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Hernandez, CJM, Dy-Co, AS. Knowledge, Attitudes, and Practices Towards HIV/AIDS Among Healthcare Workers in a Tertiary Pediatric Government Hospital
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ORIGINAL ARTICLE

KNOWLEDGE, ATTITUDES, AND PRACTICES TOWARDS HIV/AIDS AMONG HEALTHCARE WORKERS IN A TERTIARY PEDIATRIC GOVERNMENT HOSPITAL

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ABSTRACT

Background: Human immunodeficiency virus infection and acquired immunodeficiency syndrome are significant public health concerns and social issues. Key players in efforts to stop HIV/AIDS as a public threat are healthcare personnel. Research has shown that negative attitudes of healthcare workers towards HIV can negatively influence their practices and these are associated with their level of knowledge about the disease.

Objective: This study aims to investigate the baseline knowledge, attitudes, and practices of healthcare workers towards HIV/AIDS and to determine the association between profession and level of knowledge, attitudes and practices among healthcare workers in a tertiary pediatric government hospital.

Methodology: This study utilized an analytical cross-sectional research design. Data were collected through a written questionnaire administered to 213 healthcare personnel, who were selected via stratified random sampling from January to April 2024. Knowledge, attitude, and practice (KAP) scores were evaluated using Bloom's cut-off points. Scores below 60% were classified as low level of knowledge, negative attitude, and poor practice. Scores from 60-79% were classified as moderate level of knowledge, neutral attitude and fair practice. Lastly, scores between 80-100% were classified as high level of knowledge, positive attitude and good practice. Descriptive and inferential statistics, specifically Fisher's test were used whenever appropriate.

Results: Among 213 study participants, 140 (65.73%) demonstrated a high level of knowledge towards HIV/AIDS among doctors, nurses, medical technologists, and radiologic technologists. There were 161 (75.59%) who exhibited positive attitude towards HIV/AIDS and worked as pharmacists, physical therapists, and dentists. About 154 (72.30%) reported having fair practices on HIV/AIDS.

Conclusion: The healthcare workers in our study have a high level of knowledge, positive attitude, and fair practices towards HIV/AIDS with significant differences between professions. There is a significant association between professions with the level of knowledge, attitudes, and practices towards HIV.

Doctors, nurses, medical technologists, and radiologic technologists have higher level of knowledge on HIV/AIDS. Positive attitude was higher among pharmacists, physical therapists, and dentists. Lastly, good practices were highest among midwives.

KEYWORDS: Human Immunodeficiency Virus, Acquired Immunodeficiency Syndrome, HIV/AIDS, Knowledge, Attitude, Practices, Healthcare Workers

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The authors declare that the data presented are original material and have not been previously published, accepted or considered for publication elsewhere; that the manuscript has been approved by all authors, and that the authors have met the requirements for authorship.

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INTRODUCTION

Human immunodeficiency virus infection and acquired immunodeficiency syndrome (HIV/AIDS) are major public health concerns and social issues affecting individuals worldwide. Unfortunately, people living with HIV/AIDS continue to report stigma and discrimination from the healthcare system, despite preventive efforts and global advancements in treatment and care. In the hospital setting, healthcare personnel provide the first line of care, treatment and support to patients who are HIV positive and are key players to stop HIV/AIDS as a public health threat.[1]

In recent years, there has been an increase in the incidence of HIV cases both globally and locally. In 2022, globally, 1.3 million people were newly infected with HIV compared to 3.2 million people in 1995. Of the global total, 740 children are infected with HIV and approximately 274 children die from AIDS related causes each day.[2] Locally the number of new HIV cases has risen dramatically. When in 2012, there were only 9 new HIV cases everyday, in 2023, there has been an increase to 46 cases per day. This is a 411% rise in daily incidence in the past decade. This increase has been partly attributed to stigma and the uneven distribution and limited availability of sexual health services.[3] At the National Children's Hospital, the number of HIV cases has also risen from 1 case in 2022 to 9 cases in 2023. Most cases were due to mother-to-child transmission, with many patients presenting with recurrent pneumonia. The mortality rate was almost 50 percent.

Numerous initiatives and resources to reduce the spread of infection have been proposed by the Joint United Nations Programme on HIV/AIDS (UNAIDS) as it collaborates and coordinates with governments and non-governmental organizations worldwide. Healthcare workers are encouraged to care for HIV/AIDS patients, offer preventive strategies to lower infection rates, and continuously evaluate their own practices while staying updated with current knowledge on prevention and treatment. However, at times healthcare workers still have negative attitudes and feelings of fear and avoidance towards persons living with HIV. Research has shown that negative attitudes among healthcare workers towards HIV are manifested through practices such as denial of care, verbal abuse, lower standards of care, and disclosure of a patient's HIV status to colleagues/family members without consent and gossiping. These attitudes are often generally associated with the level of knowledge on HIV. Those who hold negative attitudes are often those with low levels of knowledge. However, while people may possess knowledge, this does not always positively influence their attitudes and behaviors. Some highly educated individuals have genuine fears of HIV and act negatively towards those who are affected,[1] thus this study aimed to investigate the baseline knowledge, attitudes, and practices of healthcare workers on HIV/AIDS in a tertiary pediatric government hospital and determine if there is a significant association between profession with the level of knowledge, attitudes, and practices towards HIV.

MATERIALS AND METHODS

Study Design

This study employed an analytical cross-sectional research design and utilized written questionnaires as the primary method of data collection.

Study Population/Setting

The study was conducted among healthcare workers at the National Children's Hospital (NCH), a tertiary pediatric government hospital in Quezon City, Philippines, from **January 8, 2024 to April 30, 2024**. Eligibility criteria for participant selection was established. Inclusion criteria are: (1) being a licensed medical or allied health professional (doctors, nurses, midwives, medical technologists, pharmacists, respiratory therapists, radiologic technologists, physical therapists, and dentists) and (2) being in active service for at least 6 months. Healthcare workers whose roles are purely administrative were excluded from the study.

Sampling Method and Sample Size Calculation

To determine the sample size, the researchers included all healthcare personnel who met the eligibility criteria. This served as the study population, which is 476 personnel.

Sample Size for Frequency in a Population

Population size (for finite population correction factor or fpc) (*N*):	476
Hypothesized % frequency of outcome factor in the population (*p*):	50%+/-5
Confidence limits as % of 100 (absolute +/- %) (*d*):	5%
Design effect (for cluster surveys-*DEFF*):	1

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Sample Size(*n*) for Various Confidence Levels

Confidence Level (%)	Sample Size
95%	213
80%	123
90%	173
97%	237
99%	278
99.9%	331
99.99%	362

Equation

Sample size $n = [DEFF*Np(1-p)] / [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

A sample size of 213 was calculated using open-source software for epidemiologic statistics (*"Open Source Epidemiologic Statistics for Public Health"*) with an estimation that 50% of health care professionals had good knowledge, with a confidence interval and margin of error set at 95 and 5%, respectively.[4] Given the lack of a known proportion of healthcare workers exhibiting good knowledge, attitudes, and practices (KAP) based on literature review, the proportion of 50% was utilized, as this yielded the highest sample size. Stratified random sampling was then used to select study participants where the population was divided into subgroups called stratum based on profession. The proportion of each stratum from the total population comprised the total number of participants per stratum. From the list of healthcare workers per stratum, participants were randomly selected with the use of a random number generator in Microsoft Excel software.

The following is the proportion of profession per stratum based on the institution's master list:

Profession	Population	Proportion	Sample size N = 213
1. Nurses	194	41%	87
2. Doctors	186	39%	85
3. Medical Technologists	30	6%	13
4. Midwives	19	4%	8
5. Respiratory Therapists	13	3%	6
6. Pharmacists	11	2%	4
7. Radiologic Technologists	11	2%	4
8. Physical Therapists	8	2%	4
9. Dentists	4	1%	2
TOTAL	**476**	**100%**	**213**

Data Collection

The study commenced after approval for the study was obtained from the Research Committee of the NCH Department of Pediatrics and the Institutional Review Board. Consent forms were distributed to selected healthcare personnel, which stated the purpose, study procedures, risks and benefits, and participant's rights. Willing participants were screened based on the set inclusion and exclusion criteria. No compensation was given for study participants.

The investigator determined the participants' available schedule and personally distributed the written questionnaires which were answered over a 15-20 minute period within the hospital premises. To assure correctness of responses, the objectives of the study were explained to all participants emphasizing that the survey is not a test nor an exam, that their scores will not affect their standing/evaluation in the workplace and that their anonymity was assured. Participants were requested not to talk to other colleague/s while answering nor were they allowed to use any device to search for information regarding the questions. Participants were free anytime to ask questions or clarifications regarding the questionnaire . Those who answered the survey ahead were requested not to share the questions to their colleagues.

The validated structured questionnaire was adapted from the study of Yadzir et al.,[1] entitled HIV-Related Knowledge, Attitude and Practice among Healthcare Workers (HCW) in Governmental Healthcare Facilities in Malaysia, with the author's permission. Minor revisions and modifications were done to tailor to our target population based on our experience and knowledge of HIV in the local setting. This included reporting of needlestick injuries in accordance with the guidelines of the hospital's Infection Prevention Control Committee (IPCC) and the Unit of Occupational Safety and Health (OSH).

This study utilized a structured questionnaire thus there was minimal risk to participants in terms of breaches in data privacy, discomfort, and inconvenience. Data gathered were treated with confidentiality and only the primary investigators had access in accordance with the ethical guidelines in the Declaration of Helsinki. Data privacy was also assured and complied with the Data Privacy Act of 2012. Assignment of codes in the questionnaire was done to assure anonymity of

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subjects. Data were stored in a password protected file where only the primary investigators had access. All data will be kept for a period of 5 years, after which it will be discarded.

The scores for KAP were converted to proportions and the sum of scores for each outcome was assessed based on Bloom's cut off point. Scores below 60% were classified as low level of knowledge, negative attitude, and poor practice. Scores between 60-79% were classified as moderate level of knowledge, neutral attitude and fair practice. Lastly, scores between 80-100% were classified as high level of knowledge, positive attitude and good practice. P-value less than 0.05 was used as the level of significance for all analyses. [1,5] The study results were further reviewed. Participants who did not completely answer the entire Knowledge, Attitude and Practice sections of the questionnaire were withdrawn from the study.

Statistical Analysis

The researchers employed descriptive statistics to analyze demographic data. Frequencies and proportions were used to summarize categorical data. Inferential statistics, specifically Fisher's exact test, using Strata Version 14 was utilized in determining the relationship of profession to the level of knowledge, attitudes, and practices where a p-value of less than 0.05 was taken as the level of significance for all analyses.

RESULTS

Sociodemographic Characteristics of Respondents

A total of 213 healthcare workers were recruited for the study. The socio-demographic information of respondents is summarized in Table 1 with majority being doctors and nurses. All respondents completely answered the survey information and questionnaire and no participant was withdrawn from the study.

The majority of respondents were female (78.40%) and 45 were mal (21.11%) with a female to male ratio of 3.7:1. The Majority were between 31-40 years old, (53.99%) and are Roman Catholic (82.16%). More than half of respondents were single (57.28%) and had work experience of less than 10 years (69.48%). Of the total respondents, only 51 (23.94%) have attended previous trainings on HIV/AIDS and only 69 (32.39%) claimed to have experience in providing care to persons living with HIV (PLHIV).

Table 1: Demographic characteristics of participating healthcare workers at NCH, Quezon City

Characteristics	Frequency N= 213	Proportion (%)
A. Gender		
Male	45	21.13
Female	167	78.40
Others	1	0.47
B. Age		
20-30 years old	56	26.29
31-40 years old	115	53.99
41-50 years old	31	14.55
>50 years old	11	5.16
C. Religion		
Roman Catholic	175	82.16
Christian	22	10.33
Aglipayan	1	0.47
Muslim	6	2.82
No Religious Affiliation	9	4.23
D. Marital Status		
Single	122	57.28
Married	90	42.25
Widowed	0	0.00
Separated	1	0.47
E. Designation		
Doctors	85	39%
Nurses	87	41%
Midwives	13	6%
Medical Technologists	8	4%
Pharmacists	4	2%
Respiratory Therapists	6	3%
Radiologic Technologists	4	2%
Physical Therapists	4	2%
Dentists	2	1%

Knowledge of Healthcare workers of NCH towards HIV/AIDS

Healthcare workers of NCH were found to have a high level of knowledge on HIV/AIDS (65.73%) while 34.27% have moderate level of knowledge (Table 2).

Table 2. Overall Assessment of Level of Knowledge of Healthcare Workers of NCH on HIV/AIDS

Knowledge (Score)	Frequency (Proportion %)
High level of Knowledge (12-14)	140 (65.73%)
Moderate level of Knowledge (9-11)	73 (34.27%)
Low level of Knowledge (0-8)	0

Correct answers on knowledge questions ranged from 27.23%to 99.06%. Majority of healthcare workers think that there is a high risk of occupational HIV infection and transmission and only 27.23% of respondents were able to answer the item correctly. Most healthcare workers are knowledgeable regarding the modes of HIV transmission. Ninety-nine percent of respondents had correct answers regarding transmission from sexual intercourse with an infected person and transfusion of unscreened blood and blood products. About 83.10% knew that HIV can be transmitted from the mother to the baby through the breastmilk or placenta. Only 59.62% of respondents knew that not all pregnant women with HIV will have

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babies born with HIV. Lastly, more than half of healthcare workers knew that an HIV infected person can still have a normal lifespan if they are on antiretroviral therapy.

Attitude of Healthcare workers of NCH towards HIV/AIDS

Approximately three fourths (75.59%) of study participants had positive attitude towards HIV/AIDS and one fourth (23.94%) had neutral attitude as shown in Table 3. Only 1 respondent demonstrated negative attitude towards HIV/AIDS (0.47%).

Table 3. Overall Assessment of Attitude of Healthcare Workers of NCH towards HIV/AIDS

Attitude (Score)	Frequency (Proportion)
Positive Attitude (11-13)	161 (75.59%)
Neutral Attitude (8-10)	51 (23.94%)
Negative Attitude (0-7)	1 (0.47%)

Majority of healthcare workers agreed that patients with HIV/AIDS have the right to the same quality of care as any other patient (96.71%), that all patients with HIV/AIDS are entitled to confidentiality (97.65%), that persons living with HIV should be allowed to have children if they wish to (93.43%), that persons living with HIV should have the right to marry (98.59%), and children living with HIV should be able to attend school with children who are HIV negative (98.12%).

One third of healthcare workers (30.52%) are not afraid to catch HIV/AIDS while working. Furthermore, 84.51% of study participants are still willing to buy food items from a food seller who has been diagnosed with HIV and 79.34% are also willing to share a meal with a person living with HIV.

Practice of Healthcare workers of NCH towards HIV/AIDS

In general, healthcare workers of NCH had fair practices towards HIV/AIDS and comprised 72.30% of the total study participants while only 26.29% had good practices. Only 3 demonstrated poor practices (1.41%)

Table 4. Overall Assessment of Practice of Healthcare Workers of NCH towards HIV/AIDS

Practice (Score)	Frequency (Proportion)
Good Practice (8-9)	56 (26.29%)
Fair Practice (6-7)	154 (72.30%)
Poor Practice (0-5)	3 (1.41%)

Majority of healthcare workers will encourage clients to get tested and counselled for HIV/AIDS if needed (99.06%) and will refer them for voluntary counselling and testing (93.90%). Moreover, majority also practice universal blood and body fluid precautions (97.65%) and will treat blood spills on floors or other surfaces with a disinfectant before clean up (95.77%). In contrast, 5.16% of study participants do not use gloves and gowns for any contact with patients with HIV/AIDS.

Most healthcare workers are interested in attending trainings on HIV/AIDS (97.18%) and 98.59% are also willing to take post-exposure prophylaxis (PEP) if necessary. Only one third of study participants (32.39%) agree against recapping of used needles to prevent accidental injury. Lastly, three-fourths (77.46%) of study participants agreed that the first episode of needlestick injury should still be reported to IPCC/OSH.

Association of Profession with Level of Knowledge

There is a significantly higher proportion of subjects with good knowledge on HIV/AIDS among doctors, nurses, medical technologists, and radiologic technologists. Additionally, there is a significantly higher proportion of subjects with fair knowledge among respiratory therapists, midwives, pharmacists, and physical therapists.

Table 5. Association of Profession with Level of Knowledge

Profession	Poor knowledge	Fair Knowledge	Good knowledge	Total
Doctors	0	15 (17.65%)	70 (82.35%)	85
Nurses	0	37 (42.53%)	50 (57.47%)	87
Medical technologists	0	2 (15.28%)	11 (84.62%)	13
Midwives	0	6 (75.00%)	2 (25.00%)	8
Pharmacists	0	3 (75.00%)	1 (25.00%)	4
Respiratory therapists	0	5 (83.33%)	1 (16.67%)	6
Radiologic technologists	0	1 (25.00%)	3 (75.00%)	4
Physical therapists	0	3 (75.00%)	1 (25.00%)	4
Dentists	0	1 (50.00%)	1 (50.00%)	2
Total	0	73	140	213

P value (Fisher's exact test): <0.0001

Association of Profession with Attitude

There is a significantly higher proportion of subjects with a positive attitude toward HIV/AIDS among pharmacists, physical therapists, and dentists. Additionally, there is a significantly higher proportion of subjects with neutral attitude among respiratory therapists.

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Table 6. Association of Profession with Attitude

Profession	Positive attitude	Neutral Attitude	Negative Attitude	Total
Doctors	60 (70.59%)	25 (29.41%)	0	85
Nurses	72 (82.76%)	14 (16.09%)	1 (1.15%)	87
Medical technologists	11 (84.62%)	2 (15.38%)	0	13
Midwives	5 (62.50%)	3 (37.50%)	0	8
Pharmacists	4 (100%)	0	0	4
Respiratory therapists	0	6 (100%)	0	6
Radiologic technologists	3 (75.00%)	1 (25.00%)	0	4
Physical therapists	4 (100%)	0	0	4
Dentists	2 (100%)	0	0	2
Total	161	51	1	213

P value (Fisher's exact test): 0.003

Association of Profession with Practice

There is a significantly higher proportion of subjects with good practices towards HIV/AIDS among midwives. Additionally, there is a significantly higher proportion of subjects with fair practices among physical therapists, dentists, medical technologists, respiratory therapists, doctors, pharmacists, and radiologic therapists.

Table 7. Association of Profession with Practice

Profession	Poor Practice	Fair Practice	Good practice	Total
Doctors	0	65 (76.37%)	20 (23.53%)	85
Nurses	0	57 (65.52%)	30 (34.48%)	87
Medical technologists	0	12 (92.31%)	1 (7.69%)	13
Midwives	1(12.50%)	3 (37.50%)	4 (50.0%)	8
Pharmacists	0	3 (75.0%)	1 (25.0%)	4
Respiratory therapists	1 (16.67%)	5 (83.33%)	0	6
Radiologic technologists	1 (25.0%)	3 (75.0%)	0	4
Physical therapists	0	4 (100%)	0	4
Dentists	0	2 (100%)	0	2
Total	3	154	56	213

P value (Fisher's exact test): 0.003

DISCUSSION

Knowledge, Attitude, and Practice (KAP) studies are crucial in understanding how individuals perceive and respond to various health issues including HIV/AIDS. This study was conducted using a hospital-based cross-sectional strategy to evaluate the knowledge, attitudes, and practices of healthcare workers towards HIV/AIDS in a tertiary pediatric government hospital and is the first survey of its kind to be conducted at the National Children's Hospital (NCH) in Quezon City, Philippines.

Knowledge about HIV/AIDS includes understanding of its transmission routes, symptoms and clinical manifestations, available treatment, and prevention methods. It encompasses awareness of risk factors such as unprotected sex, unsafe injection practices, and mother-to-child transmission during childbirth or breastfeeding. Level of knowledge helps individuals make informed decisions about their sexual health, seek appropriate medical care, and reduce the stigma associated with HIV/AIDS. This study found a high level of HIV-related knowledge among healthcare workers in NCH. It was not surprising to see this as study participants were primarily professional healthcare workers. This is similar to the study done by Yadzir et al. in Malaysia where a high level of HIV-related knowledge was seen among doctors, nurses, pharmacists and pharmacy assistants.[1] This is in contrast with the local study conducted in Leyte, Philippines where moderate level of knowledge was seen among barangay healthcare workers. These differences can be explained by the sample population in the studies. In our study and in that done by Yadzir in Malaysia, participants were healthcare workers in the hospital while in Leyte, participants were barangay healthcare workers, who are non-health professionals but individuals trained by the Philippine Department of Health to serve in primary care settings.[6]

Despite the high level of knowledge among study participants, we found a significant proportion of healthcare workers with misconceptions regarding HIV. Consequences of misconceptions and lack of knowledge about the virus fuel HIV stigma and discrimination.[6] Common misconceptions about HIV can also hinder prevention efforts. Our study revealed that majority of healthcare workers believed that there is a high risk of occupational HIV infection and transmission and only 27.23% correctly knew that occupational transmission of HIV to healthcare workers is extremely rare. In the United States, as of December 31, 2013, needlestick exposures among healthcare workers had only a 0.23% risk of infection. This translates to 2.3 out of every 1000 injuries that lead to infection, if left untreated. The risk of exposure from body fluid splashes is almost nil, even when the fluids are obviously bloody. Additionally, contact with fluid on intact skin or mucous membranes is considered to have an extremely low risk of HIV transmission, regardless of whether blood is involved.[7] In the Philippines, a study done by Gangcuangco and Eustaquio in 2023 showed similar findings where HIV transmission through sharing of infected needles was shown to be low.[8] However in 2010, the highest incidence of HIV cases resulting from needlestick exposures was reported at about 9%. The following year,

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HIV transmission through infected needles has decreased and constitutes about 1% of all newly reported cases.[8]

Another misconception about HIV that was reflected in our study was that all pregnant women infected with HIV will have babies born with HIV, even though more than half of healthcare workers (59.62%) are knowledgeable regarding mother-to-child transmission of HIV.

Knowledge of healthcare workers on HIV transmission can affect preventive actions. A study done in India by Gupta et al. in 2020 demonstrated a decline in the risk of vertical transmission of HIV with the use of combination antiretroviral therapy (ART), with only 4.6% transmission rate.[9] Moreover, the study showed that the antiretroviral therapies used during pregnancy appeared to be safe and well tolerated.[9] Another study in Rwanda also showed that the use of ART for all women during pregnancy and breastfeeding was associated with a low mother-to-child transmission rate of 1.58%.[10]

The use of antiretroviral therapy reduces not only the risk of mother-to-child transmission but also improves the quality of life of people infected with HIV. In the study of Kariwala et al. in 2022, 77% of healthcare workers agreed that an HIV infected person can still have a normal life span if they are on antiretroviral therapy. Early and prompt initiation of antiretroviral therapy (ART) can improve the quality of life of people infected with HIV in various domains (psychological, physical, environmental, social, and spirituality). This is similar to a study done in India where the quality of life of people living with HIV/AIDS improved significantly 6-7 months from ART initiation.[11] In children, approximately one-third of children in a cohort study done by Hansudewechakul et al. had HIV RNA monitoring, and 75% achieved virologic suppression to 400 copies per milliliter at 12 months of cART.[12]

Attitudes towards HIV/AIDS influence how individuals interact with people living with HIV and affect their willingness to engage in prevention measures. Positive attitudes foster empathy, support, and non-discriminatory behavior towards those affected with HIV/AIDS. Conversely, negative attitudes stem from stigma, fear, and misinformation, leading to social exclusion and reluctance to openly discuss or address HIV-related issues. Promoting positive attitudes towards HIV involves education and awareness campaigns aimed at reducing stigma and promoting empathy and acceptance. Community-based interventions and continuing education and training programs in the institution also play crucial roles in shaping attitudes towards HIV/AIDS.

Our study showed that healthcare workers have a positive attitude towards HIV/AIDS (75.59%). This is similar to the local study conducted in Leyte by Mosende in 2023 where healthcare workers displayed a warm and welcoming approach to HIV patients.[6] Moreover, our study demonstrated that majority of healthcare workers agree that patients with HIV/AIDS have the right to the same quality of care as any other patient, that all patients with HIV/AIDS are entitled to confidentiality, that persons living with HIV should be allowed to have children if they wish to, have the right to marry and children living with HIV should be able to attend school with children who are HIV negative.

Majority of healthcare workers will treat an HIV infected person despite fear of having the infection as our study revealed that majority of healthcare workers are still afraid of catching HIV/AIDS at work. The findings of our study are similar to those conducted by Boakye et al.[13] and Ledda et al.,[14] which showed that while healthcare workers are concerned about getting HIV at work, they displayed positive attitudes, accepted PLHIV and overcame their fear of HIV infection.

Our study showed that 84.51% of study participants are still willing to buy food items from a food seller with HIV and 79.34% are willing to share a meal with a person living with HIV. This finding is comparable with a study done by Lui et al. where more than half of medical and nursing students expressed willingness to buy food from an establishment where a PLHIV was working and share utensils with a family member with HIV.[15]

Practices related to HIV/AIDS include preventive behaviors such as condom use, infection control precautions, HIV testing, and adherence to treatment. Preventive practices, however, should extend beyond individual behavior to include promotion of a safe working environment.

In general, 72.3% of healthcare workers at NCH had fair practices towards HIV/AIDS. However, our study showed that most healthcare workers are open to counseling and HIV testing. The WHO and United Nations guidance on HIV testing highlight that testing should

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never be made compulsory hence the need for consent. This was reflected in the study of Saad et al. where healthcare workers agreed for the need for consent and were against mandatory HIV testing.[16] Our study also showed that universal blood and body fluid precautions in the workplace were practiced at all times similar to the study of Boakye et al. In our study, only 5.16% of study participants realized that they did not use gloves and gowns for any contact with patients with HIV/AIDS in contrast to studies done by Yadzir et al and Kocic et al. where 65.2% and 65.7% of respondents respectively, believed that it was necessary to take extra infection control precautions where gloves and gowns are required for any contact with patients with HIV/AIDS.[1,17]

In our study, only one third of study participants (32.39%) do not practice recapping of needles to prevent accidental injuries. Most healthcare workers still practice recapping and are more likely underestimating their risk of occupational infection. This poor practice is contrary to CDC guidelines which mandate all healthcare workers to discard used needles immediately after use and not recap them to prevent needlestick injuries.

Most healthcare workers are interested in attending trainings on HIV/AIDS and are also willing to take post-exposure prophylaxis (PEP) if necessary. This is similar to the study done by Boakye et al. where majority of participants are aware of the availability of PEP services at the workplace and only 11% would not consider starting PEP after needlestick exposure. The reason for refusal to take PEP after accidental exposure to HIV was not known.

This study determined the association of profession with level of knowledge, attitude, and practice of healthcare workers towards HIV/AIDS. There is a significantly higher proportion of doctors, nurses, medical technologists, and radiologic technologists with a high level of knowledge on HIV. This is similar to the study done by Yadzir et al. in Malaysia where a high level of HIV-related knowledge was observed among doctors. This key finding in the study in Malaysia is attributed to prior work experience of 10 years or more and having HIV/AIDS trainings. In our study, majority of study participants had work experience of less than 10 years and only 23.94% of respondents have attended previous trainings on HIV/AIDS. High level of knowledge despite inadequate training can be attributed to the inclusion of HIV in the current curriculum for medical-related courses.

With regards to the association of profession with the attitude of healthcare workers towards HIV/AIDS, our study showed a significantly higher proportion of participants with positive attitude among pharmacists, physical therapists, and dentists. This contrasts with the study of Yadzir et al. (2021) where HIV-related attitude was generally neutral, especially among nurses (55.3%). Doctors however had a more positive attitude (51%) and this is attributed to their extensive training and experience in managing infections. Pharmacists, physical therapists, and dentists also play crucial roles in healthcare and may exhibit positive attitudes towards HIV for the same reasons. Yadzir et al. (2023) claimed that sufficient knowledge regarding transmission and treatment relates to a favorable attitude towards persons living with HIV/AIDS.[1] This was reflected in our study where healthcare workers showed a high level of knowledge and demonstrated positive attitude towards HIV.

As for the association of profession with practices, our study demonstrated a higher proportion of subjects with good practices towards HIV among midwives. The rest of the healthcare workers showed fair practices. Midwives play a crucial role in maternal and reproductive healthcare. They should be knowledgeable about HIV transmission, prevention methods and the importance of HIV testing during prenatal care. Moreover, they should also adhere to safe delivery practices and ensure that infection control measures are followed during labor and delivery to prevent HIV transmission to healthcare workers. These practices contribute to improve maternal and child health outcomes in the context of HIV/AIDS.[18]

There are several limitations in this study. As this utilized a questionnaire, there may be some questions which can have various interpretations by study participants. Moreover, the study relied on self-reported responses and may be subject to bias where respondents may not always provide truthful or accurate answers especially since this study dealt with a sensitive topic. This may include perceived social desirability bias where participants answer in a way they think is socially acceptable. These biases may affect study validity. Another limitation with self-conducted surveys is that there was limited room for probing that can provide

deeper insights into respondents' answers. There was also a limitation to clarify responses or explore nuances in responses if any.

RECOMMENDATIONS

Data from this study will be forwarded to the NCH administration as it is planning to become one of the accredited pediatric HIV treatment hubs in the Philippines. With the rapid rise in the number of newly diagnosed cases of HIV infection in the country, additional treatment facilities to address this population may be warranted. Currently there are 74 accredited HIV treatment hubs in the country with 13 located in Metro Manila. These treatment hubs cater to both the pediatric and adult population. Currently, there is no pediatric government referral center that is accredited as an HIV treatment hub. The vision of National Children's Hospital to become an HIV treatment hub may be a significant addition to the services already being offered by the hospital to respond to the HIV crisis in the country.

Results of this study are also projected to benefit the healthcare workers and the institution to help create targeted interventions, aid in policy development, provide education and improve training strategies. This will lead to a well-informed healthcare workforce that can help improve patient management and outcomes and provide better management of HIV/AIDS. Lastly, this study will also benefit the local communities in addressing knowledge gaps and behavioral patterns towards HIV/AIDS.

CONCLUSION

Our study found that healthcare workers of National Children's Hospital had a high level of knowledge, positive attitudes, and fair practices towards HIV/AIDS. Association between professions and their level of knowledge, attitude and practices regarding HIV is statistically significant. Among the professions, doctors, nurses, medical technologists, and radiologic technologists have a proportionally higher number of participants with good knowledge. Positive attitude was higher among pharmacists, physical therapists, and dentists. Lastly, good practice was highest among midwives.

CONFLICT OF INTEREST

None declared.

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