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Original article

FACTORS CONTRIBUTING TO POOR INFECTION PREVENTION AMONG HEALTH WORKERS IN NDEJJE HEALTH CENTER IV, WAKISO DISTRICT. A DESCRIPTIVE CROSS-SECTIONAL STUDY.

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Abstract

Background:

The purpose of the study was to find out the factors contributing to poor infection prevention among health workers at Ndejje Health Centre IV, Wakiso District.

The objective of the study was to determine the factors contributing to poor infection prevention among health workers at Ndejje health center in Wakiso district.

Methodology:

This study adopted a cross-sectional study design with a simple random technique as a sampling technique on a sample of 75 respondents 50 were health workers and 25 were patients. Data were collected using questionnaires; data was later analyzed manually systematically by compiling it inform of percentages using micro soft Excel computer program to generate bar graphs, tables, and pie-charts.

Results:

Findings in health workers-related factors contributing to poor infection prevention were compliance with hand hygiene at 36%, safe infection prevention practices at 36%, attending in-service training on infection prevention bimonthly at 40%, and yearly was 18%.

Findings from health-related factors contributing to poor infection prevention were manual cleaning with washer disinfectors 36%, sterilized equipment's 40%, enough safety boxes and waste bins for sharps and waste disposal 40

Conclusion.

Poor compliance to hand hygiene, limited use of personal protective equipment like masks, manual cleaning with fewer washer disinfectants, lack of enough safety boxes and waste bins for disposing of sharps and wastes, limited sterilized equipment, health workers not teaching patient about infection prevention practices are the major factors contributing to poor infection prevention among health workers at Ndejje health center iv, wakes District.

Recommendation.

The government of Uganda through the Ministry of Health should make sure that sterilized equipment, and personal protective equipment.

Keywords: Infection prevention, hand hygiene, personal protective equipment, Submitted: 2023-07-07 Accepted: 2023-07-22

1. Background

According to the CDC, HAIs are defined as infections localized or systemic conditions resulting from adverse reactions to the presence of infectious agents or toxins acquired from healthcare settings (*Glossary of Terms - Healthcare Associated Infection - Division of Disease Surveillance - Maine CDC: DHHS Maine*, n.d.) that was not incubating or symptomatic at the time of admission to the health facility.

Infections acquired in healthcare facilities are a major public health concern, contributing to increased morbidity, mortality, and cost in both developed and developing countries. (Binyam Sahiledengle, 2018). Infection control and prevention play a key role in preventing and reducing the rate of healthcare-associated infection/hospital-acquired infection (HAIs). HAIs are the most frequent adverse events in health care worldwide and can occur as part of an endemic or epidemic situation. It is that estimated 10% of patients in developed countries and 25% in developing countries develop HAIs which subsequently results in adverse healthcare outcomes such as increasing hospital stays, economic burden, significant morbidity, and mortality (M Desta et al 2018). According to the WHO, of every 100 hospitalized patients, 10 in developing countries and 7 in developed countries will acquire at least one HAI. The CDC also estimates that 2 million patients suffer from HAI every year and nearly 100000 of them die in the US. In the USA prevalence of HAI in acute care hospital settings is one in 24 hospitalized patients develop HAI with high rates for pneumonia, surgical site infections (SSI), and gastrointestinal. In Europe, the prevalence of HAI is 6.5%, and pneumonia and other lower respiratory infections, UTI, and SSI are the most common HAI in acute care hospitals. Even though the proportion of HAIs is much higher in sub-Sahara Africa (18.9% in Mali, 14.8 in Tanzania, 9.8% in Algeria, and 14.90% in Ethiopia) majority of healthcare knowledge and adherence towards infection prevention strategies are still very low (Desta et al 2018) (Kibreab F Tesfai, 2020) This high proportion of surgical site infection is also seen in studies conducted in Ethiopia with the prevalence ranging from 11.4 to 52.1 % (Biniyam Sahiledengle Geberemariyam, 2018). The high burden of HAIs in Uganda as well as in many developing countries has been reported to be higher because of a large number of patients, the limited number of staff, and insufficient compliance with infection control and prevention measures. Strict adherence to infection prevention protocol is critical to avoid the spread of infections among hospitalized patients and is fundamental to quality of care. Infection prevention programs including campaigns to improve hand hygiene are effective in reducing HAIs. (Indar K Murn, 2015).

1.1. Objective

To determine the factors contributing to poor infection prevention among health workers in Ndejje health center iv wakes district

1.2. Specific objectives

- To determine the health worker-related factors contributing to poor infection prevention among health workers in Ndejje health center iv, Wakiso district.
- To determine the health facility-related factors contributing to poor infection prevention among health workers in Ndejje health center iv, Wakiso district.
- To determine the patient factors contributing to poor infection prevention among health workers in Ndejje health center iv, Wakiso district.

2. RESEARCH METHODOLOGY

2.1. Study Design

The study utilized a cross-sectional descriptive study design that established the health workers-related factors, patient-related factors, and health facility-related factors as the variables in the study. The design employed a quantitative research method whereby questionnaires were used to collect data.

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2.2. Study Area

The study was conducted at Ndejje health center IV within Wakiso District, Central Uganda from January 2023 to March 2023. The hospital is located in Ndejje town, in Wakiso District, 10.4 kilometers from Kampala city. The hospital is funded by the government and offers maternity, laboratory, pharmacy, medical, surgery, pediatrics, special clinics (ENT, Dental, and psychiatry) HIV Counseling, and in-patient services.

2.3. Study Population.

The study targeted all health workers who work at Ndejje health center IV and patients who attended that facility during the time of study and focus on the Factors contributing to poor infection prevention among them at the health facility.

2.4. Sample Size Determination

The sample size was determined using the formula by Kish and Leslie (1988).

Whereby;

N = sample size needed

Z = standard deviation 1.96

P = Rate of occurrence of challenges faced by hypertensive patients assumed to be 50% because it is unknown

Q = 1 - P

d = Acceptable error 10% Therefore N= 1.962X 0.5 X 0.5

0.12

N = 96

The sample size is meant to be 94 but due to time financial and time constraints, 75 respondents were used.50 Health workers and 25 patients.

2.5. Sampling design

A convenient sampling technique was used to select the study population. This is because all health workers and patients were eligible to participate in the study. Only health workers and patients who were selected and willing to participate in the study were interviewed.

2.6. Sampling procedure

Convenient sampling was done by using health workers that were available and willing to participate and available patients. Health workers and patients were asked to take part in the research.

2.7. Data collection methods

The questionnaires were about Factors contributing to poor infection prevention among health workers in Ndejje health center Iv Hospital within Wakiso District. The questionnaires were provided to each respondent individually and in a private space to ensure privacy and confidentiality. Questions were translated to the respondent in the language they understand for a more accurate answer.

2.7.1. Data Collection Tool

Questionnaires will be used to collect data from health workers and patients.

2.7.2. Data Collection Procedure

I obtained a letter of introduction from the research committee of Kampala School of health sciences, after I got the acceptance letter from the medical superintendent and got consent from the respondents, gave clear instructions, and guided the respondents on how to answer the questions with in the questionnaire.

2.8. Piloting the study

The same scenario about the study topic was set at school where students were first briefed about the study and later given a questionnaire, time.

2.9. Inclusion and Exclusion Criteria

2.9.1. Inclusion criteria

All health workers on duty and patients willing to consent were included in the study.

2.9.2. Exclusion criteria

This study excluded health workers who were not willing to participate, those in critical conditions, and those not mentally sound.

2.10. Data quality and control

2.10.1. Validity

To ensure that the results of the study were valid, a pre-test was done after which appropriate corrective measures were addressed on the research tool. Irrelevant/ ambiguous questions were dropped from the list and reframing was done to capture relevant information.

2.10.2. Reliability

To ensure that there was consistency of the data, research assistants passed through a comprehensive training where they were given a brief enlightenment on infection prevention after which they went through the data collection tool.

2.11. Data processing

Collected data was passed through a cleaning and coding process before analysis. The process involved field editing of the questionnaires. After data collection, data coding was done, and all answers were assigned with codes before entering them into the computer using SPSS vs.21. Data cleaning was then done to eliminate errors and inconsistencies that could occur during data entry.

2.12. Data Analysis.

Data was analysed using Statistical Package for Social (SPSS) version 21. Descriptive statistics such as percentages, frequencies and mean were used to describe data. For the qualitative portion of the study, data that was collected from the formant was analysed to thematic content. Descriptive data then was presented in tables, graphs, and charts.

2.13. Study Ethics

The Proposal was presented to the school research committee for approval before beginning the study. Permission was got from the in-charge Ndejje health center IV within Wakiso District for carrying out the study. The study was carried out by existing ethical guidelines. Informed consent was got from every health worker and patient before the questionnaire was administered. Confidentiality was held at all costs; no information was divulged to any other researchers. All the information that was obtained from the study was treated with almost confidentiality and was used only for the intended purpose. The study was not harmful to the health workers and patients in any way.

3. RESULTS

3.1. Socio-demographic data of respondents

It was necessary for the researcher to first determine the characteristics of the respondents in aspects of age, sex, marital status, tribe, education level, religion as from question 1-6 of the questionnaire.

Source: field data, 2023

Age of respondents.

Majority (30%) of the respondents was in age group 20-25, followed by (20%) of respondents 26-30 and 31-35, well as the least (6%) were of age group 46-50.

Marital Status of Respondents

Majority of the respondents (50%) were single. These were followed by (40%) whom were married whereas the least (10%) were divorced.

Tribe of Respondents.

Majority (40%) of the respondents were Baganda, (20%) were Banyankole, and Basoga Whereas the least (10%) were Batooro and others.

Education Level of Respondents

Majority (50%) of the respondents were of diploma level, (30%) of the respondents were of certificate level and (20%) were of bachelor level.

Religion of Respondents

Majority (40%) of the respondents were born agains, (30%) were Catholics, (20%) were muslins Others were (6%) and the least (4%) were Adventists.

3.2. Health workers related factors contributing to poor infection prevention among health workers.

Mostofrespondentswith64%donot usuallywashhandswhereas36%washhands.

From figure 2 most (40%) of the respondents attend bi-monthly, (20%) every 3 months, (18%) for

Table 1: **Socio-demographic data of respondents** N=50

	Age group	Frequency	Percentage (%)
AGE	20-25	15	30
	26-30	10	20
	31-35	10	20
	36-40	5	10
	41-45	7	14
	46-50	3	6
	Total	50	100
MARITAL STATUS	Single	25	50
	Married	20	40
	Divorced	5	10
	Total	50	100
TRIBE	Muganda	20	40
	Musoga	10	20
	Mutooro	5	10
	Munyankole	10	20
	Others	5	10
	Total	50	100
EDUCATION LEVEL	Certificate	15	30
	Diploma	25	50
	Bachelors	10	20
	Total	50	100
RELIGION	Born again	20	40
	Catholic	15	30
	Muslim	10	20
	Seventh day Adventist	2	4
	Others	3	6
	Total	50	100

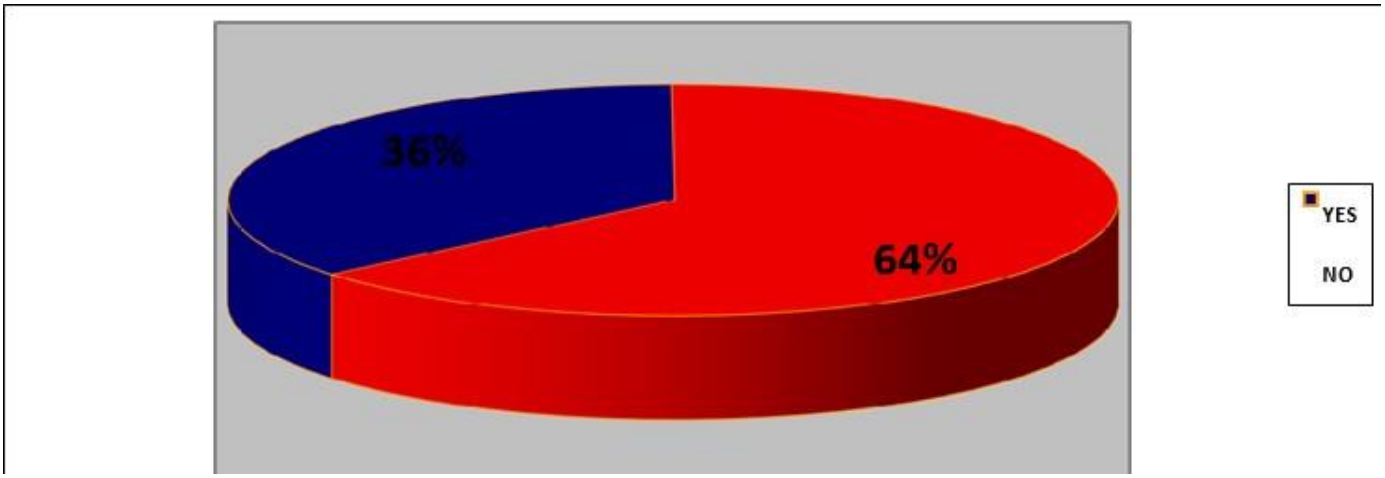

Figure 1: **Shows respondents who wash hands after performing any activity** N=50

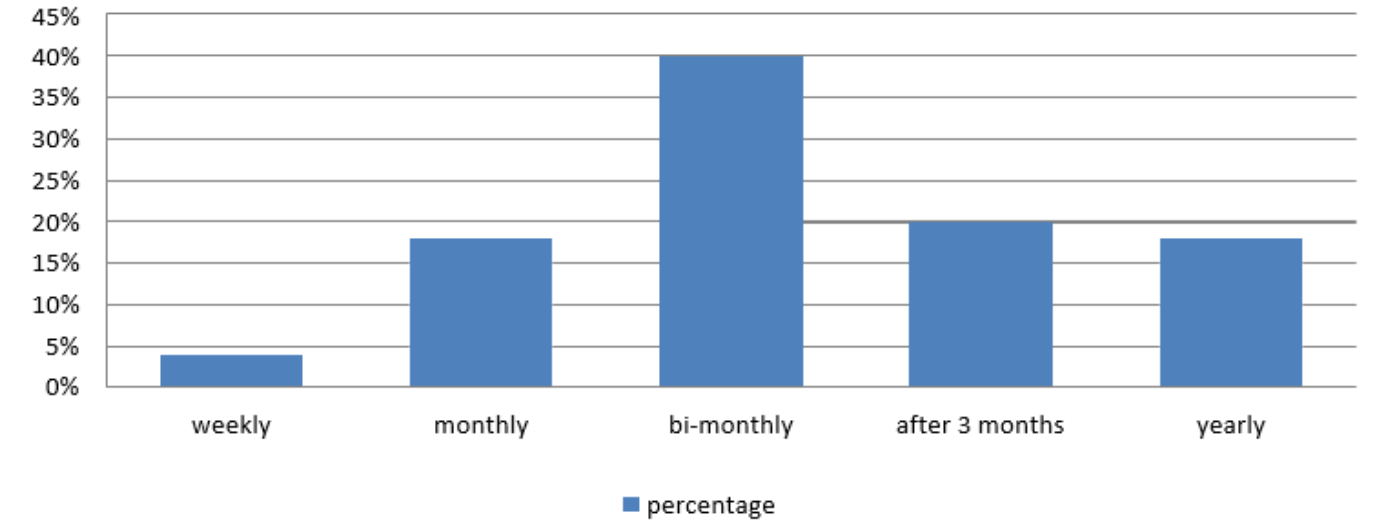

Figure 2: **Shows how often health workers attend in service training on infection prevention.** N=50

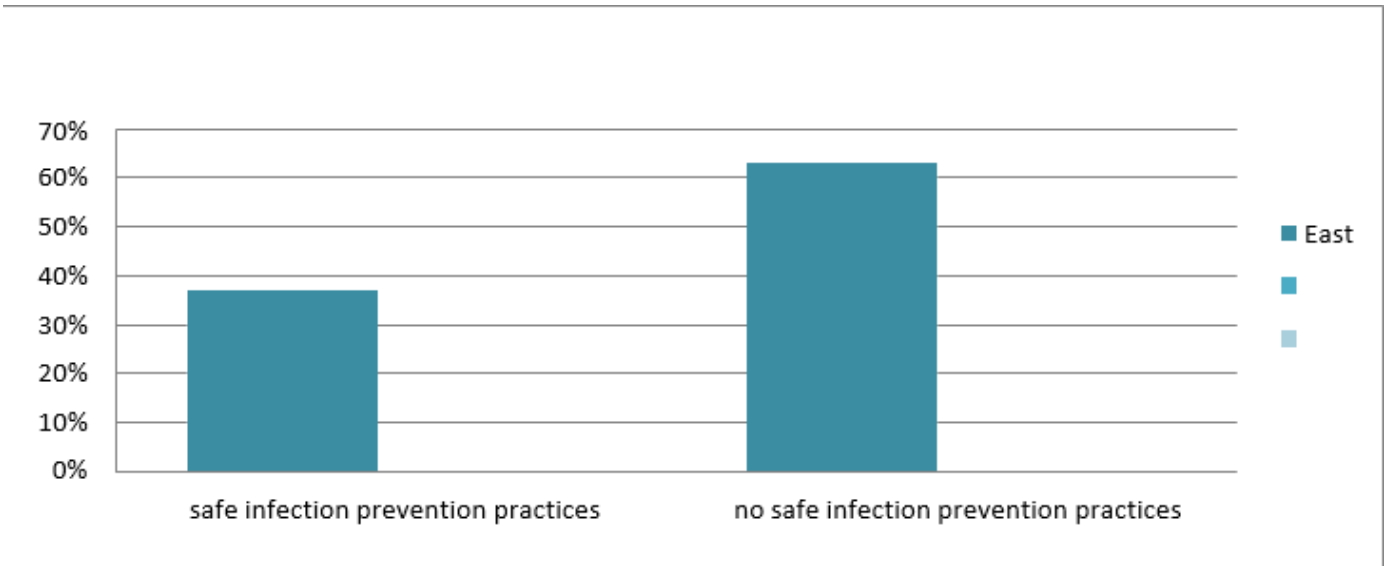

Figure 3: **Shows distribution of safe infection prevention practices among health workers.** N=50

both monthly and yearly whereas the least (4%) were those who attended weekly.

From figure 3, most of respondents 63% had no safe infection prevention practices whereas 37% had safe infection prevention practices.

From table 2, most (30%) of the respondents chose flue and cough infections as the mostly acquired infection, whereas the least (20%) cystitis and Urethritis.

From figure 4, majority (60%) of respondents were knowledgeable about infection prevention practices whereas 40% were not.

Patients related factors contributing to poor infection prevention among health workers at Ndejje health center iv wakiso district.

From figure 5, most (36%) of the respondents were unemployed whereas the least (16%) were students and part timer

In table 3, most of respondents usually do not wash hands with percentage of 96% before and

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Table 2: **Shows distribution mostly acquired infections at health facility.** N=50

VARIABLES	FREQUENCY	PERCENTAGE
Flue	15	30%
Cough	15	30%
Cystitis	10	20%
Urethritis	10	20%
Total	50	100%

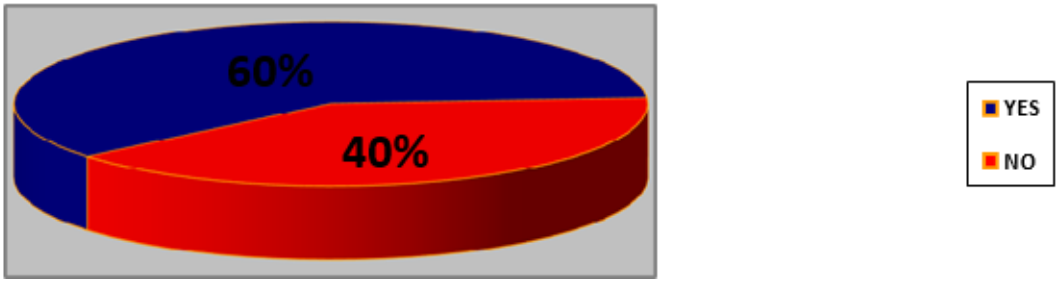

Figure 4: **Shows distribution of whether health workers who were knowledgeable about infection prevention.** N=50

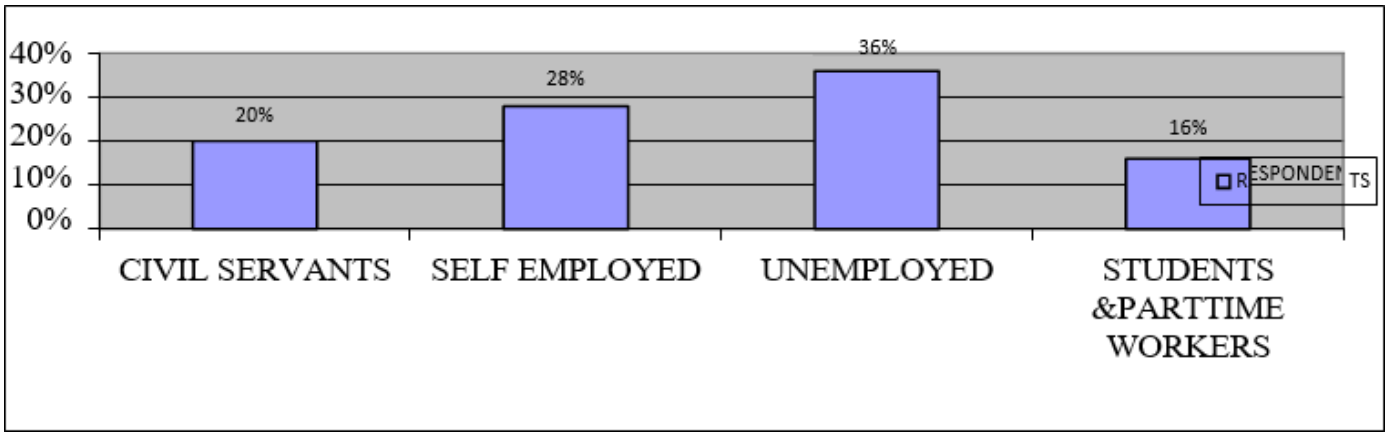

Figure 5: **Shows distribution of respondents according to their occupation.**N=25

Table 3: S**hows distribution on how respondents often wash hands as infection prevention measures.** N=25

How do you wash hands	Always	Never
On arrival at health facility	20%	80%
Before patient to patient hand sake	4%	96%
After patient to patient handshake	4%	96%
After contact with dirty equipment	80%	20%
After visiting toilet	88%	12%

after patient hand shake, 80% do not wash hands on arrival at facility a few wash hands with 4%.

From figure 6, majority (72%) of the respondents knew that they can acquire or transmit infection whereas the least (28%) of the respondents did not.

From figure 7 the majority (80%) do not wear personal protective equipments like gloves whereas the least (20%) use PPEs.

From figure 8 the majority (82%) had never been taught infection prevention methods by health workers while the least 18% had been taught

From table 4, most of respondents with (28%) were born again Christians whereas the least (12%) were Muslims and protestants.

3.3. Health facility related factors contributing poor infection prevention among health workers.

From figure 9, majority (60%) of the respondents say that safety boxes and waste bins are not enough whereas the least (40%) say that they are enough.

From figure 10, majority (61%) of respondents found that the health facility was lacking basic infection prevention control practices while the least (39%) say that infection prevention practices are enough

From figure 11, more than half (64%) say that manual cleaning is not done with water disinfectors whereas least (36%) of the respondents sometimes use washer disinfectants.

From figure 12, majority (70) of respondents found that the health facility was lacking sterilized personal protective equipment while the least (30%) say that sterilized.

4. Discussion

Health workers related factors contributing to poor infection prevention among health workers at Ndejje health center iv.

The study results showed that very few (36%) of the respondents comply with hand hygiene. According to the researcher, there is still a gap because the biggest percentage of respondents (64%) do not comply with proper hand hygiene. This is in line with Nicole 2020, whose respondents showed a level of compliance with hand hygiene of only 6.9%. This could be due to fewer running water points at facilities.

The study results showed that only (37%) of the respondents practiced safe infection prevention practices. The biggest percentage of 63% had poor and unsafe infection prevention practices. This agrees with Donka, 2018, whose results showed that 36.3% practiced safe infection prevention practices. This could be due to less training on infection prevention.

The study results showed that almost half of respondents (40%) were less knowledgeable about infection prevention. This is almost in line with Donka 2018 whose respondents 53.7% were knowledgeable about infection prevention. This could be due to fewer years of experience.

Health facility-related factors contributing to poor infection prevention among health workers at Ndejje health center iv Wakiso District.

The study results on the availability of basic infection prevention control practices at the facility showed that only 30% of respondents agree while the biggest percentage of 70% shows that basic IPC practices are limited. This is in line with Omika Katoch, 2022 who shows that there are only 13% of basic IPC practices.

The study also shows that most cleaning method is manual and only 36% use washer disinfectors for cleaning. This agrees with Jeanne Oosthuysen, 2014 with a small percentage of 23% using washer disinfectants in the cleaning process. This could be due to fewer washer disinfectants at the facility.

The study also showed enough sterilized equipment was lacking in the facility. Only 40% was available. This agrees with Priya, 2020 who showed that most of the hospitals were lacking sterilized equipment.

Patients related factors contributing to poor infection prevention among health workers at Ndejje health center in Wakiso District.

The study showed that there is poor compliance with washing hands. Most of the respondents 96% do not wash their hands before and after the pa-

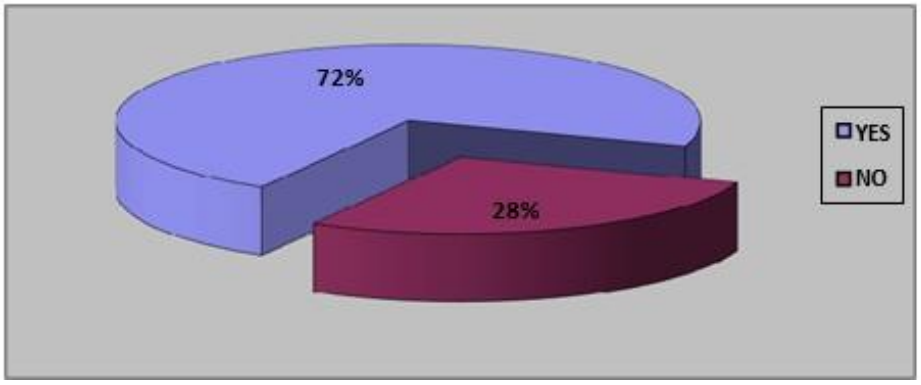

Figure 6: **Shows distribution of respondents on whether they know that they can acquire infections from hospital.** N=25

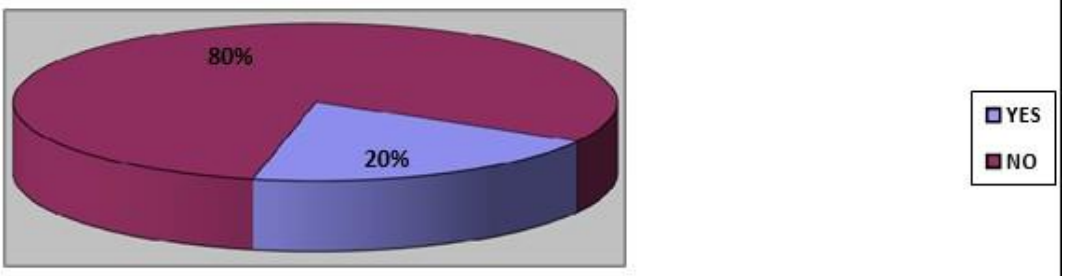

Figure 7: **Shows whether the respondents who wear personal protective equipments like masks.** N=25

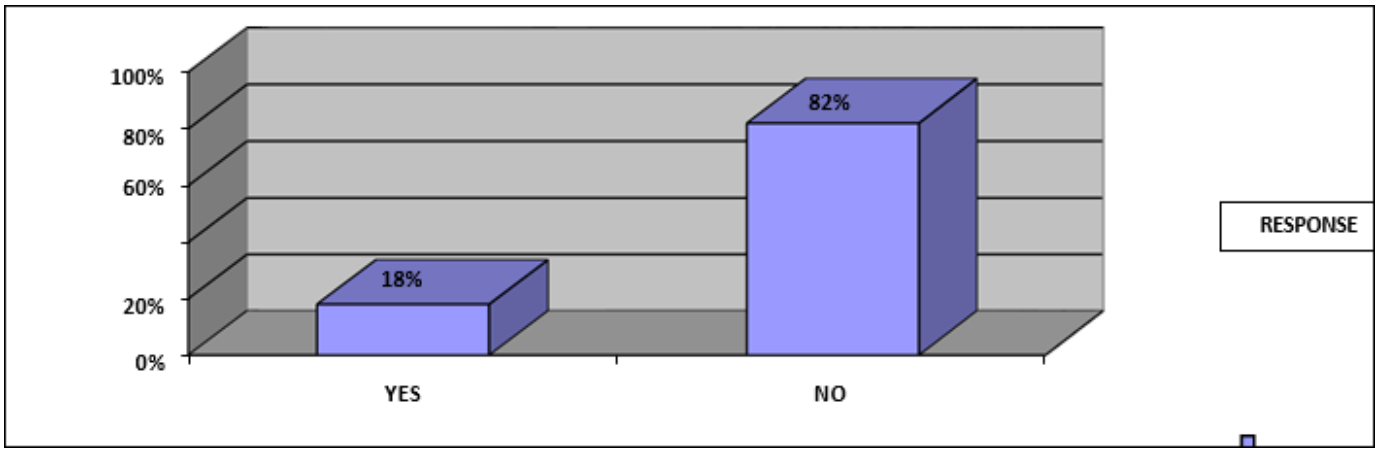

Figure 8: Shows distribution of respondents that have been taught some of infection prevention measures by health workers.N=25

Table 4: **Shows distribution of respondents by religion.** N=25

VARIABLES	FREQUENCY(N)	PERCENTAGE
Catholics	6	24%
Protestants	3	12%
Moslem	3	12%
Orthodox	0	0%
Seventh day Adventists	6	24%
Born again Christians	7	28%
TOTAL	25	100%

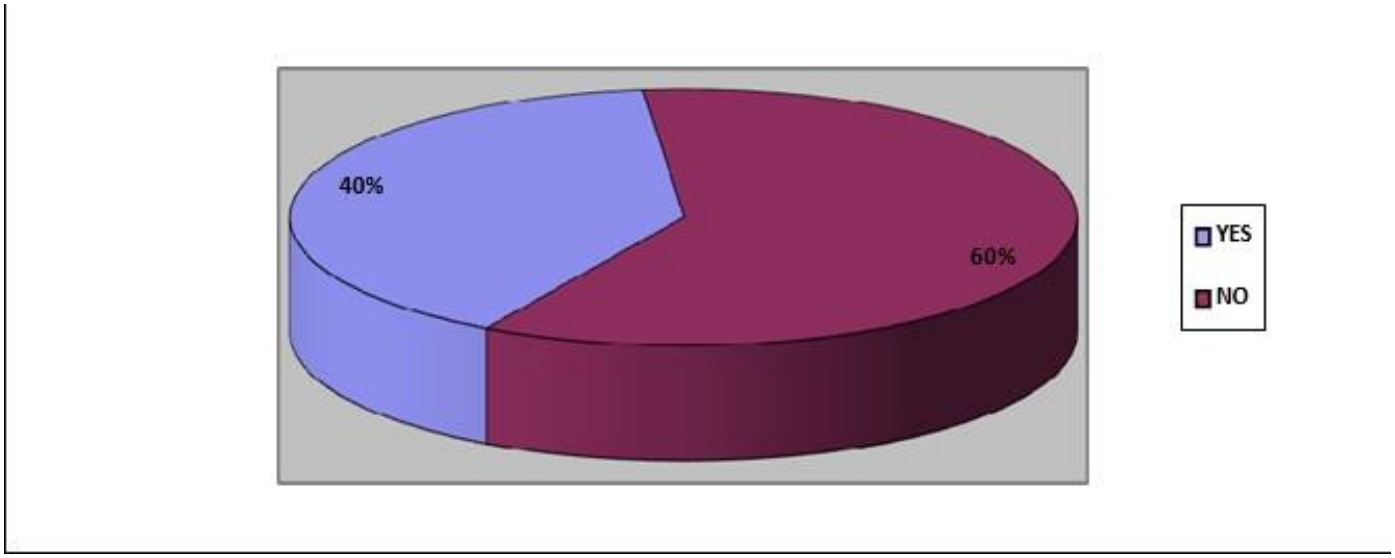

Figure 9: **Shows distribution on enough safety boxes and waste bins for disposing sharps and other wastes respectively.**N=50

tient's handshake, and only 4% wash their hands after and before the patient's handshake. 20% wash their hands-on arrival at the facility whereas 80% do not wash their hands-on arrival at the facility. This is in line E.Tartari, 2017who showed that only 38.7% wash their hands in general and the biggest percentage do not wash their hands. This may be due to less information about the importance of hand washing as the best way of infection prevention.

The study also that only 20% were observed wearing face masks, and the biggest percentage was not wearing face masks. This agrees with Han, 2019 who observed only 1.8% of general wards wearing face masks. This may be due to a lack of strict rules on wearing masks.

5. Conclusion.

From the study findings the following conclusions were made by the researcher:

Regarding health workers' related factors, poor compliance with hand hygiene (64%), safe infection prevention practices among health workers (36.3%), and lack of knowledge about infection prevention (40%).

The health facility-related factors contributing to poor infection prevention were, lack of basic infection prevention practices at health facilities (70%), use of cleaning washer disinfectants (36%), lack of sterilized equipment (60%), lack of enough safety boxes and waste bins (60%).

The patients-related factors contributing to poor infection prevention among health workers included: poor compliance to hand hygiene(80%)

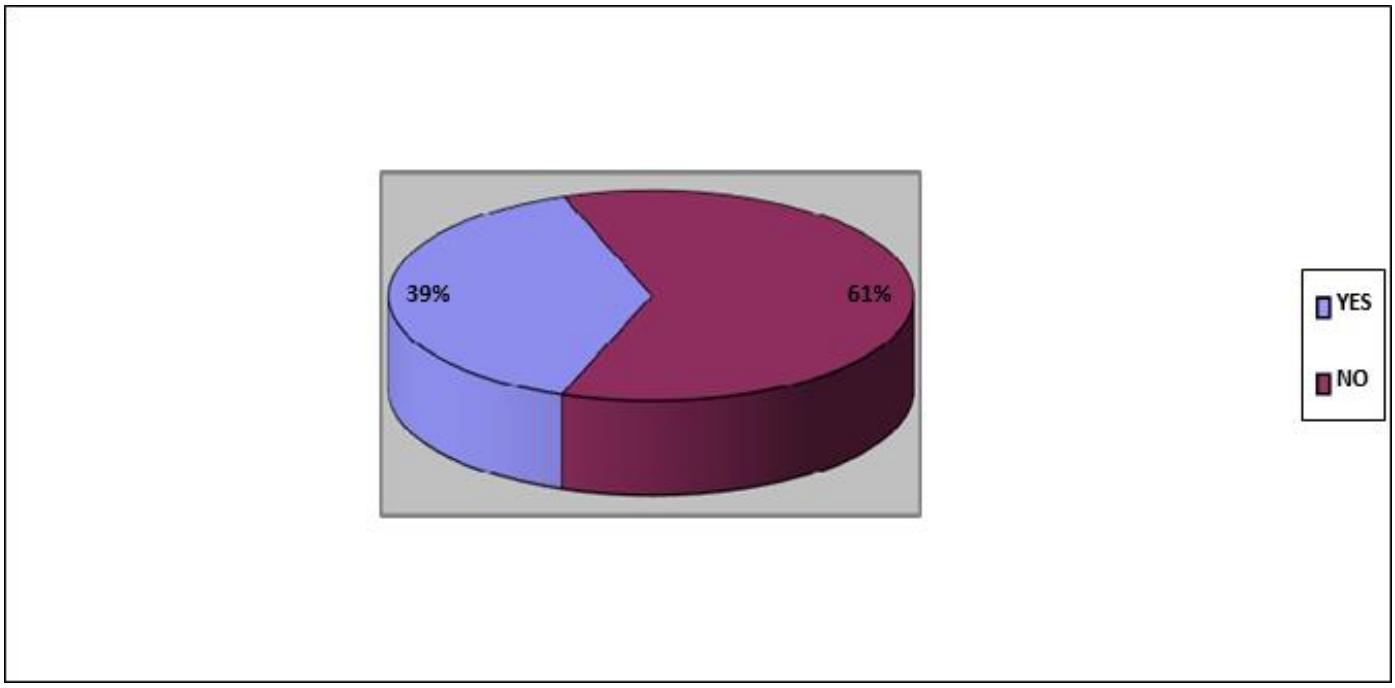

Figure 10: **Shows the availability of basic infection prevention control practices.** N=50

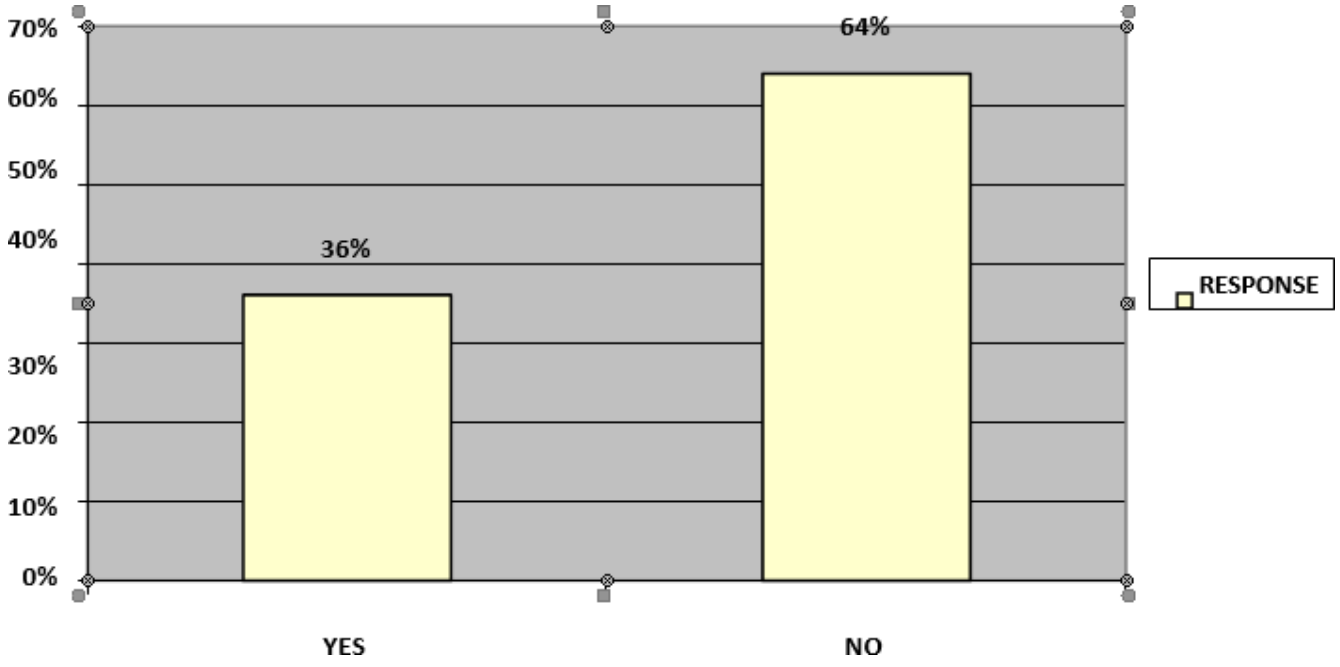

Figure 11: **Shows manual cleaning with washer disinfectors.**

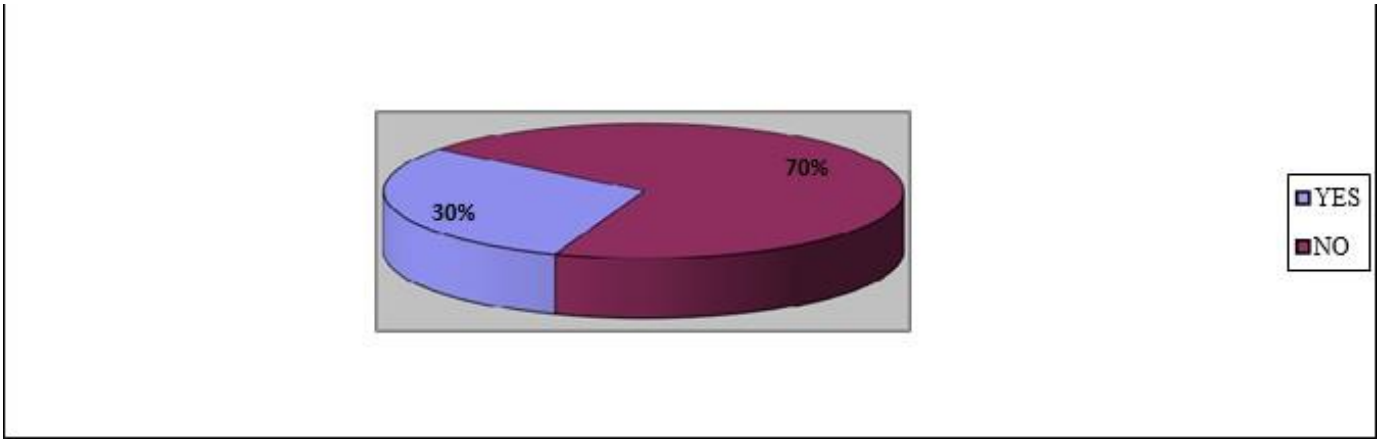

Figure 12: **Shows the availability of enough sterilized equipment.** N=50

on arrival at the facility, (96%) before and

after patient handshake, wearing of face masks (20%), and patients taught by health workers infection prevention methods were 20%. Generally, I concluded by saying that poor compliance with hand hygiene, limited use of personal protective equipment like masks, manual cleaning with fewer washer disinfectants, lack of enough safety boxes and waste bins for disposing of sharps and wastes, limited sterilized equipment, health workers not teaching patient about infection prevention practices are the major factors contributing to poor infection prevention among health workers at Ndejje health center iv, wakes District.

6. Study Limitation.

Due to the time scope of the study, timeliness, and resource of the study, the following limitations were encountered in the process of the study. These limitations impacted negatively the validity and reliability of the findings of this study. The researcher encountered an insufficiency of resources especially time and monetary resources required for complete research.

Arranging with the health workers who were also busy took some time hence the delay to the study since there was a specific schedule for the study period.

7. Recommendation.

The government of Uganda through the Ministry of health should make sure that sterilized equipment, personal protective equipment, safety boxes, and waste bins are always available in the hospital in desired quantities to enable health to get them in the required amounts whenever they need them.

The government of Uganda through the Ministry of health together with the related NGO should put up studies and provide health workers and patients with information about infection prevention practices, infection prevention guidelines, and how it will improve their lives to also help patients with lower educational status understand how to prevent contracting infections from hospitals.

The administration of Ndejje health center iv should tighten the use of personal protective equipment among health workers and patients and also increase the mobilization of hand washing among health professionals and patients at large

8. Acknowledgement

My Diploma in Pharmacy course and the research process have been a long process which has enabled me to learn from others. It has not been an easy process and therefore, I would like to firstly give thanks to the Almighty God for his grace and blessings upon my life throughout this

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Last but not least I would want to appreciate my supervisor for all the time and support given to me in developing this study, thanks, please. You were and you are my great source of strength.

Finally, my heartfelt thanks go to the following:

The Ndejje health center iv, wakiso district administration for allowing me to carry out the research in their facility.

The study participants for sharing their thoughts, ideas, and feelings with me. Thank you. If it was not for you, it was not going to be possible.

9. Abrreviations

CDC : Center for Disease Control

HAIS : Hospital Acquired Infections/ Healthcare associated infections

HH : Hand Hygiene

HIV : Human Immunodeficiency Virus

ICU : Intensive Care Unit

IPC : Infection Prevention and control

MOH : Ministry of Health

MRSA : Methicillin Resistance Staphylococcus Aureus PPE : Personal Protective Equipments.

USA : United States of America

WHO : World Health Organization

COVID19: Corona Virus Disease

UAHEB : Uganda Allied Health Examination Board

CI : Confidence intervals

ICC : Intraclass correlation coeffient

IPCAF : Infection prevention and control Assessment framework ED : Emergency department

GW : General wards

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