Traditional Healers' Knowledge and Infection Control Practices Related to HIV in Bukavu City, Democratic Republic of the Congo

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Abstract

Background: Patients with HIV consult traditional healers (THs). These THs can both delay care for people living with HIV (PLHIV) and transmit HIV through poor infection control practices. The main objective of this study was to evaluate knowledge and practices of THs regarding HIV in Bukavu.

Methods: A cross-sectional study was carried out among 71 THs in Bukavu City. The collected data included the following topics: personal and socio-demographic characteristics, HIV knowledge, and infection control practices. Descriptive statistics, independent-samples T-test or F-test, and multiple linear regression were used to analyze the data with a p-value < 0.05.

Results: The THs' mean age was 49.2 ± 11.2 years, and the majority were aged 40 to <60 years. Males constituted 88.7% of THs with a male-to-female ratio of 7.9. Findings of the study revealed that THs had inadequate knowledge about HIV infection and poor infection control practices.

Conclusion and recommendations: The study revealed that THs' knowledge about HIV infection was insufficient and that they had poor infection control practices. Formal standardized training on HIV infection should be organized for all THs so that they can always refer their patients to modern, reliable antiretroviral therapy (ART) clinics and reduce the risk of occupational exposure in their practices.

Background

In 2020, the Democratic Republic of the Congo (DRC) had 510,000 people living with human immunodeficiency virus (PLHIV), including nearly 20,000 newly infected people.(1) Despite significant progress in the fight against HIV, the epidemic continues to significantly impact public health in all regions.(2) In the DRC, HIV infection is a deadly threat, with less than 60% of PLHIV having access to ART due to limited supply, lack of information and preventive services, stigma, and drug costs.(1) HIV prevalence has been reported at 1.2% in Bukavu, the capital city of the South Kivu province in Eastern DRC.(3)

Early HIV diagnosis and prompt treatment are critical for improving HIV treatment outcomes,(4) lowering the cost of medical care,(5) and significantly impacting disease prevention.(6–9)

Although the DRC has a ratio of 10.6 physicians per 100,000 people, there is a significant disparity due to the concentration of the majority of these physicians in urban areas.(10,11) In sub-Saharan Africa, nearly 80% of the black African population regularly receive healthcare services from THs due to both the accessibility and acceptability of their services.(12–14) The TH is someone who is acknowledged by the community in which they live as qualified to provide health care through the use of plant, animal, and mineral substances as well as certain other methods based on their social, cultural, and religious backgrounds as well as the prevalent knowledge, attitudes, and beliefs regarding social, mental, and physical well-being as well as the causes of disease and disability in the community.(11) Several studies have reported that the majority of patients with HIV use traditional medicine concurrently with modern medicine.(15–17) It is estimated that between 60–80% of HIV patients use traditional medicine.(18)

Traditional Healers can both delay HIV treatment and transmit HIV through the use of unsterilized needles and razors for traditional skin pricking or cutting practices.(19) Many PLHIV linger in THs' offices and present late at antiretroviral treatment clinics after developing severe HIV symptoms.(20) When THs are sufficiently informed about HIV infection, they will promptly refer patients with HIV to ART clinics so that they can begin treatment as soon as possible. Furthermore, they will not spread infections if they follow good infection control practices. THs will support HIV prevention and treatment programs in this way. Few studies on THs' HIV-related knowledge and infection control practices have been conducted in Bukavu.

The objective of the current study was to assess knowledge of THs about HIV and infection control practices of THs in Bukavu City, South Kivu province in the Democratic Republic of the Congo.

Methods

Study design and setting

A cross-sectional study was conducted from March to June 2023 among THs in the health zones of Bukavu namely Ibanda Health Zone, Kadutu Health Zone, and Bagira Health Zone. The THs in South Kivu province are managed by the Provincial Coordination Office of Traditional Medicine and Medicinal Plants. The Coordination Office is located in Bukavu City, in the building of the South Kivu Provincial Health Division. These THs work in the three health zones of Bukavu City.

Study sampling

All Traditional Healing Organization members of Bukavu City, who received PLHIV in health consultations during the study period (71 THs), were included in the study. These THs are recognized by the South Kivu Provincial Coordination of Traditional Medicine and Medicinal Plants. For the infection control practices, each TH was observed three times consecutively (213 observations).

Data collection

A predesigned structured interviewer-assisted questionnaire was used to collect data about personal and demographic characteristics including: age, gender, level of education, religious affiliation, ethnicity, residence, history of HIV and AIDS training, and formal training in managing HIV and AIDS.

The brief HIV knowledge questionnaire (18-item version) developed by Carey and Schroder (21) was used to measure and assess the THs’ HIV-related knowledge. This tool is composed of 18 questions related to HIV/AIDS, modes of transmission, and prevention. For each of the 18 True/False, HIV- related questions, a score of 1 was assigned to each ‘correct’ answer, while a score of 0 was given to each “incorrect answer”. Five items (no. 1, 4, 11, 14, 17) are true statements, while the remaining 13 items are false. Assessments were based on the analysis of the sum of these scores, which have a possible range of 0 to 18, whereby higher scores indicated greater knowledge about HIV. Knowledge levels were classified as "poor" for those who scored 50% and below, "fair" for those who scored 51–74%, and "good" for those who scored 75% and above.

An observational checklist was used to collect data about infection control practices of THs. The items observed included hand washing practice, incision practice, reusing razor blades and needles, enema practice, using gloves when carrying out incisions, presence of protective clothing, supply of gloves, and availability of personal protective equipment (PPE) and containers to keep used blades and needles. Practice levels were classified as “poor” for those who scored 50% and below, “fair” for those who scored 51–74%, and “good” for those who scored 75% and above.

Data management and analysis

Data completeness was checked during the data collection process. Data were entered in KoboCollect, cleaned, and coded in Microsoft Excel. The data were analyzed using Epi Info 3.5.1 and the Statistical Package for the Social Sciences (SPSS) version 16. The mean and standard deviation (SD) or median and interquartile range (IQR) were used to summarize the quantitative variables, depending upon the data distribution. Categorical variables were summarized using the frequency and percent. The independent-samples T-test and the one-way analysis of variance (ANOVA) test, were used to compare the means. Predictors of knowledge and infection control practices were identified using multivariable linear regression. Personal and demographic characteristics were the independent variables. Statistical significance was defined as a p-value < 0.05.

Ethical considerations

The authors sought the approval of the Ethics Committee of the High Institute of Public Health, Alexandria University, Egypt for conduction of the study, and complied with International Guidelines for Research Ethics. Informed written consent was obtained from the study participants, after an explanation of the purposes and benefits of research. Anonymity and confidentiality were guaranteed and maintained. The essential administrative and preliminary communications with the health authorities were carried out to rationalize the execution of the study. Authorization to conduct the study was granted by the Provincial Directorate of the National Health Ethics Committee and by the Competent Authority of the Provincial Health Division of South Kivu.

Results

The mean age of the THs was 49.2 ± 11.2 years, and the majority (63.4%) were aged 40 to < 60 years. The majority of THs were males (88.7%), with a male-to-female ratio of 7.9. Regarding education, almost half of the THs (54.9%) had completed secondary education. Catholic and Protestant Christians were the majority among those surveyed (29.6% and 42.3%, respectively). The *Shi* and *Lega* tribes constituted 52.1% and 32.4% respectively. The THs who took part in the study were from Ibanda health zone (38.0%), Kadutu health zone (35.2%), and Bagira health zone (26.8%). More than two thirds of them (67.6%) had not received any training in taking care of patients with HIV/AIDS infection. Among those who had been trained, 82.5% had received formal training.

Most participants knew that a person cannot get HIV by sharing a glass of water with someone who has HIV (84.5%) and that having sex with more than one partner can increase a person’s chance of being

infected with HIV (87.3%). On the other hand, less than 30% of participants acknowledged that a natural skin condom is no more effective against HIV than a latex condom and that coughing and sneezing do not transmit HIV. Only 8.5% of THs knew that coughing and sneezing do not spread the virus. The percentages of correct answers for the other items ranged from 30–80%.

Overall, 47.9% of study participants had poor knowledge about HIV/AIDS infection, 45.1% of them had fair knowledge and only 7.0% had good knowledge (**Table 1** and **Fig. 1**). The knowledge score ranged between 5.5–88.9 points with a mean of 53.1 ± 17.7 points.

Table 2 shows the availability of infection control resources at the THs' offices. Less than two thirds of the THs (64.8%) had soap and water in their offices, and a waste bin dedicated to the disposal of medical waste (63.4%). Safety boxes for disposing of used blades and needles were present in more than one third (36.6%) of THs' offices. Nearly a quarter of THs' offices had a supply of gloves (25.4%) and masks (23.9%) in the treatment room. Less than a tenth of THs (8.5%) had face shields in their offices, and bloodstains could be seen on furniture or floor of their offices (9.9%).

In the majority of observations, THs complied with no reuse of needles (87.3%), razor blades (74.6%), and gloves (74.6%). Two practices were complied with in 50–70% of observations: correct hand-washing technique before patient care and no scarification. Five infection control practices; namely wearing gloves when making scarification, using safety boxes to dispose used blades/needles, wearing medical gowns during care, using sterile devices while practicing enema, and wearing a mask during care were the most challenging to implement (THs complied with these practices in less than 50% of observations). Wearing face shields during care was the most difficult practice to complete (only 5.6% of observations). Generally, 43.7% of THs had poor infection control practices, 52.1% of THs had fair practices, and only 4.2% of participants had good practices (**Table 3** and **Fig. 2**). TH practice scores ranged from 9.1 to 81.8 points with a mean of 51.9 ± 15.9.

Table 4 compares the mean scores for HIV-related knowledge and infection control practices of THs according to their personal and demographic characteristics. The mean knowledge score of THs who had training in taking care of HIV/AIDS (10.6 ± 3.0) was slightly higher than the mean knowledge score of participants who did not have training in taking care of PLHIV (9.0 ± 3.2). No statistically significant differences were observed between participants' mean knowledge scores for the majority of the personal and demographic characteristics studied ($p > 0.05$). The average infection control practice score of THs with a university degree (6.3 ± 1.9) was slightly higher than that of participants with up to secondary education (5.8 ± 1.7), but without showing any statistically significant difference. THs who had received training in taking care of HIV/AIDS (6.4 ± 1.6) had significantly ($p = 0.025$) higher good practices than those who had not received training in taking care of HIV/AIDS (5.4 ± 1.8). The other characteristics did not show any statistically significant difference in the mean practice scores.

Results of multiple linear regression analysis are summarized in **Table 5**. None of the personal and demographic variables studied were significant predictors for THs knowledge about HIV/AIDS ($p > 0.05$).

In terms of practices, two variables were significant predictors for infection control practices; namely living in Ibanda and receiving training in taking care of HIV/AIDS.

Discussion

Most patients with HIV use traditional medicine concurrently with modern medicine. Other PLHIVs would rather visit a TH than waste time traveling to the medical facility. THs who do not have sufficient knowledge that HIV/AIDS infection can both transmit HIV using non-sterile equipment and delaying referral of PLHIV to antiretroviral treatment clinics for proper care and treatment. Prior to any intervention, knowledge, attitude, and practice studies are very important tools for assessing the extent to which individuals or communities are ready to adopt risk-free behaviors.(22)

Regarding THs' level of knowledge about HIV/AIDS infection, the results of the present study indicate that almost half of the participants (47.9%) had a low level of knowledge about HIV/AIDS infection. These results are similar to those of a study conducted in South Africa in 2013, where THs had a relatively low level of knowledge about HIV/AIDS, but those who had received prior training on HIV/AIDS performed better than those who had not.(23) The results of our study are also in agreement with those of another study conducted by Sphiwe M. in 2015 in Botswana.(22)

Regarding infection control practices, the results of this study show that the practices were poor for almost half of the THs surveyed, with an average practice score of 51.9 ± 15.9%. Poor practices could be explained by the fact that the majority of THs did not have the necessary resources, such as face shields, masks, gloves and safety boxes for disposing of razor blades and used needles. Blood stains on the furniture and/or floors of treatment rooms were observed at some THs' offices. In addition to the unavailability of infection-control resources, some THs practiced poor infection control practices that could expose patients to transmissible infections, for example failure to wear protective equipment during treatment, reuse of certain single-use PPE, and using unsterile devices for the purpose of enema and scarification practices. Non-compliance with infection control practices could be attributed to ignorance or low levels of education, negligence, and lack of financial resources. Comparing the mean practice scores of THs revealed that THs with a higher level of education and HIV/AIDS management training had higher mean practice scores compared to those with low level of education and without training. Results of the multivariate analysis using the linear regression model showed significant differences between the mean practice scores. Two variables were the significant predictors, namely living in Ibanda and receiving training in HIV/AIDS management. These results are consistent with several other studies carried out in Mozambique and South Africa.(24–26)

Regardless of our scientific rigor, this study has certain limitations linked to the size of the sample (there are not many officially recognized traditional practitioners in the province) but also to the lack of recent previous studies on the subject (the majority of previous studies were dated from 2010 to 2020).

Conclusion and recommendations

In conclusion, THs had inadequate knowledge about HIV/AIDS infection and poor infection control practices. Regular formal and standardized HIV/AIDS infection training for all THs, to improve their knowledge on HIV/AIDS and their infection prevention and control practices while treating patients in their clinics is recommended.

Abbreviations

HIV : Human Immunodeficiency Virus

AIDS : Acquired Immunodeficiency Syndrome

PLHIV: People Living with Human Immunodeficiency Virus

THs : Traditional Healers

ART : Antiretroviral Therapy

PPE : Personal Protective Equipment

Declarations

Competing interests

The authors state that they have no competing interests.

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Availability of data and materials

All information is freely and completely accessible. The paper and supplemental files contain all pertinent information.

Authors' contributions

KBC initiated the study, assisted with data collection and analysis, and writing and reviewing the manuscript. MKP and NAEN were present at all stages of the study, from the development of the study protocol to its conclusion and revised the final version of the manuscript. IMHW was involved in the development of the data collection tool, the review and interpretation of the results, and the revision of the final manuscript. ZMG had participated in the development of the study protocol and data collection tools. All authors (except ZMG, may she RIP) read the final draft and gave their approval.

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Tables

Table (1): Distribution of THs according to their level of knowledge regarding HIV/AIDS (Bukavu, 2023)

Level of knowledge	No. (%) (n=71)
Poor (≤ 50%)	34 (47.9)
Fair (51-74%)	32 (45.1)
Good (≥ 75%)	5 (7.0)
Min – Max	5.6 – 88.9
Mean ± SD	53.1 ± 17.7

SD, standard deviation

Table (2): Distribution of traditional healers' offices according to the availability of infection control-related resources (Bukavu, 2023)

Available resources#	No. (%) n= 71
Gloves	18 (25.4)
Masks	17 (23.9)
Face shields	6 (8.5)
Waste bin dedicated for disposal of medical waste	45 (63.4)
Safety boxes to dispose of used blades and needles	26 (36.6)
Soap and water	46 (64.8)
Blood stains on furniture or floor	7 (9.9)

#Responses are not mutually exclusive

Table (3): Distribution of infection control observations of THs according to the level of practice (Bukavu, 2023)

Level of practice	No. (%)
	n=213
Poor (≤ 50%)	93 (43.7)
Fair (51-74%)	111 (52.1)
Good (≥ 75%)	9 (4.2)
Min – Max	9.1 – 81.8
Mean ± SD	51.9±15.9

SD, standard deviation

Table (4): Comparison between the personal and demographic characteristics of THs and their HIV knowledge and infection control practice scores (Bukavu, 2023)

Characteristics	N	HIV-Knowledge score		T / F-test	HIV-Practice score		T / F-test
		Mean	SD	*p-value*	Mean	SD	*p-value*
Age in years				0.786			0.956
20 –	16	9.1	3.0		5.8	1.4	
40 –	45	9.6	3.2		5.7	1.9	
60+	10	10.0	3.4		5.6	1.8	
Gender				0.944			0.634
Male	63	9.5	3.2		5.7	1.8	
Female	8	9.6	2.9		6.0	1.4	
Level of education				0.135			0.406
Illiterate	11	8.9	2.7		5.0	1.7	
Primary	10	7.9	3.6		5.6	1.6	
Secondary	39	9.7	3.2		5.8	1.7	
University	11	11.0	2.6		6.3	1.9	
Religion				0.429			0.336
Protestant Christian	30	9.8	3.2		5.7	1.6	
Catholic Christian	21	10.1	2.7		6.0	1.7	
Muslim	5	7.8	2.9		4.4	2.1	
Others (Brahanamists & J's W)	15	8.9	3.8		5.9	2.1	
Tribe				0.134			0.350
Shi	37	9.9	2.7		6.0	1.6	
Lega	23	9.9	3.0		5.4	1.8	
Havu	4	6.7	3.9		6.2	1.5	
Others (*Bembe, Fuliru, Nande*, …)	7	8.2	4.4		5.0	2.3	
Residence				0.071			0.535
Ibanda	27	8.6	2.8		6.0	1.8	
Kadutu	25	9.2	3.4		5.7	1.7	
Bagira	19	10.7	3.0		5.4	1.9	

Training in taking care of HIV/AIDS			0.052			0.025*
Yes	23	10.6	3.0	6.4	1.6	
No	48	9.0	3.2	5.4	1.8	

J's W, Jehovah's Witnesses; T-test, independent-samples T test; F test, One-way ANOVA; SD, standard deviation; *Significant ($p < 0.05$).

Table (5): Multivariable linear regression analysis of the predictors of HIV knowledge and infection control practices among THs (Bukavu, 2023)

Characteristics	HIV-KQ-18 score				HIV-Practices score			
	Coefficient	Sdt Error	F-test	p	Coefficient	Sdt Error	F-test	p
Age in years	0.578	0.643	0.809	0.372	0.000	0.349	0.000	0.999
Gender	-0.606	1.259	0.232	0.632	-0.825	1.682	1.462	0.231
Level of education	0.444	0.43	1.064	0.306	0.185	0.233	0.628	0.431
Religion	-0.317	0.377	0.711	0.402	-0.039	0.204	0.037	0.849
Tribe	-0.525	0.375	1.956	0.167	-0.176	0.203	0.750	0.390
Residence	-0.703	0.544	1.672	0.201	-0.624	0.295	4.482	0.038*
Training on HIV	1.566	0.909	2.969	0.090	1.336	0.492	7.365	0.008*
Correlation coefficient		**$r^2 = 0.15$**			**$r^2 = 0.18$**			

* Significant ($p<0.05$); Sdt Error, standard error; F-test, one way ANOVA

Figures

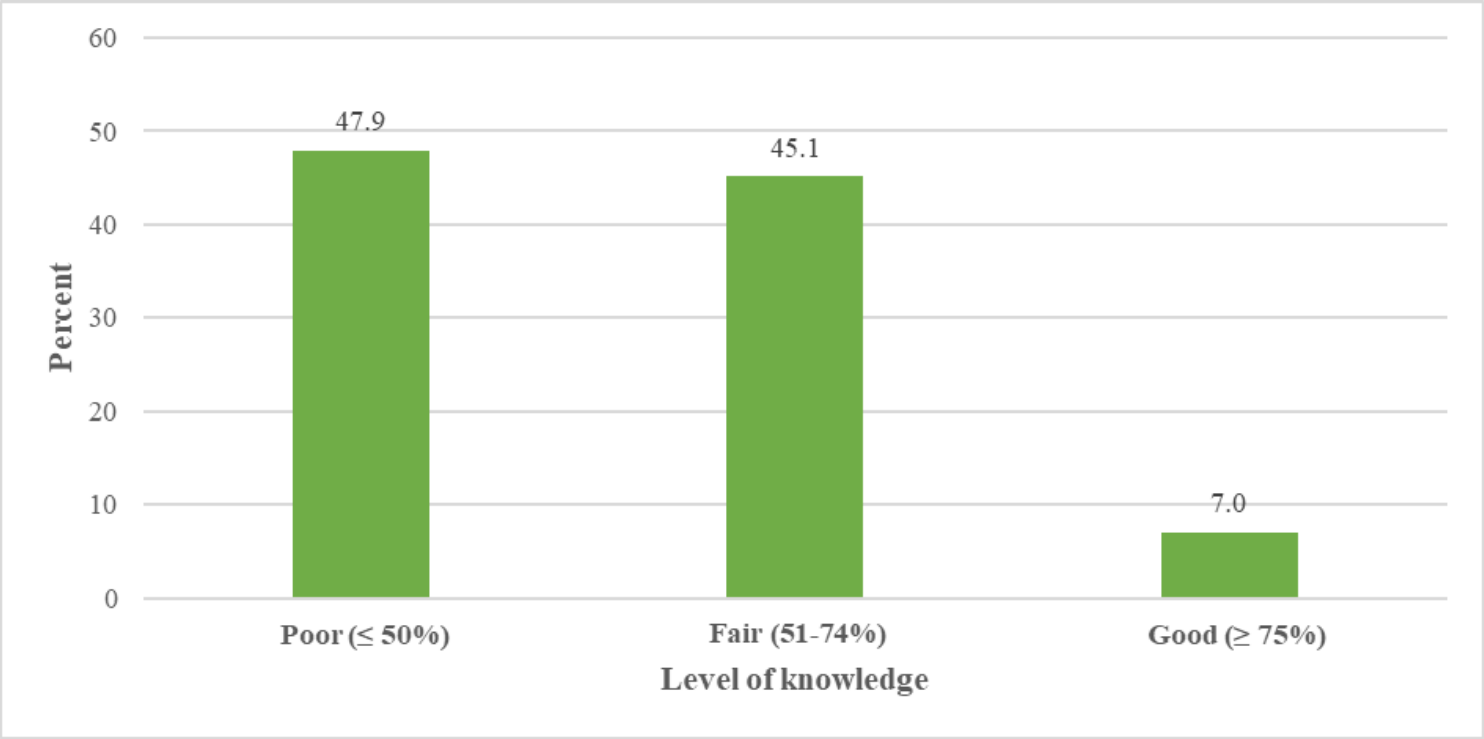

Figure 1

Distribution of THs according to their level of knowledge regarding HIV/AIDS (Bukavu, 2023)

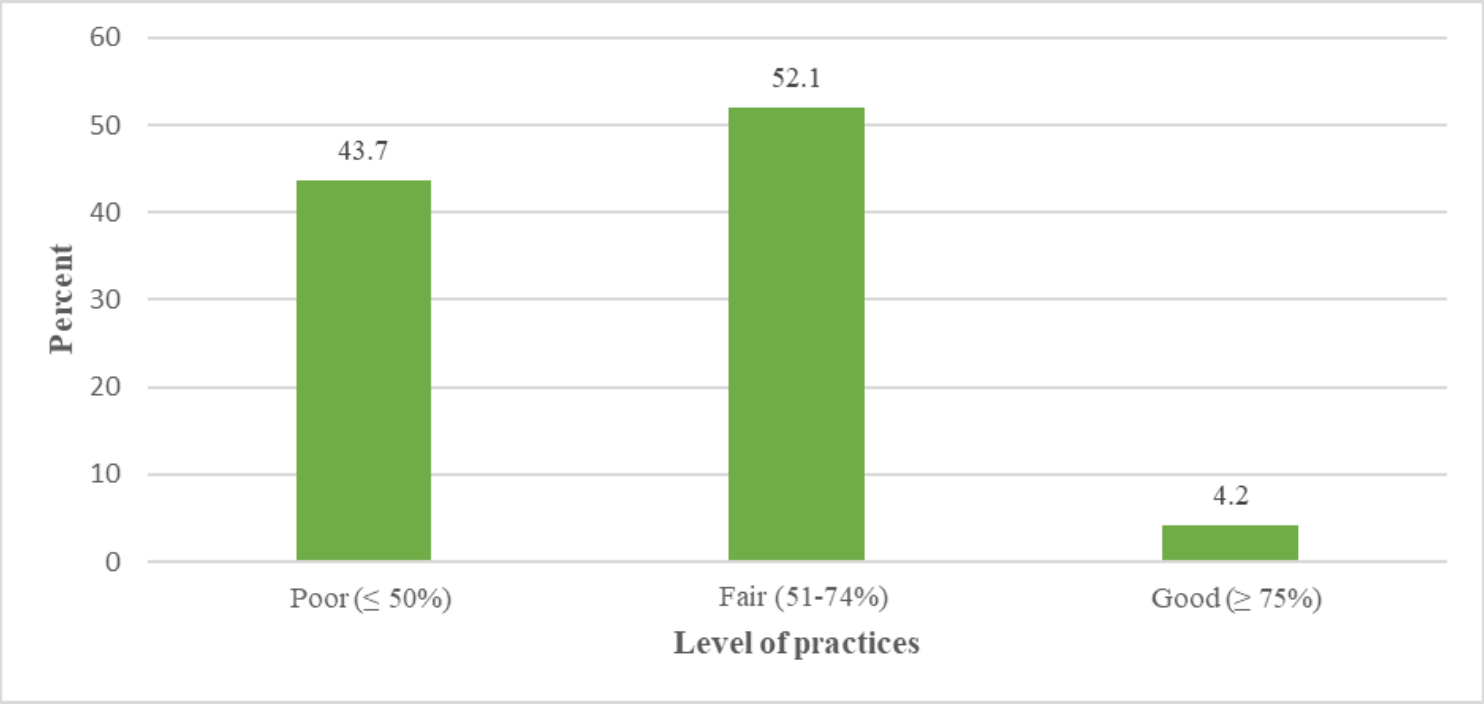

Figure 2

Distribution of infection control observations of THs according to the level of practice (Bukavu, 2023)

Supplementary Files

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- SupplementarydocumentofTHspaperrevised18122023.docx