KNOWLEDGE AND ATTITUDES OF NURSES TOWARD PRE–EXPOSURE PROPHYLAXIS (PREP) IN A HEALTH FACILITY IN THE LUBOMBO REGION, ESWATINI

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ABSTRACT

Though the incidence of HIV is decreasing in Eswatini it is still high compared to other countries in the region. More strategies such as Pre-Exposure Prophylaxis (PrEP) for HIV prevention have to be employed to curb the spread of the disease. The study sought to determine the knowledge and attitudes of nurses towards Pre – Exposure prophylaxis in one of the health facilities in the Lubombo Region, in Eswatini. A quantitative - descriptive cross sectional approach was utilised in this study with a total of 31 respondents' selected using simple random sampling. All the participants were registered nurses working in designated Anti-Retroviral departments. Self – administered questionnaires were adapted and also pretested to ensure validity and reliability. Data were analyzed using descriptive statistics and Pearson's Correlation through the Statistical Package for Social Sciences. All the respondents were aware of PrEP however few new the eligibility criteria. There is a high level of awareness about PrEP but low level of knowledge (16.1) about when PrEP should be taken, who is eligible for PrEP (38.7%) and what drugs are recommended for PrEP (45.2%). A majority (90.4%) believed that PrEP is likely to reduce HIV transmission. Above average (64.5) % were willing to prescribe PrEP though were sceptical of side effects (61.3%). Though they believed PrEP was 100% effective majority (74.2) were concerned about poor adherence. The study shows poor knowledge but attitude was moderate towards PrEP among nurses

KEYWORDS: Knowledge, attitude, nurses, pre – exposure prophylaxis (PrEP)

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INTRODUCTION

Preventing HIV is vital, and it is a major health concern, particularly in all developing countries, including Eswatini, where the burden is higher compared to developed countries. The 2016 incidence of HIV in Western and North America and Central Europe was 73 000, while in Eastern and Southern Africa, it was an overwhelming 790 000 (Weil, 2017). Furthermore, locally in Eswatini, HIV has the highest prevalence of 27.2%, according to the Government of the Kingdom of Eswatini (2019)). Therefore it is a prime public health concern. In this regard Eswatini has a higher prevalence rate compared to other countries in the Sub-Sahara such as Lesotho (22.9%), Botswana (21.9%), South Africa (19.1%), and Zimbabwe (15.0%) (Kharsany & Karia, 2016). Furthermore, in Eswatini, there were 2.4% new cases of HIV in 2016 (Government of the Kingdom of Eswatini (2019)). This still shows a high rate of HIV transmission in the country which therefore means more strategies of HIV prevention have to be employed in the country to curb the spread of the disease and reduce the number of new infections (UNAIDS, 2016). Hence Eswatini has to act swiftly to diminish these HIV rates.

Successful prevention of HIV can lead to a more than 50% reduction in the incidence, the decrease required to end the AIDS epidemic by 2030 (UNAIDS, 2017). Recently, it has been discovered that HIV medication cannot only treat HIV but also prevent it. Therefore Pre – Exposure Prophylaxis (PrEP) is used as an antiretroviral medication to prevent the acquisition of HIV infection by uninfected persons (WHO, 2015). WHO approves and attest that PrEP is safe and effective at preventing HIV infection. Since September 2015, WHO has recommended that people at substantial risk of HIV infection should be offered PrEP as an additional prevention choice. The efficacy of oral PrEP has been shown in randomised control trials to reduce the risk of infection by over 90% (WHO, 2015). However, PrEP coverage globally is less than 5% of the 2020 target (UNAIDS, 2017). The poor coverage signifies the global challenge in reducing HIV and its impact. HIV prevention is available for free to the public of Eswatini.

While PrEP is available, various studies have indicated minimal knowledge of PrEP among healthcare providers and distinctive attitudes towards PrEP such as a study conducted by Smith, Mendoza, Stryker and Rose (2016) revealed that awareness of PrEP was low among clinicians but increased after trials of its reported effectiveness of PrEP. Furthermore, the same authors indicated that health professionals expressed interest in acquiring knowledge about delivering PrEP for HIV prevention. It suggests that the nurses' knowledge and attitudes influence PrEP uptake. Fuelling these challenges is the actual reality that Sub – Saharan Africa has limited resources as it is also battles other major public health concerns (Azevedo, 2017). Therefore, less effort is directed towards the education of nurses to create and improve knowledge and attitudes concerning PrEP.

In Sub – Saharan Africa, studies indicate that nurses have a negative attitude towards PrEP because they are not familiar with the concept of PrEP as a preventative method for HIV (Restar, Myers, Edelstein, Golub, Daskalakis, 2016). The World Health Organisation recommends taking PrEP every day to work most effectively and provide the highest level of protection. However, studies have shown that few nurses know

about this intervention, influencing their attitude towards rendering such a service (Restar et al., 2016). Findings point to a relationship between poor attitudes and a lack of knowledge of PrEP.

To facilitate the expansion of HIV prevention services, the Eswatini Ministry of Health (MOH) has developed the first National HIV Prevention policy for Eswatini – 2012 (National Emergency Response Council on HIV and AIDS, 2012). This policy incorporated national and international best practices and evidence on the most effective strategies and interventions that promise to reduce HIV incidence. Moreover, the country has prioritised HIV prevention within the national response to HIV and AIDS. However, there is little or no information in Eswatini to assert the knowledge and attitudes of the nurses towards PrEP. Therefore, there are gaps between the services offered because of nurses' lack of knowledge and attitudes towards PrEP, prompting the researcher to conduct a study among nurses which aims to understand their knowledge and attitudes more.

Although Eswatini had a very high HIV incidence of 2.4% new cases as of 2016 (Government of the Kingdom of Eswatini (2019), PrEP has not been popularised as a strategy for HIV prevention. Furthermore, awareness of PrEP is not high in the country, even among health workers. Though training has been done, other regions have been lagging. The lagging could be attributed to PrEP being recently introduced in the country. Therefore, there are limited resources to train all nurses in all the regions at once. The study therefore sought to examine the knowledge and attitude of Pre-Exposure Prophylaxis as little or no data about the phenomenon among nurses is available.

Significance of the study

Nursing Education: It is envisaged that the study will encourage tertiary institutions to include in their curriculum knowledge and instil a positive attitude in nursing students on implementing and managing PrEP.

Nursing Practice: The study will assist health workers in improving the acquired knowledge and positive attitudes to implement better service delivery related to PrEP.

Nursing management: The study will reinforce proper planning of workshops and training by health facility management in line with equipping nurses on the field with the knowledge and positive attitudes to implement PrEP.

Nursing Research: This study will prompt more studies to be carried out on PrEP. It also aims to provide some insight and information to other nurses and scholars on issues surrounding HIV prevention in the country.

Policy: the study will inform policymakers on nurses' knowledge and attitudes towards PrEP to strengthen the training of nurses on PrEP.

REVIEW OF RELATED LITERATURE

Nurses need to be knowledgeable about HIV prevention strategies, such as Pre-Exposure Prophylaxis, to educate the population better and promote the reduction of HIV. Studies indicate that PrEP is beneficial in reducing HIV, as trials conducted by the Kaser Permanente Medical Center reported no new infection among the participants (men having sex with men) on PrEP after two and half years of trials (Reynolds, 2015). However, Smith, Mendoza, Stryker and Rose (2016) surveyed 2009 to 2015 primary care clinicians on PrEP awareness and attitudes in the United States, indicating that knowledge was low among clinicians, about 24% in 2009 and 29% in 2010. On the contrary, Maude, Volpe and Stone (2017) did a study on health practitioners at Tufts Medical Centre to assess knowledge, attitudes and practices on PrEP against HIV infection. Maude et al. reported that almost 67.5% of the study participants had heard of PrEP.

In addition, Seidman, Carlson, Weber, Witt and Kelly (2016) did a national survey among health providers to determine knowledge and attitudes towards pre–exposure prophylaxis for HIV prevention. The study findings revealed that 38% correctly defined PrEP, 37% understood the effectiveness of PrEP, and only 36% of respondents consulted PrEP guidelines. On another note, a lack of knowledge influenced the implementation of PrEP in some service areas. The same authors examined facilitators and barriers to PrEP implementation in family planning services. Participants reported insufficient training as the main barrier to implementing PrEP; hence (87%) wanted PrEP education.

Furthermore, Krakower, Oldenburg, Mitty, Wilson, Kurth, Maloney, Gallagher and Mayer (2015), three-fourths of all respondents were aware of guidance from the U.S. Centers for Disease Control and Prevention recommending PrEP provision. Nineteen percent of clinicians (19%) had prescribed PrEP, and 58% of the clinicians who had not prescribed PrEP anticipated future provision. The clinicians expressed theoretical concerns and perceived practical barriers to prescribing early PrEP and ART.

Nurses' attitudes play a vital role in implementing health services in general. In a study by Hakre et al. (2016), most providers (68%) believed that the population was at risk for HIV infection. Furthermore, the same per centage thought they would have time for prevention counselling and PrEP monitoring. However, the main concerns reported by participants included discomfort with prescribing drugs for new indications without clear evidence (60%). It can be alluded that some providers have negative attitudes because of a lack of precise knowledge about PrEP.

On another note, side effects have been cited as one of the disadvantages of taking PrEP. Bond and Gunn (2016) reported that much as women realised the benefits, they were concerned that the side effects related to PrEP were unsafe for long-term use. Therefore this signifies that though PrEP is beneficial, it is scary to some people. It is crucial to understand nurses' beliefs, barriers and feelings towards PrEP. Positive attitudes can be a facilitator in informing clients about PrEP and providing it to high–risk individuals. Saberi, Berrean, Thomas, Gandhi and Scott (2018) conducted a pilot study on a simple PrEP Optimization Intervention for healthcare

providers prescribing PrEP. The study aimed at describing and examining the feasibility and acceptance of PrEP among healthcare providers. The study findings reported that 91% of health providers pointed-out willingness to prescribe PrEP for patients at risk for HIV. The study reveals that positive attitudes promote the implementation of PrEP services. On the contrary, it could be argued that a lack of knowledge influences negative attitudes with respect to the provision of PrEP. This is supported by a study conducted by Maude, Volpe and Stone (2017), who reported that 31.8% were uncomfortable prescribing PrEP. The barriers mentioned were that they did not have enough knowledge (75%) and that they lacked experience (56.25%).

METHODOLOGY

The study design was quantitative - descriptive cross-sectional. This study was among registered nurses who work at various Antiretroviral Departments (Antiretroviral, Tuberculosis (TB) and Prevention – Of - Mother - To - Child (PMTCT) as Pre-Exposure Prophylaxis is provided in one of the hospitals in the Lubombo region. Lubombo was identified as it was lagging in training of nurses on Pre-Exposure Prophylaxis. The target population was nurses who had at least worked for a year hence the exposure to prescribe Anti-Retroviral Therapy. The selection of participants was made through simple random sampling, using a bowl with names of the nurses in the various departments, participants were randomly picked. Based on the Raosoft calculator, 65 participants were to be reached, but because of time and financial constraints, only 31 were reached. An adapted structured questionnaire by Hakre et al. (2016) was used to collect data. Questionnaires were hand delivered to participants and given two (2) days to complete. All 31 participants responded on time and the questionnaires were complete. The adapted questionnaire ensured both validity and reliability. Data was entered into Statistical Package for Social Science (SPSS version 20) statistical program and analysed using descriptive statistics and Pearson correlation.

All ethical protocols and principles were observed. The National Human and Health Review Research Board (NHHRRB) offered permission through the University of Eswatini – Faculty of Sciences Students' Ethics Committee. In addition, permission was also sought from the hospital management. Furthermore, all three principles (respect for persons, beneficence and justice) were observed at the participant level. Respect for persons was ensured as all participants autonomously consented after information was given. Given that the study was not invasive there was no physical harm inflicted and no emotions or psychological stress evoked. Justice was ensured by selecting participants based on eligibility criteria. Confidentiality was ensured by sharing information to only individuals responsible for the study. Personal identification information was not used.

RESULTS

Socio-demographic characteristics of the participants

Age: A total of 31 respondents participated in the study. Most respondents (48.4%, n = 15) were less than 29 years, 41.9% (n = 13) were aged between 30 – 39 years, 3.2% (n=1) were aged between 40 – 49 and 6.5% (n =2) The mean age of the participants was 34.5 years.

Sex: More than half of the participants (61.3%, n = 19) were females, and 38.7% (n = 12) were males.

Marital status: Most participants (61.3%, n = 19) were single, and 38.7% (n = 12) were married.

Qualifications: A majority of the participants (38.7%, n = 12) had a Diploma, while 32.3% (n = 10) had a Bachelor's Degree, and 25.8% (n = 8) had a Post Diploma Certificate. Only 3.2% had Masters degree. A large proportion of the participants (71.0%, n = 22) had worked less than five (5), and 16.1% (n = 5) had worked between 6 – 10 years. An equivalent proportion (6.5%, n = 2) had worked between 11 – 15 years and more than 20 years, respectively. Table 1 summarises the socio-demographic characteristics of the participants.

Table 1

Socio-Demographic Characteristics of the Participants (N =31)

Variables	Frequency	Percentage
	(n)	(%)
Age		
Less than 29	15	48.4
30-39	13	41.9
40-49	1	3.2
50-59	2	6.5
Sex		
Male	12	38.7
Female	19	61.3

Qualifications		
Diploma	12	38.7
Post Diploma	8	25.8
Bachelor's Degree	10	32.3
Master's Degree	1	3.2
Work Experience (yrs)		
1-5	22	71.0
6-10	5	16.1
11-15	2	6.5
>20	2	6.5

Note: qualifications refer to the highest qualification the participant possesses.

Research Objective 1: To examine the knowledge of nurses towards pre-exposure prophylaxis (PrEP)
Source of information about PrEP

All (100%, N = 321) of the participants reported that they had heard about PrEP. A majority of the participants (35.5%, n = 11) heard about PrEP from an in–service training, while 32.3% (n = 10) heard about PrEP from a workshop. Nineteen per cent (19.4, n = 6) heard about PrEP from both a workshop and an in–service training, while 9.7% (n = 3) heard about it from the Media (TV, News). Only 3.2% (n =1) heard about PrEP from information, education, and communication materials (brochures, posters).

Participant's knowledge about when to take PrEP

PrEP only reaches its effectiveness after seven (7) days (PrEP Guidelines, 2017). Most participants (38. 7%, n = 12) reported that PrEP should be taken 72 hours before exposure to be effective, and 35.5% (n = 11) reported that they were unsure when PrEP should be taken. Sixteen percent (16.1%, n = 5) reported that PrEP should be taken seven (7) days before exposure, and only 9.7% (n = 3) reported that should be taken 24 hours before exposure. The figure below shows the summary of the responses given by the participants on when PrEP should be taken.

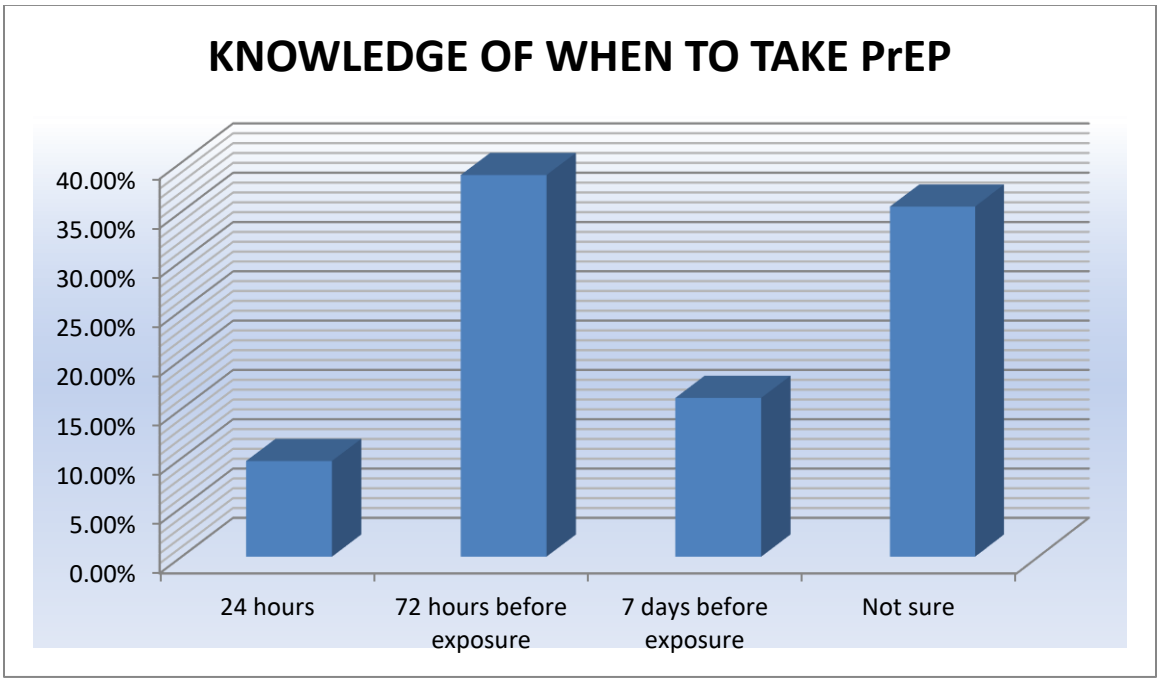

Figure 1: Responses of respondents on when PrEP should be taken (N = 31)

Participant's knowledge of who was eligible for PrEP

PrEP is offered to sexually active HIV-negative individuals at significant risk of acquiring HIV infection as part of a combined HIV prevention approach (WHO, 2017). Thirty-eight percent (38.7%, n = 12) of the participants reported that all HIV- negative people who wanted PrEP as a precaution were eligible for PrEP, while 38.7 % (n =12) participants reported that sexually active HIV- negative individuals who were at high risk of acquiring HIV were eligible for PrEP. Nineteen percent (19.4%, n = 6) of the participants reported that they were unsure who was eligible for PrEP, and 3. 2% (n = 1) reported that it was at the clinician's discretion to decide who was eligible for PrEP.

Drugs Recommended for PrEP

The recommended ARV regimen for use as PrEP in Swaziland includes the following:

- Tenofovir (TDF) 300 mg and Emtricitabine (FTC) 200 mg, orally, given as a fixed-dose combination (FDC).
- Tenofovir (TDF) 300 mg and Lamivudine (3TC) 300 mg, orally (WHO, 2017)

The participants reported various ARVs as being recommended for PrEP. Less than half (45.2%, n = 14) of the participants reported Tenofovir (TDF) and Lamivudine (3TC) as the recommended drugs for PrEP, and 16. 1% (n = 5) were unsure of recommended PrEP drugs. Only 12.9% (n = 4) reported that Tenofovir and Emtricitabine (FTC) were the recommended drugs for PrEP, and 9.7% (n = 3) reported Tenofovir and Efavirenz (EFV) as the recommended drugs for PrEP. Furthermore, only 9.7% (n = 3) of participants reported that the option of Tenofovir/Emtricitabine or Tenofovir/Lamivudine were the recommended drugs for PrEP. In addition, 6.5% (n = 2) of participants reported Abacavir (ABC) and Efavirenz as the recommended drugs for PrEP.

Score level of respondents' knowledge

There was a poor score of knowledge which was 38.7% (n = 12), a good score of knowledge was 25.8% (n = 8), and a moderate score of knowledge was 35.5 % (n= 11) of the participants.

Research objective 2: To describe the attitudes of nurses towards pre-exposure prophylaxis PrEP reducing HIV transmission and time for prevention counselling / PrEP monitoring

Most participants (90.4%, n = 28) believed that PrEP reduced the likelihood of HIV transmission before exposure, and 9.7% (n = 3) did not share the same sentiments. In addition, 77.5% (n = 24) reported that they had time to engage in prevention counselling with their clients, while 16.1% (n = 5) were not sure, and 6.5% (n= 2) did not feel that they had time for prevention counselling. Moreover, almost half of the respondents (45.2%, n = 14) thought that they had time to monitor PrEP intake, 41.9% (n = 13) of the respondents were not sure, and 12.9% (n = 3) did not believe that they had time to monitor PrEP intake. Furthermore, 87.1% (n =27) believed that PrEP benefited clients, while 12.9% (n = 4) were unsure that clients could benefit from PrEP.

Use of PrEP and testing

Most participants (61.3%, n=19) had concerns about PrEP having side effects, while 22.6% (n= 7) were not concerned, and 16.1% (n = 5) were not sure if PrEP had any side effects. On the contrary, 64.5% (n= 20) reported that they were comfortable prescribing HIV prevention drugs, while 19.4% (n = 6) were not sure, and 16.1% (n=5) were not comfortable. Furthermore, slightly above half of the participants (51.6%, n = 16) felt that the use of PrEP was to result in less frequent HIV testing among clients, whilst 41.9% (n = 13) did not feel so, and 6.5% (n = 2) of them were not sure. In addition, 64.5% (n = 20) of the participants believed that the provision of PrEP resulted in an increase in sexually transmitted infections incidence among clients, 19.4% (n = 6) were not sure, and 16.1% (n = 5) did not believe so.

Concern about PrEP adherence and its effectiveness

Most respondents (74.2%, n = 23) reported that they were concerned about low adherence to PrEP, 13% (n = 4) did not believe so, and 12.9% (n= 4) were not sure. Furthermore, 41.9% (n = 13) of the participants were not sure if PrEP was 100% effective, 38.7% (n = 12) did not believe that PrEP was 100% effective, and 19.4% (n = 6) believed that PrEP was 100% effective. Moreover, 70.9% (n = 22) of the respondents were of the

view that the use of PrEP could cause patients to engage in riskier behaviours, 16.1% (n = 5) did not believe that, and 12.9% (n = 4) of the respondents were not sure if PrEP caused patients to engage in riskier behaviours.

The score of attitude and scores attained by respondents

There were a total of 70 points awarded for attitude. A score of 36 or more indicated a positive attitude, while a score of 35 and below indicated a negative attitude. Three per cent (3.2%, n =1) of the respondents attained less than 35 points, and the rest of the participants (96.8%, n = 30) scored above 36 points. The mean score for all respondents was 46.50.

DISCUSSION

Knowledge on PrEP

This study has shown that all respondents were aware of PrEP. This is supported by Maude et al. (2017), who reported that above average had heard about PrEP which is in contrast with a study by Smith, Mendoza, Stryker and Rose (2016); in their findings, they reported a low level of awareness about PrEP. PrEP is a new concept, so some studies indicate that respondents are unaware of PrEP.

This study's most common means of information dissemination was in-service training followed by workshops. Most sourced studies do not show how healthcare providers acquire knowledge about PrEP. This study shows that continued in-service training and workshops help equip nurses with new information and training.

Though awareness was highly detailed, knowledge was poor. Knowledge of when clients should take PrEP was below average among the respondents. Very few of the respondents knew when to take PrEP before exposure. The most common response was wrong (72 hours) before exposure which they confused with taking post-exposure prophylaxis (PEP), which should be within 72 hours of post-exposure. This means that most respondents do not know when PrEP should be taken to be most effective.

The knowledge of who is eligible for PrEP is vital information. Few respondents knew about the eligibility criteria for PrEP. Some responded that it is 'all' HIV-negative people who want PrEP as a precaution which was not true. This was in contrast with a study done by Ross, Mejia, Melendez, Chan, Nunn, Powderly, Goodenberger, Liu, Meyer and Patel (2017), where most respondents had higher knowledge scores associated with confidence in determining a patients eligibility for PrEP.

Less than half of the respondents knew about the recommended PrEP drugs. They stated Tenofovir (TDF) 300 mg and Lamivudine (3TC) 300 mg. Although few respondents knew about the fixed dose combination of Tenofovir 300mg and Emtricitabine (FTC) 200 mg, knowing at least one regimen heeds positive results of the in-service training and workshops about PrEP. This was in contrast with the study by Maude, Volpe and Stone (2017), where more than half of the respondents answered rightfully that Tenofovir disoproxil fumarate

plus emtricitabine (Truveda) is the standard regimen for PrEP. It suggests that respondents lacked knowledge of the standard PrEP regimen, probably because this information is new.

Attitudes on Pre-Exposure prophylaxis

Most respondents agreed to have time for prevention counselling and monitor PrEP intake. A similar a study by Hakre et al. (2016) which reported that most respondents would have time for prevention counselling and PrEP monitoring. Respondents are willing to engage in prevention counselling with their clients and monitor PrEP which shows a positive attitude towards PrEP.A majority of participants were concerned about the side effects of PrEP. This result is congruent with a study by Bond and Gunn (2016) which reported that though women realised the benefits of PrEP, they were worried about side effects.

Some respondents reported being comfortable prescribing prevention drugs when there was evidence. In contrast, a study by Maude et al. (2017) reported that some respondents were not comfortable prescribing PrEP, as the majority stated 'not enough knowledge' as a reason for the discomfort in prescribing PrEP. Nurses' failure to prescribe PrEP suggests that more clear evidence on drugs used for HIV prevention is essential**.** Most respondents indicated that they were concerned about the low adherence to PrEP. The finding was congruent with a study by Krakower and Mayer (2016) which reported that 77% of the respondents stated that low adherence was the reason why they would not prescribe PrEP. Most providers are worried about the low adherence of their clientele towards drugs.

Implications

1. Nurses have heard about PrEP but are not sure when PrEP is to be taken
2. Nurses have little knowledge about all the drugs recommended for PrEP
3. Nurses have a positive attitude towards PrEP but have little knowledge about the eligibility criteria of individuals regarding PrEP.
4. Nurses are willing to prescribe PrEP but lack more knowledge on PrEP and its efficacy

RECOMMENDATION

Nursing Education

PrEP training and its guidelines should be included as part of the nurses' curriculum so that each nurse is exposed to some form of formal knowledge about PrEP.

Nursing Practice

There is a need to inculcate PrEP in in-service training.

Nursing management

The health facility management should reinforce proper planning of workshops and formal training to equip nurses with appropriate evidenced- based knowledge about PrEP.

Nursing research

Since this study was done on nurses, a study on the knowledge and attitudes of the service recipients (patients or clients) towards PrEP could be done and be compared with that of nurses.

Policy

Information acquired through the study on the minimal knowledge of nurses about PrEP should inform policymakers to strengthen and plan more training of nurses on PrEP.

Limitations

The study's results cannot be generalised because the sample size was small given the limited resources, including time.

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