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Knowledge of Nurses towards Post-exposure Prophylaxis for HIV infection at a Tertiary Health Care Center

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ABSTRACT

Introduction

Acquired immunodeficiency syndrome is a chronic, potentially life-threatening condition caused by the human immunodeficiency virus in which progressive failure of immune system allows life threatening opportunistic infection and cancer to thrive. Post exposure prophylaxis is preventive medical treatment recommended immediately after exposure to a pathogen. The objective of this research is to assess the level of knowledge regarding PEP of HIV among nurses.

Methods

An analytical cross sectional study was conducted among 164 nurses to assess the knowledge regarding PEP of HIV among nurses at the College of Medical Sciences and Teaching Hospital, Bharatpur. Data was collected using probability random sampling using self-structured questionnaire. Data was entered and analyzed using in statistical package for social science (SPSS) version 23 using descriptive and inferential statistical tools.

Results

Among the 164 nurses, more than half (56.1%) were in the age 20-25years and had completed their PCL Nursing. Likewise, 35.4% had 2-4 years of experience. Also, 55.5% had a moderate level of knowledge, 18.9% had an inadequate level and 25.6% had adequate knowledge of PEP of HIV. The result of mean ± SD of knowledge was 11.18±3.125. There is statistically significant association between levels of knowledge with working area and total working experience.

Conclusions

The study shows that only 25.6% had adequate knowledge regarding PEP of HIV. Therefore, nurses should be up to date with their knowledge; engage in workshop and training programs periodically.

Keywords: knowledge; HIV, nurses; PEP; transmission of HIV.

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INTRODUCTION

As of 2021, there are an estimated 38 million people living with Human Immunodeficiency Virus (HIV) worldwide. HIV is a virus that attacks the immune system, and without treatment, it can lead to Acquired Immunodeficiency Syndrome (AIDS).[1] The highest burden of HIV infection is in sub-Saharan Africa, where more than two-thirds of all people living with HIV reside. In 2020, there were approximately 20.3 million people living with HIV in this region. Other regions with high HIV prevalence include Asia and the Pacific, Latin America, and the Caribbean. Despite progress in HIV prevention and treatment, there were still 1.5 million new HIV infections and 690,000 AIDS-related deaths globally in 2020. However, there have been significant improvements in access to HIV testing and antiretroviral therapy, which can help people living with HIV lead long and healthy lives.[2] Post-Exposure Prophylaxis (PEP) is a treatment that can help prevent HIV infection after a person has been potentially exposed to the virus. PEP involves taking antiretroviral medications for a period of time, usually 28 days, to reduce the risk of HIV infection after a possible exposure.[3] PEP is recommended for people who may have been exposed to HIV through unprotected sex, sharing needles or equipment for injecting drugs, or occupational exposure (e.g. healthcare workers who have been exposed to potentially infectious fluids).[4] PEP is most effective when started as soon as possible after the potential exposure, ideally within 72 hours.[5] PEP is not a guarantee against HIV infection and should not be relied upon as a substitute for safer sex practices or other HIV prevention methods. It is also important to note that PEP is not a long-term solution and should not be used as a replacement for ongoing HIV prevention efforts.[6]

It is crucial for nurses to have proper knowledge and training on how to protect themselves from potential health hazards such as needle stick injuries and exposure to infectious body fluids. In the case of HIV, post-exposure prophylaxis (PEP) can be a lifesaving treatment option if administered correctly and promptly.[7] However, studies have shown that nurses in Nepal and other countries may have insufficient knowledge about PEP for HIV.[8] To address this knowledge gap, it is important to conduct a study to assess nurses' knowledge and understanding of PEP for HIV in Nepal. This study can help identify areas where nurses may need further education and training, as well as inform policies and guidelines for HIV prevention and control in healthcare settings. Ultimately, improving nurses' knowledge and awareness of PEP for HIV can lead to better protection of healthcare workers and patients from HIV transmission.

METHODS

An analytical cross sectional study was conducted among the nurses of College of Medical Sciences-Teaching hospital, Bharatpur from 2/9/2020 to 7/9/2020 in the department of Nursing. Ethical approval was taken from the Institutional review committee of College of Medical Sciences (COMSTHIRC-2020-019). Inform and written consent were taken from all the nurses before data collection. A research conducted by Thapa et.al showed that 48% working nurses had good knowledge on post-exposure prophylaxis.[9] By taking this as a prevalence with 5% margin of error, 95% confidence interval and 253 population size, sample size was calculate by using the formula (n= =164). Self-structural questionnaire were used for data collection. In total 18 question were used for accessing the knowledge about post exposure prophylaxis of HIV. Each correct response was coded with one score while incorrect as zero. The range of score was 0-18. Total score is calculate by

adding correct response and then total score is converted into percentage, on the basis of score percentage was calculated. Those respondents whose percentage score of knowledge ≥ 75% is categorized as adequate level of knowledge, score (50-75%) as moderate level of knowledge and score ≤ 50% as inadequate level of knowledge.[6] After collecting data from respondents coded with serial number and entered into SPSS v 16. Data was then analyzed using descriptive and inferential statistical tools. In the descriptive statistics frequency and percentage were calculate for categorical variable while mean and SD for continuous variables. In the inferential statistics to find the association between levels of knowledge with selected socio demographic variables chi-square test were used. P-value less than 0.05 was considered as statistically significant.

RESULTS

Among the total respondents, most of the nurses 56.1% were in the age group 20-25 years and least 8.5% were in age group more than 35 years. Majority of the respondents 56.1% had completed PCL Nursing while 19.5% had completed their BNS Nursing. Regarding the total duration of working experience, most (35.4%) of the respondents had 2-4 year of working experience while only 14% of the respondents had more than 8 years working experience. In response to the current area of practice, the majority of the respondents (41.5%) were working in ICU/CCU while 30.5% were working in General ward. Which is shown in the (Table 1).

Table 1. Sociodemographic characteristics of the respondents. (n=164).

Characteristics	Frequency
Age (in years)	
20-25	92(56.1)
26-30	41(25)
31-35	17(10.4)
>35	14(8.5)
Professional qualification	
B.Sc. Nursing	33(20.1)
BN	32(19.5)
PCL Nursing	92(56.1)
ANM	7(4.3)
Working experience (in years)	
≤1	40(24.4)
2-4	58(35.4)
5-8	43(26.2)
>8	23(14)
Current area of practice	
General ward	50(30.5)
ICU	68(41.5)
OT, ER, Cabin	28(17)
Maternity ward	6(3.7)
Dialysis	8(4.9)
Psychiatric ward	4(2.4)

Regarding the domain wise knowledge of respondents regarding PEP of HIV, 80.5% know the meaning of post exposure prophylaxis of HIV whereas only 48.8% respondents know the exposure of prophylaxis of HIV. Likewise, 68.3% respondents know the indication of post exposure prophylaxis of HIV, 61% know the low risk fluid for the transmission of HIV, 68.9% know the prevention of needle stick injury, 48.8% know the basis PEP regimen for needle stick injury, 60.4% know the drugs used for PEP in extended regimens. Likewise 39% know the causes of delay to take PEP, 51.2% know the time schedule of HIV test after exposure to the HIV infection and only 58.5% know the main side effect of anti-retro viral drug (Table 2).

Regarding the level of knowledge on post exposure prophylaxis of HIV, 55.5% had a moderate level of knowledge, 25.6% of the respondents had adequate level of knowledge and only 18.9% had inadequate level of knowledge (Figure 1).

Table 2. Knowledge on each domain of post exposure of prophylaxis of HIV. (n=164).

Knowledge	**Frequency (f)**
Meaning of post exposure prophylaxis of HIV	132(80.5)
The post exposure prophylaxis of HIV	80(48.8)
Indication of post exposure prophylaxis of HIV	112(68.3)
Items included in post exposure prophylaxis of HIV	126(76.8)
Low risk fluid for the transmission of HIV	100(61)
Commonest event of exposure to HIV	121(73.8)
Care after needle stick injury	134(81.7)
Prevention of Needle stick injury	113(68.9)
Basis PEP regimen for needle stick injury	80(48.8)
The drug used as first PEP of HIV	106(64.6)
Drugs used for PEP in extended regimens	99(60.4)
The dosage of basic regimen	87(53)
The duration of taking PEP of HIV is 28 days	91(55.5)
Post exposure prophylaxis	90(54.9)
Causes of delay to take PEP	64(39)
Time schedule of HIV test after exposure to the HIV infection	84(51.2)
Married health professionals prevention from PEP of HIV	118(72)
Main side effect of anti-retro viral drug	96(58.5)

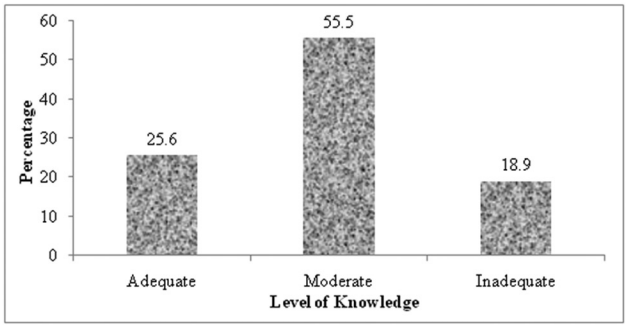

Figure 1. Level of Knowledge on post exposure prophylaxis of HIV. (n=164).

The level of knowledge is statistically significant with working area (p-value=0.012) and working experience (p-value =0.033) (Table 3).

DISCUSSIONS

Among 164 respondents, 56.1% of were in the age group 20-25 years while 8.5% were in age group more than 35 years, 56.1% had completed PCL Nursing while 19.5% had completed their BNS Nursing, 35.4% of the respondents had 2-4 year of working experience while only 14% of the respondents had more than 8 years working experience. In response to each domain of knowledge, 80.5% know the meaning of post exposure prophylaxis of HIV while Study conducted by Mandal G et.al., reported that 87.9% of nurses knew the meaning of PEP of HIV.[10] Study conducted by Mathewos et.al.,

Table 3. Association between levels of knowledge with selected demographic variables. (n=164).

Socio-demographic variables	Level of Knowledge			Chi-square	p-value
	Adequate	Moderate	Inadequate		
Age (in years)					
20-25	18(20)	53(58)	21(23)	12.254	0.057
26-30	14(34)	21(51)	6(15)		
31-35	3(18)	13(76)	1(6)		
≥35	7(50)	4(29)	3(21)		
Professional qualification					
B.Sc.Nursing	7(21)	19(58)	7921)	9.124	0.167
BN	11(34)	19(59)	2(6)		
Pcl nursing	20(22)	51(55)	21(23)		
ANM	4(57)	2(29)	1(14)		
Working experience					
≤1	3(8)	24(60)	13(33)	13.729	0.033
2-4	17(29)	32(55)	9(16)		
5-8	13(30)	25(58)	5(12)		
>8	9(39)	10(43)	4(17)		
Current area of practice					
General ward	18(36)	26(52)	6(12)	22.591	0.012
ICU	10(15)	39(57)	19(28)		
OT, ER, Cabin	8(29)	17(61)	3(11)		
Maternity ward	3(50)	2(33)	1(17)		
Dialysis	0	7(88)	1(13)		
Psychiatric ward	3(75)	0	1(25)		

.showed that 50.8% respondents know the preferable time to take PEP of HIV. Likewise, study conducted by Lamichanne1 et.al., revealed that 59% of respondents had knowledge on meaning of PEP.[6] Whereas only 48.8% respondents know the exposure of prophylaxis of HIV. Likewise, 68.3% respondents know the indication of post exposure prophylaxis of HIV. Also, 61% respondents know the low risk fluid for the transmission of HIV while study of Lamichhane showed that 65% had knowledge on high risk body fluids for transmission of HIV is peritoneal fluid followed by cerebrospinal fluid (52%), synovial fluid (49%) and pleural fluid (38%) respectively and 60% of respondents had knowledge on risk for transmission of HIV in case of injuries from blood drawing needle used in HIV infected person.[6] Foster,Lee, Mcgaw & Frankson revealed that 63% of respondents had knowledge on risk for transmission of HIV infections.[11] 68.9% know the prevention of needle stick injury, 48.8% know the basis PEP regimen for needle stick injury, 60.4% know the drugs used for PEP in extended regimens. Likewise 39% know the causes of delay to take PEP.

This research found that 55.5% respondents know the duration of taking PEP of HIV while study of Lamichhane showed that 60% of respondents had knowledge that the best time for initiation of PEP, 43% of respondents' had knowledge that PEP initiation will be ineffective after 72 hours of exposure. [6] This finding is supported by a study of Alenyo, Fualal & Jombwe which showed that 51.8 % of respondents' had knowledge about best time for initiation of PEP.[12] Similarly, this finding is supported by the finding of Avachat, Phalke & Dhumale which showed that, 47% of respondents' knew when post exposure prophylaxis should start.[13]Among the total respondents, 55.5% had a moderate level of knowledge, 25.6% of the respondents had adequate level of knowledge and only 18.9% had inadequate level of knowledge. Study conducted by Babanawo et.al., reported that 20% had adequate knowledge on PEP of HIV, 49.2% had average level of knowledge and 30.8% had poor level of knowledge.[14] The study conducted by Atul A, Ajeet S, Kasturwar reported that 29.5% had adequate level of knowledge and 26% had low level of knowledge.[15] And this study is also fully supported by the study conducted by Kinigwa V, Kilonzi M, Mikomangwa WP, Bwire GM, Mlyuka HJ, Marealle AI, Mutagonda RF, Minzi O, where 27.9% had high level of knowledge regarding PEP of HIV.[16] The level of knowledge is statistically significant with working area (p-value=0.012) and working experience (p-value =0.033). A study conducted by Babanawo F, Ibrahim A, Bahar OS, Adomah-Afari A, Ma(2018), reported that there was significant association between the knowledge score regarding PEP of HIV with working experience.[14] Also study conducted by Aynalem Tesfay F, Dejenie Habtewold reported that level of knowledge is significantly associate with current area of practice.[17]

CONCLUSION

Based upon the finding of this research it is concluded that only one fourth of the respondents had adequate knowledge on PEP of HIV. The level of knowledge is significantly associated with working area and working experience. Thus, nurses need to improve their level of knowledge on PEP of HIV by participating in different training programs and in service education related to PEP so that they can manage timely in case of accidental exposure. More concern should be given on regimen & duration of PEP which helps for treatment and prevention of transmission of HIV. Concerning authorities of health care centers must develop processes and policies to ensure that their employees are aware of the steps to be followed if they are at danger of occupational exposure.

Conflict of interest: None.

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