Knowledge, Attitudes and Perceptions of Nurses Regarding the Adherence Counselling of Persons with HIV-TB Coinfection: A Descriptive Survey

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Abstract

Introduction

People living with HIV (PLHIV) co-infected with tuberculosis (TB) account for one in three HIV-related deaths. Retention in care and adherence to medication remain key behaviours that people co-infected with HIV and TB must adopt to achieve better health outcomes. TB/HIV adherence-counselling services provided by nurses are designed to enhance these behaviours, but this remains inadequate as patients still default their treatment plans by not attending follow up appointments and not adhering to their programme.

Aim

To assess the Knowledge, Attitudes and Perceptions (KAP) of nurses towards adherence to counselling of people living with HIV co-infected with TB in a health sub district of the Cape metropole, South Africa.

Method

A descriptive-sectional design was used on all-inclusive population of nurses. The instrument used was an adapted five- point Likert scale questionnaire with original reliability: knowledge (α=.70), perception (α=.77), and attitude (α=.77) in each domains Data was analysed using SPSS version 26. Data presentation was in simple percentages, means and standard deviations. The two-way ANOVA was used in determining the effect of level of qualification and training

on nurses' knowledge, attitudes, and perceptions regarding counselling of PLHIV co-infected with TB.

Results

Most of the respondents 72 (87.8%) were females. The mean and standard deviation years of working experience with HIV/HAST protocol was 6.8 ± 4.63 and number of years working as a nurse was 11.33 ± 7.21. With reference to knowledge of nurses on adherence counselling of these patients, most of the respondents agreed "TB is considered as a very serious disease and health problem, can infect anyone should be explained to the patient during counselling. Regarding perceptions of nurses on adherence counselling PLHIV co-infected with TB, most of nurses 3.89, 56 (69.2%) agreed "Poverty stricken patients just need treatment, as they cannot do anything to improve their health hence counselling not necessary". Regarding attitudes of nurses to adherence counselling, most respondents agreed "Speak clearly and use language that HIV/TB patients will understand counselling" (mean 4.34, 70 (85.4%)). There was no significant difference on effect of level of qualification and training on nurse's adherence counselling PLHIV co-infected with TB ($p>.05$).

Conclusion

There is a need for capacity building training in adherence counselling to improve nurses' skills in counselling and management of patients with TB/HIV. Appropriate training of nurses of all categories and orientation and re-orientation of the patients to enhance support and adherence.

Introduction

Adherence counselling services are strongly recommended by the World Health Organization (WHO) and have been partially incorporated into the South Africa national HIV guidelines (Bemelmans et al., 2016). Human immunodeficiency virus (HIV) and tuberculosis (TB) are two of the major infections that continue to be global health threats and efforts have been undertaken to combat these diseases, with global reports highlighting the urgency of the issue (Olivier & Luies, 2023). People living with HIV (PLHIV) co-infected with tuberculosis account for a significant proportion of HIV-related deaths, estimated at one in three (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2017). In South Africa, about 35% of deaths of PLHIV in 2015 were attributed to TB (Massyn et al., 2016).

The eradication of the TB epidemic by 2030 is a major health objective of the Sustainable Development Goals (Massyn et al., 2016). However, ensuring patient adherence to treatment remains a critical issue for both TB and HIV patients (Méda et

al., 2016). The South African Adherence Guidelines have reinforced the importance of adherence for the management of HIV, TB, and non-communicable diseases (NCDs) (South African National Department of Health, 2016).

Adherence to long-term medication in high-income countries has been estimated to be only 50%, and adherence in low-middle income countries (LMICs) even lower (Méda et al., 2016). Patient-related barriers such as lack of knowledge, and provider-related barriers such as poor patient-provider communication, inadequate health education and poorly trained staff on counselling have been reported as contributors to poor treatment adherence counselling (South African National Department of Health, 2016).

Patients with HIV co-infected with TB on concomitant treatment may thus be at risk for decreased adherence to either or both treatments. Non-adherence to antiretroviral treatment (ART) as well TB treatment can lead to manifestations of drug-resistant strains of mycobacterium tuberculosis (Ukoha-Kalu et al., 2019). In addition, there are numerous negative effects of non-adherence to HIV and TB drugs, and without treatment, death is inevitable (Musvipwa, 2019). The South African adherence guidelines on HIV, TB and NCDs place adherence counselling as core in the continuum of care that encompasses linkage, adherence and retention strategies to care particularly for PLHIV co-infected with TB (Department of Health, 2016).

Nurses are the primary healthcare providers in the South African healthcare system and occupy a central position in the administration of integrated interventions for individuals co-infected with HIV and TB (Makhado et al., 2018). During clinical consultations, nurses are responsible for obtaining patient history, conducting clinical examinations, and providing appropriate adherence counselling to PLHIV co-infected with TB. They also play a crucial role in the distribution of antiretroviral therapy (ART) and TB medications (Stime et al., 2018).

Adherence counselling at the initiation of treatment and for retention in care is primarily the role of nurses, particularly at the primary level of care. In settings with a high HIV and TB burden, lay workers often perform patient education and counselling (Bemelmans et al., 2016). Thekkur et al. (2019) suggest that there is a need to address the National Treatment Plan (NTP) programme implementation challenges like lack of training, patient treatment side effects and low involvement of staff in the programme. To ensure a positive outcome of the therapeutic process between a patient and nurse, a strong working alliance with a mutual understanding and valuation of goals and tasks should be established (Fullard, 2018). The expectation is that nurses should be initiating adherence counselling of HIV/TB coinfected patients at the community health centre (CHC) level but this is not taking place.

Focused training is directed towards Registered Nurses (RNs) specifically for initiation of treatment (Kerschberger et al., 2019), and lay counsellors offer ongoing health education and adherence counselling. Nurses often do not have the capacity and

resources to correctly interpret, apply and manage TB/HIV policy directives in local contexts (Kigozi et al., 2017).

Nurses undergo training to initiate and follow-up patients on ART and TB treatment (Kerschberger et al., 2019). The South Africa Nursing Act No. 33 of 2005 regulates three categories of nurses: (a) enrolled nursing assistants (ENAs), (b) enrolled nurses (ENs), and (c) professional nurses (PNs). All categories of nurses have roles in the care of patients infected with TB and/or HIV (Phetlhu et al., 2018).

Nurses have frequent contact with HIV and TB co-infected patients, and their counselling behaviours are influenced by their knowledge about counselling as well as their beliefs, attitude and perceptions about barriers to counselling (Petersen, 2021). Adherence to treatment is crucial for managing both conditions effectively. Nurses play a central role in providing adherence counselling to these patients. Understanding nurses' knowledge, attitudes, and perceptions regarding counselling is essential to improve patient care and health outcomes. Therefore, this study aimed to investigate the knowledge, attitudes, and perceptions of nurses regarding adherence counselling in this Cape Town Metropole health sub-district.

Aim

To investigate nurses' knowledge, attitudes and perceptions regarding adherence counselling of persons with HIV/TB co-infection in a health sub-district in the Cape Town Metropole.

Methods

A descriptive survey was used. In quantitative research, evidence is gathered logically through several steps, using a pre-specified plan that applies mechanisms to control the study and formal instruments to collect the necessary information. This ensures that bias is minimised, and the validity and reliability of the study are maximised.

Study setting

This study was conducted in one of the health sub districts of the Cape Town Metropole. The selected health sub district is one of the poorest communities in Cape Town, with a high HIV co-infected with TB prevalence of 47.6%, (Mahtab & Coetzee, 2017). The unemployment rate is reported to be 38, 2% and family incomes range from R1600-R2500 a month. The nine primary level health care facilities (CHCs) in this sub district provide integrated primary health care services to the communities, including HIV and TB care (City of Cape Town (2015), For this study, five clinics were purposively selected because they offer HIV and TB services, including Voluntary Counselling and Testing (VCT), Prevention of Mother To Child Transmission (PMTCT), Antiretroviral Treatment (ART), Tuberculosis (TB) screening and management. These facilities were purposively selected because they service the highest number of HIV and TB patients

in the sub-district and register the highest number of loss to follow-up cases of PLHIV co-infected with TB (Massyn et al., 2016).

Population

There are approximately 180 nurses in the nine CHCs in this health sub-district (MSF, 2016) with 82 working in the five selected CHCs.

Sampling Method and Sample Size

Two-step sampling was followed. First, a purposive sampling method was used to choose the five (5) of the nine (9) CHCs in the sub-district. The decision was based on the high burden of PLHIV co-infected with TB in these CHCs. The expectation was that nurses should be doing adherence counselling, thus should be able to provide information required for this study. Secondly, due to the small, targeted population (n=82), the researchers opted not to do a sample calculation and used an all-inclusive sampling strategy. Confidence interval not considered because the p-value was not borderline. All three categories of nurses offer care to these patients at the CHCs.

Inclusion Criteria

- All nurses (ENAs, ENs, and RNs) working in the selected CHCs and offering treatment adherence counselling services to PLHIV co-infected with TB.
- Nurses able to understand and communicate in English as the questionnaire was in English.
- Nurses who had been working in the selected CHC for a minimum one month prior to the date of data collection.
- Nurses who had encountered patients with HIV and TB.

Exclusion Criteria

- Nurses who did not encounter PLHIV and TB were excluded from this study.

Data Collection Instrument

A validated self-administered structured survey was used for to collect data (Mntlangula et al., 2017). The researchers were granted permission to adapt the tool for the study. The questionnaire is in four sections. The first section captures the demographic information that was adjusted for local context. Subsequent sections measure nurses' knowledge, perceptions and attitude regarding counselling PLHIV co-infected with TB. Responses to the items in these sections use a Likert scale ranging from "strongly disagree=1" to "strongly agree=5". The original reliability measures of the Mntlangula's questionnaire were acceptable: knowledge (α=.70), perception (α=.77), and attitude (α=.77). After pre-testing, the necessary changes to the instrument were made with the assistance of a statistician. The Cronbach Alphas of the measures after the pre-testing were found to be acceptable: knowledge (α=.73), perception (α=.75), and attitude (α=.64).

Reliability

Reliability for this study was ensured by pre-testing the questionnaire with three (3) participants who did not participate in the main study. This was to determine the internal consistency of questionnaire items within a specific category, or the consistency of results obtained in the repeated use of a particular instrument over time (Huprich et al., 2018).

Data Analysis

All 82 nurses completed the survey (100% response rate). All questionnaires were checked, found to be complete and included in the analysis. Data were analysed using SPSS version 26. Descriptive statistics were used to establish the respondents' knowledge level, attitudes and perceptions regarding counselling of PLHIV co-infected with TB. A two-way ANOVA was used to determine the effect of level of qualification and training on nurses' knowledge, perceptions, and attitudes regarding counselling PLHIV co-infected with TB.

Ethical considerations

Ethical approval for the study was obtained from the Biomedical Research Ethics Committee of the University of the Western Cape (BM19/8/9), Western Cape Department of Health (WC_201910_036) and the City of Cape Town (8230).

Results

Most of the respondents 72 (87.8%) were female. The mean and standard deviation years of working experience with HIV/HAST protocol was 6.8 ± 4.63, and number of years working as a nurse was 11.33 ± 7.21. Over four-fifths of the respondents (70; 85.4%) had a Christian religious affiliation. About two-fifths of the respondents were PNs with diploma 27 (32.9%) while 5 (6.1%) were PN with degree and additional qualification (Table 1).

Table 1: Demographic characteristics of respondents (n=82)

	Frequency	%
Gender		
Male	10	12,2
Female	72	87.8
Religious affiliation:		
Christianity	70	85.4
Islam	5	6.1
Traditionalist	5	6.1
Other	2	2.4
PN with degree	23	28.0
PN with diploma	27	32.9
PN with degree and additional qualification	5	6.1
PN with diploma and additional qualification	10	12.2
Other category of nurses (ENA and EN)	17	20.7
HAST training	Yes=38	No=43
No. of years worked as HAST M(SD)	6.8(4.63)	-
No. of years working as a nurse M(SD)	11.33(7.21)	-

In assessing the knowledge of nurses regarding adherence counselling of PLHIV co-infected with TB, seven statements were used. The strongly rated statement was "TB is considered as a very serious disease and health problem co-infected with TB can infect anyone should be explained to the patient during counselling" (mean 4.47; 73, (90.1%)) while the lowest rated was "Duration for treatment adherence counselling HIV/TB patients range from 30 minutes to an hour" (mean 3.98; 68, 83%) (Table 2).

Table 2: Knowledge of nurses regarding adherence counselling (n=82)

Variable	Mean(SD)	Strongly disagree n (%)	Disagree n (%)	Do not know n (%)	Agree n (%)	Strongly agree n (%)	Total
Q2	4.39(0.75)	1 (1.2)	2 (2.4)	1 (1.2)	38 (46.3)	40 (48.8)	82
Q3	4.32(0.84)	1 (1.2)	3 (3.7)	5 (6.1)	33 (40.2)	40 (48.2)	82
Q4	3.98(0.99)	3 (3.7)	6 (7.3)	5 (6.1)	44 (53.7)	24 (29.3)	82
Q5	4.45(0.63)	1 (1.2)	0 (00)	3 (3.7)	36 (43.9)	42 (51.2)	82
Q6	4.35(1.19)	3 (3.7)	10 (12.2)	0 (00)	11 (13.4)	58 (70.7)	82
Q7	4.46(1.20)	2 (2.5)	4 (4.9)	3 (3.7)	18 (22.2)	54 (66.7)	81
Q8	4.47(1.00)	1 (1.2)	1 (1.2)	6 (7.4)	24 (29.6)	49 (60.5)	81

Four statements were used to assess the perceptions of nurses regarding adherence counselling of PLHIV co-infected with TB. The strongly rated statement was "Poverty stricken patients just need treatment, as they cannot do anything to improve their health hence counselling not necessary" (mean 3.89; 56 (69.2%) while the lowest rated statement was "No amount of counselling can help patients who not have any hope/helpless" (mean 3.40; 49, 59.7%) (Table 3).

Table 3: Perceptions of nurses regarding adherence counselling (n=82)

Variable	Mean(SD)	Strongly disagree n (%)	Disagree n (%)	Do not know n (%)	Agree n (%)	Strongly agree n (%)	Total
Q9	3.40(1.42)	10 (12.2)	19 (23.2)	4 (4.9)	26 (31.7)	23 (28.0)	82
Q10	3.56(1.20)	6 (7.3)	13 (15.9)	9 (11.0)	37 (45.1)	17 (20.7)	82
Q11	3.78(1.28)	3 (3.7)	16 (19.5)	11 (13.4)	18 (22.0)	34 (41.5)	82
Q12	3.89(1.42)	1 (1.2)	13 (16.1)	11 (13.6)	25 (30.9)	31 (38.3)	81

Three statements were used for the section on attitude of nurses regarding adherence counselling of PLHIV co-infected with TB. The strongly rated statement was "Speak clearly and use language that HIV/TB patients will understand counselling" (mean 4.34; 70, 5.4%) and the lowest reported was "In this clinic where I work there is enough space and time to offer counselling to the patient" (mean 3.40; 50, 61.0%) (Table 4).

Table 4: Attitude of nurses regarding adherence counselling (n=82)

Variable	Mean(SD)	Strongly disagree n (%)	Disagree n (%)	Do not know n (%)	Agree n (%)	Strongly agree n (%)	Total
Q17	4.35(1.35)	3(3.7)	10 (12.2)	0 (0.0)	11 (13.4)	58 (70.7)	82
Q19	4.46(1.02)	4 (4.9)	2 (2.5)	3 (3.7)	18 (22.2)	54 (66.7)	81
Q20	4.34(1.05)	3 (3.7)	4 (4.9)	5 (5.1)	20 (24.4)	50 (61.0)	82

Table 5: Effect of level of qualification and training on nurses' knowledge of adherence counselling of PLHIV co-infected with TB

Variable	Type III Sum of Squares	Df	MS	F	p
Level of qualification on knowledge	65.67	4	16.42	1.13	.349
	1.63	1	1.63	0.11	.738
Level of qualification and training	5.89	4	1.47	0.10	.982

The effect of level of qualification and training on knowledge was not significant, $F_{(4, 71)} = 0.10$, p=982 ($p > .05$).

Table 6: Effect of level of qualification and training on nurses' attitude on adherence counselling (n=82)

Variable	Type III Sum of Squares	Df	MS	F	p
Level of qualification on attitude	14.551	4	3.638	0.533	0.712
	13.891	1	13.891	2.035	0.158
Level of qualification and training	29.130	4	7.282	1.067	0.379.

The effect of qualification and training on attitudes of the respondents was not significant, F (4, 71) =1.067, p=379 (*p*>.05).

Table 7: Effect of level of qualification and training on nurses' perceptions regarding adherence counselling of PLHIV co-infected with TB

Variable	Type III Sum of Squares	df	MS	F	p
Level of qualification on perceptions	88.032	4	22.008	1.520	.206
	7.919	1	7.919	0.547	.462
Level of qualification and training	49.541	4	12.385	0.855	.495

The effect of level of qualification and training on nurse's perceptions with HIV and TB was not significant, F (4, 71) =1.067, p=379 (*p*>.05).

Discussion

This study revealed that, at the selected CHCs, the nurses' knowledge about HIV and AIDS / STI / TB (HAST) was good regarding adherence counselling of PLHIV co-infected with TB. In contrast, a study reported lack of knowledge 25% (*n* = 11) however, some of the respondents perceived themselves to have sufficient knowledge (Phetlhu et al., 2018). In a study conducted in Odi District Hospital, Gauteng province, most of the respondents were equipped with skill in the management of Tuberculosis comorbid with HIV infection (Abdulrazaak et al., 2018). A systematic literature review by Tan et al. (2020) reported that nurses were knowledgeable about HIV/TB adherence counselling but there was an application gap and some nurses failed to change their caring practices because they felt that they were in their comfort zone at the clinics. Lippman et al. (2020) in São Paulo, Brazil, found that health care providers, including nurses, demonstrated inconsistent knowledge and infrequent counselling on the benefits of adherence to PLHIV co-infected with TB.

The results of this study also show that the majority of respondents 72 (88.9%) knew that a facemask should be worn by the nurse at all times when counselling a patient with TB, with the mean value (M=4.46, SD=1.20). In a qualitative study conducted in primary care facilities in the Western Cape, South Africa, Kallon et al. (2021) reported that nurses and other health care workers strongly supported the consistent wearing of facemasks when counselling patients with TB. Madzinga (2022) in a qualitative study in the Collins Chabane Municipality, South Africa, also recommended with the use of facemasks when counselling patients with TB. Challenges to the consistent wearing of face mask when counselling a patient with TB are inadequate funds to obtain adequate

supply of N95 facemasks, as reported in a hospital based study in Limpopo, South Africa. This puts nurses at risk for contracting TB (Matakanye et al., 2019).

In this study, nurses reported that "Duration for treatment adherence counselling HIV/TB patients range from 30 minutes to an hour (mean 3.98; 68, 83%) (Table 2). This corroborates the findings of a study conducted in Debre Markos referral hospital, Northwest Ethiopia where 83% of the respondents had good knowledge of the duration of the management (Desta et al., 2018). In nursing, knowledge is an important determinant in perception and attitude formation (Pampalia et al., 2021). Understanding the knowledge that nurses have in relation to TB and HIV protocols would contribute significantly to developing adherence counselling training programmes, aimed at ensuring effective adherence counselling for patients.

Nurses' Perceptions Regarding Adherence Counselling

The results of the study indicate that the nurses' perceptions towards adherence counselling was overall negative. The descriptive frequency and the mean test with the reversed measurement scales were used to ascertain if the respondents had a positive or negative perception. Mntlangula et al. (2017) also reported that stated nurses, as communicators of health education, were perceived to be uncertain about their role and function with respect to the HAST programme. (Maharaj, 2022) who reported that, the perception included the fact that some of the nurses displayed non-adherence to ethical principles, stigma, and discrimination was contributing negative perceptions towards PLHIV co-infected with TB at the clinics. In the current study, the most rated perceptions on adherence counselling of PLHIV co-infected with TB was "Poverty stricken patients just need treatment, as they cannot do anything to improve their health hence counselling not necessary" (3.89; 56, 69.2%). This concurs with a study in which 54 (62%) of the nurses reported stated that poverty stricken patients just need treatment, as they cannot do anything to improve their health, hence counselling was not necessary (Mntlangula et al., 2017).

In this study, the least rated statement was "No amount of counselling can help patients who not have any hope/helpless" (3.40; 49, 59.7%). There is a correlation between poverty and predisposition to HIV/TB infection as immune system suppression is linked with lower socioeconomic status (Desta et al., 2018). (Mntlangula et al., 2017) found that non-literate patients did not respond to counselling, regardless of the time spent with them the counsel regardless of the hours of counselling with them since they are not literate. Lippman et al. (2020). Lippman et al. (2020) reported that some nurses rarely counsel patients with HIV/TB due concerns about their behavioural disinhibition.

In their study, Ahmed et al. (2021) reported that the attitudes of healthcare workers towards their clients influenced their disposition towards the rendering of services to the clients. Mainga et al. (2022), in Zambia, reported that perceived negative perceptions of nurses' influenced their behaviour towards HIV/TB patients and was a barrier to care.

It is important to address these negative perceptions through education and training to ensure that patients receive the best possible care.

With reference to the statement *"Some patients know how to manage their condition and do not need counselling"*, most 54 (66 %) respondents agreed with the statement, which indicates the negative perceptions of the nurses. This finding is in contrast with those of Pascoe et al. (2020), who reported in a qualitative study that nurses rather motivated patients and counselled patients. In our study, 52 (63.4%) respondents agreed with the statement *"Uneducated patients can never understand no matter how much time one spends counselling them"* indicating their negative perceptions. Baloyi and Manyisa (2022), noted however, that while not patients in low socio-economic settings are illiterate, levels of literacy are important to consider because there is a strong relationship between low literacy and health status. Negative perceptions in turn negatively affect the continuum of care rendered to PLHIV co-infected with TB.

Very few (6, 7.3%) respondents indicated that they did not know about the "Duration of treatment adherence counselling for HIV/TB patients ranges from 30 minutes to 1 hour". There is limited information available regarding the specific recommended duration for treatment adherence counselling sessions for patients with HIV/TB. However, adherence-counselling sessions generally range from 30 minutes to 1 hour in duration, allowing sufficient time for effective communication, information exchange, and addressing patient concerns. It is important to note that the actual duration may vary depending on individual patient needs and the complexity of their treatment regimen (Smith et al., 2020).

Some (10, 2.2%) of the respondents indicated that "patients stop taking ARVs after cured for TB". A similar study conducted in Limpopo province identified that some HIV patients stopped taking ART after completing TB treatment because of cultural influences and lack of family support (Matakanye et al., 2019). In a qualitative study in Brazil, it was recommended that patients should be made aware of the need to complete the TB treatment regimen to obtain a cure, and should adhere to antiretroviral drugs to increase survival and prevent transmission of either TB or HIV to others (de Resende et al., 2023).

An interesting finding in the current study was the "I do not know" response regarding "some patients know how to manage their condition and do not need counselling". Researchers from the United Arab Emirates, in a qualitative study, reported stories of the emotional impact and suffering of patients on chronic medications. This left counsellors struggling and feeling helpless to manage the continuity of care of their patients (Campo-Redondo et al., 2022). PLHIV co-infected with TB are supposed to be offered counselling due to their dual condition characterised by emotional impact and nurses should rather be knowledgeable on counselling and have positive perceptions when offering care to these patients rather than indicating that they do not know.

Attitudes of Nurses Regarding Adherence Counselling

The overall results show that the respondents had a postive attitude towards offering adherence counselling to PLHIV co-infected with TB and HAST, with mean value >4 indicating positive attitudes.

Regarding attitudes of the nurses towards treatment adherence counselling and HAST, the study found that a large majority of the nurses had positive attitudes ,as they agreed that adherence counselling of PLHIV co-infected with TB and HAST generally has a positive effect, with the mean values ranging from 4.34 - 4.46. Nurses with positive attitudes towards adherence counselling can enhance patients' cooperation and adherence in the treatment of the dual infections. Alotaibi et al. (2019) in a study conducted in Mecca, reported nurses' attitudes towards patients with TB are important factors in improving patients' health-seeking behaviour, compliance with prescribed treatment regimens, preventing the development of drug resistance and treatment outcomes.

Negative attitudes and discrimination by nurses have also been widely reported (Crowley et al., 2021; Maharaj, 2022; Moodley et al., 2020; Sommerland, 2020; Wouters et al., 2022) Mboweni and Makhado (2020) identified a negative attitudes of nurses towards the management of patients with HIV/TB. Refusal to manage patients with HIV/TB has been also reported in studies conducted in Venda, South Africa and India, where negative attitude from nurses towards these patients perpetuated stigma and discrimination, and with deleterious effects on patient education and treatment (Maharaj, 2022; Rewari et al., 2021).

Most respondents (72,88.9%) in our study agreed that the nurse is able to maintain positive feelings and empathy towards the patient, even when the patient does not want to cooperate. , The highest mean value was seen for this (M=4.46, SD1.02) compared to the other two measurement scales. When nurses demonstrate empathy and maintain positive feelings, it can foster a sense of mutual respect and understanding between the nurse and the patient. This can lead to increase patient engagement and collaboration in their own care. Maharaj (2022), found that nurses and healthcare workers in South African public hospitals do display empathy and behave ethically with moral value and ethical decision-making, by balancing ethics of their profession and personal ethical beliefs. Mitigating emotional distress is possible. Some patients who are perceived as uncooperative or resistant to care often experience emotional distress related to their conditions. Nurses who maintain a positive attitude, feeling and empathy can help alleviate this distress by providing emotional support, active listening, and compassionate care.

More than two-third 70 (85.3%) of respondents reported about the importance of speaking clearly and use of language that patients with HIV/TB understand. The mean value (M) was 4.35 (SD=1.05) indicating nurses have positive attitude towards offering adherence counselling to PLHIV co-infected with TB. This finding aligns with findings

of Kallon et al. (2021) in Cape Town, South Africa, that during a counselling session, patients understood the content of counselling when being spoken to in a language they understood.

Effect of Qualification and Training

The ANOVA analysis that indicates that the effect level of qualification and training on nurses' KAP was not statistically significant at a p value of >0.05. The 2-way ANOVA main effect of level of qualification on attitude of the respondents was not significant, $F_{(4, 71)} = 1.067$, $p=379$. The main interactive effect of training on knowledge of respondents was not significant, $F_{(4, 71)} = 0.10$, $p=982$. It was observed that the interaction effect of level of qualification and training on nurses' adherence counselling of PLHIV co-infected with TB was not significant, $F_{(4, 71)} = 1.067$, $p>0.05$. Similar findings, no significant difference between the knowledge of the health workers and their corresponding attitude in the management of prevention TB ($p=0.2986$), were reported in Odi District Hospital, Gauteng province by Abdulrazaak et al. (2018). In another study, a university qualification was reported to be significant to positive counselling attitudinal change for HAST (Mntlangula et al., 2017). The authors also found reported a conflict in resolving the nexus between the degree and as the respondent were indifferent to whether training could improve health workers skills in counselling (Mntlangula et al., 2017).

Implication of findings to this study

Nurses must be trained regardless of their educational status. There is also a need for continuous orientation and re-orientation of the clients for an optimal benefit from the counselling.

Limitations

This study was conducted in only one health sub-district in Cape Town, which limits the generalizability of the study to other similar areas or contexts. As a self-reported survey study, the responses provided by nurses may not be a true reflection of the nurse-patient interactions.

Recommendations

Self-reported surveys should be combined with other data collection methods such as direct observations, interviews, and focus groups to triangulate the data and obtain a more accurate representation of the phenomenon. Similar studies across larger districts or across different regions would improve the generalizability of the findings and provide a more comprehensive understanding of nurses' knowledge, attitudes and perceptions regarding adherence counselling.

Conclusion

This study of the KAP of nurses regarding adherence counselling of PLHIV co-infected with TB found that majority of the respondents were knowledgeable about adherence counselling of PLHIV co-infected with TB. There were knowledge gaps, but overall attitudes toward patients with HIV coinfected with TB adherence counselling were positive. The majority of the nurses expressed negative perceptions about adherence counselling. The effect of qualification level and training on nurses' knowledge, perceptions and attitudes regarding adherence counselling were insignificant.

The Implications

Nurses needed to be adequately trained in TB/HIV adherence counselling to promote adherence, which will contribute to improved quality of life of their patients.

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