis.

Results and Discussion of Findings

Research Question 1: What are the various wastes generated in healthcare facilities among workers and patients in Ile-Ife and Ilesha in Osun State.

Table 1: Descriptive Analysis of the various types of waste generated in healthcare facilities among workers and patients in the study area.

| S/N | VARIABLES | Workers 200 (100%) | | Patients 400 (100%) | |
|-----|--|--------------------|-----------|---------------------|-----------|
| | | Agreed | Disagreed | Agreed | Disagreed |
| 1. | Sharp objects like needles, blades, glasses. | 200(100%) | 0(0%) | 0(0%) | 400(100%) |
| 2. | Radioactive wastes e. g. wastes from X-rays, contaminated syringes and materials | 200(100%) | 0(0%) | 0(0%) | 400(100%) |
| 3. | Laboratory waste is an example like body fluids, tissues, human fluids | 200(100%) | 0(0%) | 0(0%) | 400(100%) |
| 4. | Body waste such as Urine | 200 (100%) | 0(0%) | 400(100%) | 0(0%) |
| 5. | Body waste such as Faeces. | 180(90%) | 20(10%) | 328(82%) | 72(18%) |
| 6. | General wastes such as paper, plastics, cellophane, plastic bags, rags, | 200(100%) | 0(0%) | 60(15%) | 340(85%) |
| 7. | Food wastes. | 200(100%) | 0(0%) | 344(86%) | 56(14%) |
| 8. | Others - Office wastes. | 158(79%) | 42(21%) | (0%) | 400(100%) |

Result of the study on table 1 here showed that all the variables presented were all agreed upon by the health workers that they generated, while the patients agreed that the wastes generated by them were food wastes, urine and faeces. This could be that they only came for treatment occasionally and they never stayed for longer time. It was therefore generally seen that health workers generated more wastes than the patients. But not all wastes generated are hazardous.

Research Question 2: what are the workers and the patients’ knowledge about healthcare wastes management in the study area.

Table 2: Descriptive Analysis of the workers and patients’ knowledge about healthcare wastes management in the study area.

| S/N | VARIABLES | Worker 200(100%) | | Patients 400(100%) | |
|-----|--|------------------|----------|--------------------|-------------|
| | | Agree | Disagree | Agree | Disagree |
| 1. | I know that there should be appropriate disposal of wastes into the wastebins | 200 (100%) | 0 (0%) | 184 (46%) | 216 (54%) |
| 2. | I know that wearing of protective equipment such as hand gloves to reduce the risks of infections. | 200 (100%) | 0(0%) | 168 (42%) | 232 (58%) |
| 3. | I know that wearing of protective equipment such as nose masks to reduce the risks of infections. | 200 (100%) | 0(0%) | 300 (75%) | 100 (25%) |
| 4. | I know that washing of hands regularly with the use of soap, clean water, hand sanitizers and towel help to eradicate infections | 299 (95%) | 0(0%) | 242 (60.5%) | 158 (39.5%) |
| 5. | I know that landfilling or deep-burial of wastes is a method of disposing healthcare wastes safely to eradicate infections. | 188 (94%) | 12(6%) | 194 (48.5%) | 206 (51.5%) |
| 6. | I know that the use of incineration (burning into ashes) will help in wastes management | 192 (96%) | 08(4%) | 80 (20%) | 320 (80%) |
| 7. | I know that it is very important to take care of the environment to reduce or eradicate infectious diseases. | 200 (100%) | 0(0%) | 288 (72%) | 112 (28%) |
| 8. | I know that the toilet and bathroom should be kept clean by using water to flush and for other things to maintain cleanliness. | 198 (99%) | 02(1%) | 388 (97%) | 12 (3%) |

From table 2 disclosed that the health workers had the knowledge about all the items number 1,2, 3, 4, 5, 6, 7, and 8 on the table above. While majority of the patients identified that they had no much knowledge about the items 1, 2, 5, and 6 on the table as patients did not have knowledge about the healthcare wastes management to reduce health risks. This could be that majority of these patients were not educated, so they could not know the importance of being knowledgeable.

Research Question 3: What is the healthcare wastes management practices among workers and patients in the study area.

Table 4: Descriptive Analysis of the healthcare waste management as practiced by health workers and patients in the study area.

| S/N | VARIABLES | Workers 200(100%) | | Patients 400(100%) | |
|-----|---|-------------------|------------|--------------------|----------------|
| | | Agree | Disagree | Agree | Disagree |
| 1. | I do dispose wastes appropriately into the wastebins around the environment. | 200 (100%) | 0 (0%) | 388 (97%) | 12 (3%) |
| 2. | I do wear hand gloves to reduce the risks of infections. | 200 (100%) | 0 (0%) | 0 (0%) | 400 (100%) |
| 3. | I do wear hand nose mask to reduce the risks of infection | 190 (95%) | 10 (5%) | 290 (72.5%) | 110 (27.5%) |
| 4. | I do wash my hands regularly with the use of soap and clean water, hand sanitizers e.t.c. | 200 (100%) | 0 (0%) | 242 (60.5%) | 158 (39.5%) |
| 5. | I use the toilet and bathroom clean by using water to flush and for other things to maintain cleanliness. | 196 (98%) | 04 (2%) | 378 (94.5%) | 22 (5.5%) |
| 6. | I take care of my environment to reduce or eradicate infections. | 200 (100%) | 0 (0%) | 288 (72%) | 112 (28%) |

Table 2 above revealed that the health workers did have good wastes management practices. In the same vein, many of the patients also identified with all the items as specified above except item number 2. It was seen on the table that the health workers had more healthcare wastes management practices. But it was observed generally that both the health workers and the patients knew more about healthcare wastes management practices.

Research Question 4: What are the perceived health dangers of healthcare wastes among the patients and health workers in the study area.

Table 5: Descriptive Analysis of perceived health dangers of healthcare wastes among the patients and health workers in the study area.

| S/N | Variables | Workers 200 (100%) | | Patients 400(100%) | |
|-----|---|--------------------|-------------|--------------------|----------------|
| | | Agree | Disagree | Agree | Disagree |
| 1. | Exposure to radioactive healthcare wastes can lead to cancer among healthcare workers and patients. | 150 (75%) | 50 (25%) | 140 (35%) | 260 (65%) |
| 2. | Healthcare wastes can cause communicable diseases such as HIV/AIDs, hepatitis B and C, cholera, diarrhea, typhoid, etc among healthcare workers and patients. | 184 (92%) | 16 (8%) | 220 (55%) | 180 (45%) |
| 3. | Poor healthcare wastes management by burning can result to air pollution and water pollution among healthcare workers and patients. | 192 (96%) | 08 (4%) | 284 (71.1%) | 116 (28.5%) |
| 4. | Open burning of medical wastes can cause thermal injuries among healthcare workers and patients. | 172 (86%) | 28 (14%) | 184 (46%) | 216 (54%) |
| 5. | Poor handling of healthcare wastes with food without washing hands can result to food contamination etc among healthcare workers and patients. | 190 (95%) | 10 (5%) | 185 (46.5%) | 215 (53.5%) |
| 6. | Inappropriate management of healthcare wastes can lead to injuries, cuts, etc. among healthcare workers and patients. | 192 (96%) | 08 (4%) | 208 (52%) | 192 (48%) |
| 7. | Improper healthcare wastes management can lead to disease such as asthma, lung problem, kidney diseases etc. among healthcare workers and patients. | 194 (97%) | 06 (3%) | 258 (64.5%) | 142 (35.5%) |

Table 5 above showed that very many of the health workers agreed that all the above items stated from item number 1 to item number 7 were the perceived dangers of healthcare wastes among workers and patients in the study area. Whereas, fair number of patients agreed to item number 1, 4 and 5. But many workers disagreed to item number 1, 4, and 5 on the table above. This could be that the patients might not be educated enough to know the perceived health dangers of healthcare wastes.

Research Hypothesis 1: There will be no significant difference in the perceived health dangers of healthcare wastes between the patients and workers in Ile-Ife and Ilesha in Osun State.

Table 6: t-test analysis of significant difference in the perceived health dangers of healthcare wastes between the patients and workers in the study area.

| Variables | N | Mean | Sd | t-value | df | P | Remark |
|----------------|-----|--------|-------|---------|----|-------|-------------|
| Patients | 400 | 26.142 | 4.231 | 5.325 | 1 | 7.031 | Significant |
| Health Workers | 200 | 12.216 | 2.134 | | | | |

$P < 0.05$

The table above showed the t-test analysis of the significant difference of the perceived health dangers of healthcare wastes between the patients and workers in the study area. The tested data analysis showed a t-test value of 5.325, $P=7.031$, degree of freedom = 1. Based on this result, the hypothesis was rejected. Therefore, there was a significant difference in the perceived health dangers of healthcare wastes between the patients and workers in the study area.

Discussion of the Findings

Result of the study on table 1 here showed that all the items presented were all agreed upon by the health workers that they generated, while the patients agreed that the wastes generated by them were food wastes, urine and faeces. It was therefore generally seen that workers generated more wastes than the patients. It was therefore generally seen that health workers generated more wastes than the patients. And that not all wastes generated are hazardous. This is similar to the report of World Health Organization (2014) that only 15% of total wastes generated in the healthcare facilities is hazardous. And the CDC, (2024), that sorting of Healthcare Wastes showed that 80% of wastes created in the healthcare centers are general wastes, and the remaining 20% is considered hazardous materials.

- Results from table 2 disclosed that the health workers had knowledge of all the items stated on the table above. While majority of the patients identified that they did not have much knowledge about the items on the table as to how healthcare wastes were being managed were stated on the table above. This could be that majority of these patients were not educated, so they could not understand the importance of being knowledgeable about this. Therefore, majority of the health workers were knowledgeable healthcare wastes management. This is contrary to Anozie et al (2017) that the majority of workers handling wastes in healthcare facilities are deficient in knowledge in terms of working tools and infection control materials.

- Table 3 above revealed that the health workers did have good wastes management practices than the patients. But it was observed generally that both the health workers and the patients were knowledgeable about healthcare wastes management practices. This negates WHO, (2011) and EPA, (2020) that poor management of health care wastes do expose health care workers, waste handlers, patients and the community at large to injuries, infections, toxic, and dangers of contaminating the environment

- Table 4 above showed that very many of the health workers agreed that all the above items stated were perceived dangers of healthcare wastes as against the very fair numbers of the patients to number 2, 3, 6, and 7. This could be that the patients might not be well educated enough to know the perceived dangers of healthcare wastes. But generally, both the health workers and patients had knowledge about the perceived health dangers of healthcare wastes. This is similar to the statement of Makajic-Nikolic et al (2016), that variations of harmful wastes which due to its pathogenic nature, can result to human health threats such as infectious wastes and may contain several pathogenic micro-organisms.
- Finally, there was a significant difference in the perceived health dangers of healthcare wastes between the patients and health workers in the study areas.

Conclusion

Based on the findings of this study, it was concluded that the patients need to be more knowledgeable about healthcare waste management and perceived health dangers of healthcare wastes.

Recommendations

Based on the findings and conclusion of this study,

- There should be waste bins in all strategic areas in the health facilities by the management.
- Prompt washing of hands should be very essential in the health facilities.
- The Patients should be mandated to empty wastes in the waste bins.
- The final deposition of wastes should be very far away from where people live.
- More cleaners should be employed for effective cleanliness

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