

FACTORS CONTRIBUTING TO POOR HEALTH CARE WASTE MANAGEMENT AMONG HEALTH WORKERS IN DOKOLO, HC IV-A CROSS-SECTIONAL STUDY.

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ABSTRACT

Background

Globally, healthcare waste management poses a major environmental and public health challenge. Moreover, in Uganda, most of these PHC facilities lack proper HCW management facilities. This study, therefore, aims to establish the health facility-related and individual-related factors contributing to poor healthcare waste management among health workers in Dokolo Health Center IV, Dokolo District.

Methodology

A cross-sectional study design and a purposive sampling technique were employed. The collected data was entered into the Excel computer program to generate tables, graphs, and pie charts.

Results

The study findings indicated that most (70%) of the respondents reported that the size of the hospital contributed to poor biomedical waste management and (60%) reported that poorly designed incineration pits were attributable to poor waste management. (65%) however did not receive any training about biomedical waste management, (80%) segregated biomedical waste according to different categories while (70%) reported that biomedical waste management was not an extra burden on their work. (90%) of the respondents reported that they used personal protective gear while handling biomedical waste management.

Conclusion

Lack of appropriate disposal methods that is, poorly designed incineration pits and large quantities of waste versus limited disposal methods were attributing factors to poor biomedical waste management.

Recommendation:

The health workers should always segregate waste at the point of generation and ensure proper use of protective gear.

Keywords: Dokolo Health Center IV, Health care waste, waste management.

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BACKGROUND OF THE STUDY

Globally, the operation of healthcare waste remains a major environmental and public health challenge. Health care waste (HCW) is all waste that is generated in health care installations similar to hospitals, conventions, pharmaceutical manufacturing shops, exploration laboratories, nursing homes, and other settings like homes where there is care for the case (Dzekashu LG, 2017). Still, in low- and middle-income countries (LMICS), the operation of HCW is particularly challenging for illustration, in utmost African countries, there is inadequate knowledge on how to handle HCW among community health workers (CHWS) and other staff working in healthcare settings (Longe EO, 2015).

In Africa, Health Waste Management (HCW) has not received the important- required attention that it deserves. This is because of the shy coffers in this country performing into low precedence for HC Management. In numerous countries, there is limited isolation of dangerous and medical waste, shy knowledge, and wrong operation practices among healthcare workers are major challenges in the operation of HCWs (Solomon Tsebeni, 2019). In developing countries, especially in Sub-Saharan Africa, not only has the field of HCWM generally entered inadequate attention and interest but there is a general deficit of data in this regard (De Lima Moura L, 2018). Some African countries are still agonized by poverty, underfunded health care systems, poor training, and lack of mindfulness of programs and legislations on handling

medical waste have led to increased indecorous running of waste within the hospitals health care installations transportation, and storehouse of medical waste. Some African countries including Botswana Nigeria and Algeria do not have public guidelines in place to cleave to correct disposal of similar destruction (Jade Megan Chisholm.).

In Nigeria, it was set up that perpetration of critical factors at the HCFs was poor, the issues contributing to poor perpetration include lack of mindfulness on the medical waste operation guidelines, lack of enforceable public policy or regulations on medical waste operation, shy finance among others (Timothy Kurannen Baaki, 2017).

In Uganda, the health care waste (HCW) generated in normal had of 92 kg per day in sanitariums while PHC installations (position IV Heath center, position III Health center, position II Health center) induce about 42 kg, 25 kg, and 20 kg independently on diurnal base. In addition, the utmost of these PHC installations warrant proper HCW operation installations (Victoria M, 2014).

METHODOLOGY

Study Design

A descriptive cross-section study was carried out to assess the health-related factors contributing to poor healthcare waste management among Health workers in Dokolo Health Centre IV using both qualitative and quantitative data.

Study Area

The study was conducted in Dokolo Health Centre IV located in Dokolo district in northern Uganda. It is bordered by Lira to the northwest, Alebtong district to the northeast, Kaberamaido district to the east and south, Amolatar district to the southwest, and Apac district from the west, it is approximately 60km (37mi) by road, southeast of Lira, the largest city in the sub-region. It is

230 km by road, north of Kampala the capital and largest city of Uganda. The coordinates of the hospital are 01055'2" N, 33010' 24" E (Latitude: 1.91727; longitude: 33.17326).

It serves over

5,000 people from Dokolo itself and neighboring districts.

Study Population

The study comprised all health workers of Dokolo Health Centre IV to assess the health-related factors contributing to poor healthcare waste management.

Sample Size Determination

The sample size is the number of observations in the sample. The sample size was estimated using the LoBiondo and Heber sample size formula given below, which was employed in the study (Jung, 2014).

$$n = \frac{N}{1+(e)^2}$$

Where; n= is the desired sample

N= is the target population, N=50

e =is the expected error at a standard interval of 99% and e 1%

$$n = \frac{50}{1+50(0.01)^2} = 50 \text{ respondents.}$$

Sampling technique

A convenience sampling method was used where health workers easy to contact or reach were involved in the study.

Sampling Procedure

Convenience sampling method was used where health workers available and easy to reach were involved in the study.

This method involved the sample being drawn from the part of the population that was close to hand. People who are willing and available to participate were used in the study. This method was cheap, easy to conduct and the data needed was readily available.

Data collection method

The data was collected using questionnaires among health workers. This was because they offer a fast, efficient, and inexpensive means of gathering large amounts of information from sizeable sample volumes.

Data Collection Tools

The data was collected using semi-structured questionnaires with both open and closed-ended questions. This tool was used because large amounts of information were collected from a large number of people in a short period and was relatively cost-effective.

Data Collection Procedure

The researcher got the approval letter from the Kampala School of Health Sciences and thereafter was issued with an introductory letter to the Medical Superintendent of Dokolo Health Centre. The researcher introduced himself to the health workers at Dokolo Health Centre IV a consent form was issued to the participants for data collection. Questionnaires were used to obtain data during the study.

Study variables

Independent variables

Health-related factors contribute to poor healthcare waste management.

Dependent variable

Poor health care waste management among the health workers.

Quality Control

The forms were checked for completeness before the respondent level to ensure appropriate answers. The questionnaire was pre-tested and administered to 10 respondents in Dokolo Health Centre IV and adjustments were made appropriately based on their responses.

Page | 3 The data collected was designed appropriately to ensure that it was of quality for example; questionnaires were structured with non-ambiguous and well-spaced questions to avoid congestion and provide tidy work.

Inclusion and Exclusion Criteria

Inclusion Criteria

All health workers of Dokolo Health Centre IV who consented were included in the study.

Exclusion Criteria

No health workers of Dokolo Health IV absent, and who did not consent to the study were included.

Data Analysis and presentation

Data was collected and entered into Microsoft Office Excel. Data was presented in the form of frequencies and percentages and illustrated using frequency tables, pie charts, and bar graphs.

Ethical Considerations

The research committee of the school approved the proposal and an introductory letter was obtained from the school that introduced the researcher to the medical superintendent (MS) of Dokolo Health Centre IV. Permission to collect data was obtained from the MS Dokolo Health Centre IV.

A written informed consent was obtained from respondents who consented.

To ensure anonymity, the names of the respondents were not stated in any data collection either.

RESULTS

Demographic data

Table 1: Shows the distribution of respondents according to their demographic features, N=50

Variables	Frequency(n)	Percentage (%)
Age		
20-29	14	28
30-39	22	44
40-49	8	16
50 and above	6	12
Total	50	100
Sex		
Female	32	64
Males	18	36
Total	50	100
Marital status		
Married	13	26
Single	19	38
Widowed	12	24
Divorced/separated	6	12
Total	50	100
Profession		
Nurse	22	44
Clinical officer/doctor	9	18
Midwife	16	32
Pharmacist/Pharmacy	3	6 technician
Total	50	100

From Table 1, most (44%) of the respondents were aged between 30-39 whereas the least (12%) were aged 50 and above. About sex, the majority (64%) of the respondents

were females whereas the minority (36%) were males. Furthermore, based on marital status, most (38%) of the respondents were single whereas the least (12%) were

Divorced/separated. In conclusion, based on profession, most, (44%) of the respondents were nurses whereas the least (6%) were pharmacists/pharmacy technicians.

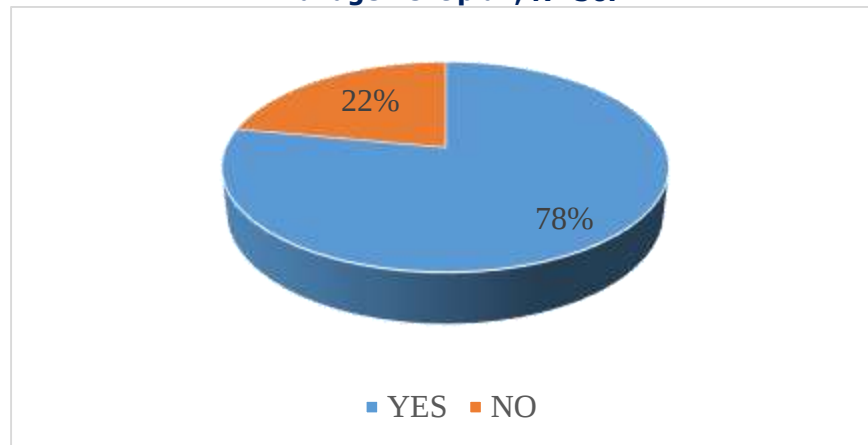
Health facility factors contributing to poor healthcare waste management among health workers

Table 2: Shows the distribution of respondents according to whether there were different types of waste generated, N=50.

Response	Frequency	Percentages (%)
Yes	50	100
No	0	0
Total	50	100

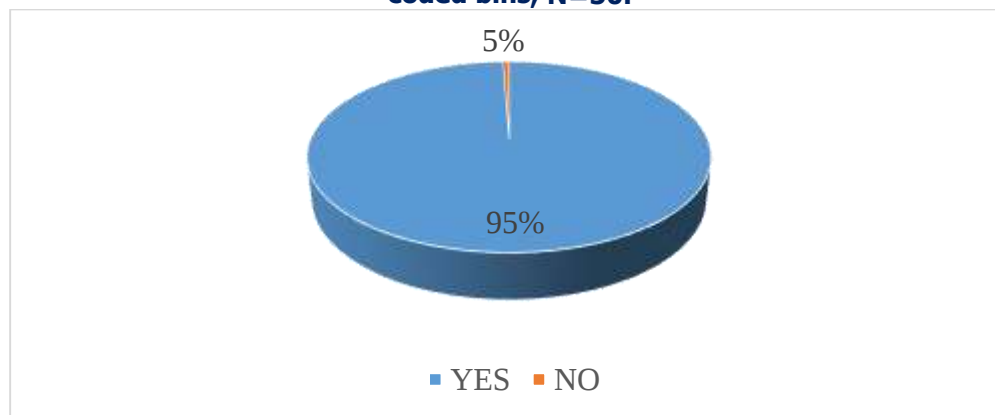
Regarding whether there were different types of waste generated from Table 2 above, all 50(100%) of the respondents reported that there were different types of waste generated.

Figure 1: Shows the distribution of respondents according to the biomedical waste management plan, N=50.



From Figure 1, the majority (78%) of the respondents agreed that the hospital has a biomedical waste management plan whereas the minority (22%) disagreed.

Figure 2: Shows the distribution of respondents according to whether the hospital has color-coded bins, N=50.



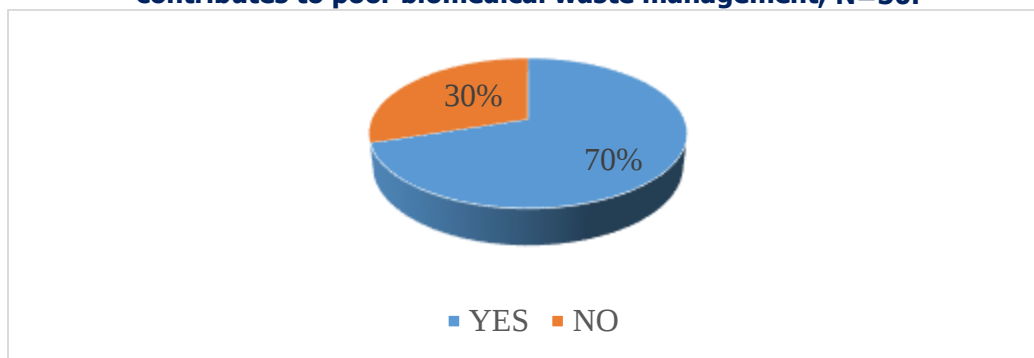
From Figure 2, the majority (95%) of the respondents agreed that the hospital has color-coded bins while the minority (5%) disagreed.

Table 3: Shows the distribution of respondents according to the method of disposal used, N=50.

Response	Frequency (n)	Percentage (%)
Incineration pits	30	60
Landfills	7	14
Pits	10	20
Others	3	6
Total	50	100

From Table 3, the majority (60%) of the respondents said that the incineration pits were the methods of disposal used while the minority (6%) said that other methods of disposal were used.

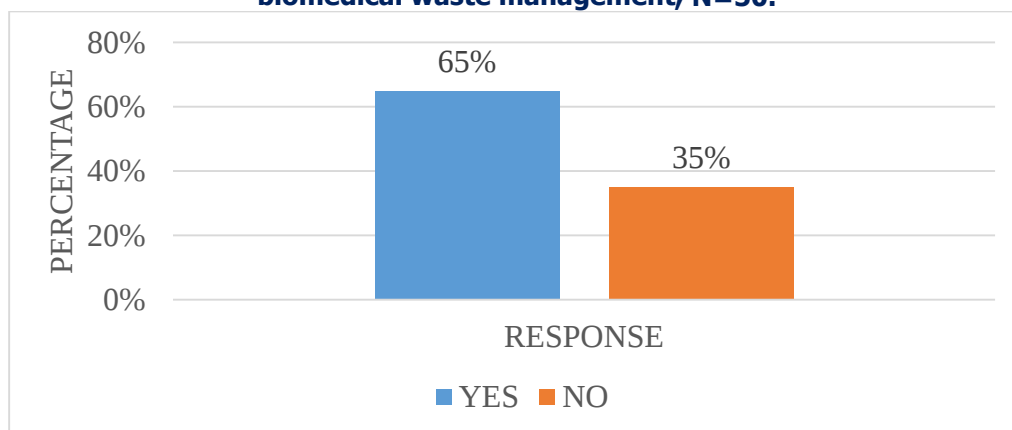
Figure 3: shows the distribution of the respondents according to if the size of the hospital contributes to poor biomedical waste management, N=50.



From Figure 3 above, the majority (70%) of the respondents agreed that the size of the hospital contributed to poor biomedical waste management while the minority (30%) disagreed.

Individual factors contribute to poor healthcare waste management among health workers.

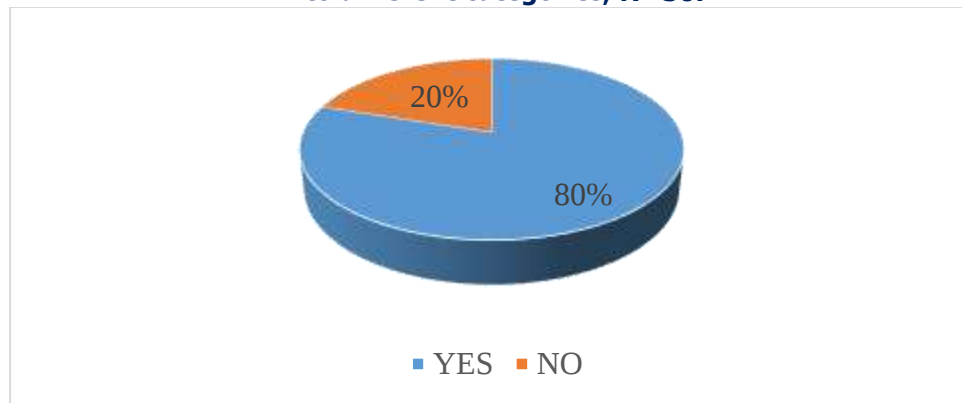
Figure 1: Shows the distribution of respondents according to training received about biomedical waste management, N=50.



From Figure 1 above, the majority (65%) of the respondents agreed that they did not receive training about biomedical waste management while the minority (35%) agreed that, they received training about biomedical waste management.

Figure 2: Shows the distribution of respondents according to biomedical waste segregation into different categories, N=50.

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From Figure 2, the majority (80%) of the respondents agreed that they segregated. Biomedical waste according to different categories while a minority (20%) disagreed.

Table 2: Shows the distribution of respondents according to the use of personal protective gear when disposing of biomedical waste, N=50.

Response	Frequency (n)	Percentages (%)
Yes	45	90
No	5	10
Total	50	100

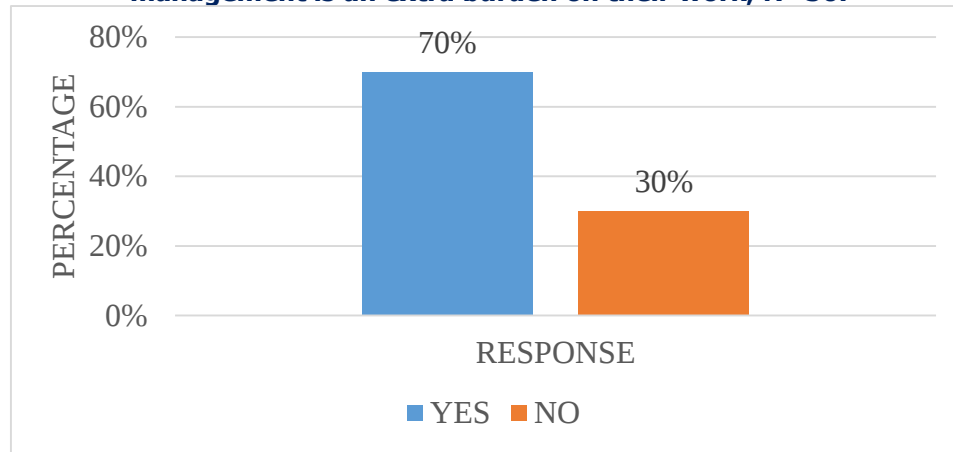
From Table 2, the majority (90%) of the respondents reported that they used personal protective gear when handling biomedical waste while the minority (10%) did not use personal protective gear.

Table 3 shows the distribution of the respondents according to personal protective gear used when handling biomedical waste, N=50.

Personal protective	Frequency (n)	Percentage (%)
Gloves	20	40
Apron	6	12
Masks	10	20
Boots	12	24
Others	2	2
Total	50	100

From Table 3, most (40%) of the respondents, said that they use gloves whereas the least (2%) of the respondents said that they use aprons.

Figure 3: Shows the distribution of respondents according to whether biomedical waste management is an extra burden on their work, N=50.



From Figure 3, the majority (70%) of the respondents agreed that biomedical waste management was not an extra burden on their work whereas a minority (30%) of the respondents agreed that biomedical waste was a burden on their work.

DISCUSSION

Health factors contribute to poor healthcare waste management among health workers.

The current study findings revealed that most (60%) of the respondents reported that the hospital has no well-designed incinerator pit site for waste disposal. This implies that the hospital has no appropriate waste disposable site. These findings were in agreement with the qualitative cross-section study conducted in 30 of 52 health facilities in Kumbo East and Kumbo West health districts, which revealed that in 86.7% of the health facilities, waste disposal was by burning in pits located within 400m away from the facility (Gillian Dzekashu Lanyuy, 2017).

The majority (70%) of the respondents reported that the size of the hospital contributed to poor biomedical waste management. This implies that a large quantity of waste is generated yet disposal methods like incineration, pit burning, and landfills are not practically done well hence compliance and adherence to proper waste management becomes a major obstacle. These findings correlate with a cross-section study carried out on factors influencing adherence to proper healthcare waste management practices among health workers in Wakiso district, Uganda, which showed that most health facilities have 10 to 25 healthcare waste handlers, (85.6%) while a very negligible proportion, (0.75%) of them have more than 45 HCW handlers. These findings revealed that 10.5% of the health workers adhered to proper health care waste management practices and the most influential health facility factors included the level of health facility, provision of personal protective equipment,

and availability of staff and waste handlers to handle (Josephine Babirye., 2020).

Individual factors contribute to poor healthcare waste management among health workers.

The study findings reported that the majority (65%) of the respondents had not received any training in biomedical waste management. This implies that the hospital does not allocate enough funds for waste management training. These study findings were in agreement with the study conducted on 235 waste collectors that showed that the majority of them do not have enough knowledge of the job they are doing which are the potential health hazards associated with health care waste. The absence of appropriate training before employment might have resulted in improper waste management practices and put waste handlers at a high health risk. Though 53.7% of the waste collectors knew the availability of laws regarding waste management, it was however observed that no manuals and guidelines were found in the health facilities involved (T Alemayehu, 2016).

The majority (90%) of the respondents reported that they use personal protective gear when disposing of biomedical waste. This implies that the hospital provides enough personal protective gear. This study is not in agreement with the study conducted in Debre Markos town health care facilities, which revealed that the majority (69.1%) of the study participants were not provided with proper training. There was a lack of PPE and waste management equipment supply. There was a high prevalence of needle sticks and sharp injuries (30.9%) (Teshiwa Deress, 2019).

CONCLUSION

Generally based on health facility factors contributing to poor healthcare waste management among health workers, all the respondents (100%) knew different types of waste generated by the hospital. The majority (78%) of them were also aware of the hospital having a biomedical waste management plan. And 60% of the respondents reported that the hospital uses incineration pits as a method of disposing of waste.

Concerning the individual factors contributing to poor healthcare waste management among health workers, the majority (65%) of the respondents have ever received training about biomedical waste management, and most (80%) of them segregate waste according to different categories as required in various color-coded bins. In addition, the majority (90%) of the respondents use PPEs when handling medical waste.

Study limitation and solution

The research study was a lengthy process yet the research had limited time. This was solved by having a research assistant who is experienced in the sector. The researcher planned according to the available resources. Some respondents hesitated giving out data when asked and this was solved by getting full informed consent where the benefits and risks of participating in the research were addressed.

RECOMMENDATION

The government and other stakeholders should ensure that the health workers receive training on how to manage wastes of any form and supplies to be used should be readily available and should be taught on how to use them.

The health workers should always segregate waste at the point of generation and ensure proper use of protective gear.

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LIST OF ABBREVIATIONS

BMWM: Bio-Medical Waste Management
HCF: Health Care Facility
HCW: Health Care Waste
HCWH: Health Care Waste Handlers
HCWM: Health Care Waste Management
MS: Medical Superintendent
MWM: Medical Waste Management
WHO: World Health Organization
PPE: Personal Protective Equipment

SOURCE OF FUNDING

The study was not funded.

CONFLICT OF INTEREST

No conflict of interest has been declared.

AUTHOR CONTRIBUTIONS

OI -Study developer, Data analyzer.
MP-Supervisor.

DATA AVAILABILITY

Data is available upon request.

INFORMED CONSENT

A written informed consent was obtained from respondents who consented.

AUTHOR BIOGRAPHY

Ivan Ogwang is a student pursuing a Diploma in Pharmacy at Kampala School of Health Sciences. He is blessed to have Mrs. Sarah Oboe and Mr. Obote Moses, his beloved parents. Mr. Prosper Mubangizi, his supervisor is a tutor at Kampala School of Health Sciences.

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