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ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS POST-EXPOSURE PROPHYLAXIS AMONG NURSING STUDENTS: ACROSS-SECTIONAL STUDY

Dr Muralidhar CA[1], Dr Rohini A[2], Dr.Pavithra D.P[3*], Prof S J Vimala[4]

[1]Associate Professor, Dept. Of Ophthalmology, Oxford Medical College and Research Centre, Yadhavanahlly Athibele. Bangalore.
[2]Associate Professor, Dept. Of Obstetrics and Gynaecology SIMSAR, BEML Nagar, KolarDist. Karnataka.
[3*]Associate Professor, Dept. Of Microbiology, Dr B.R. Ambedkar Medical College and Hospital, Bangalore.
[4]Professor cum Principal, Kuppam College of Nursing, Kuppam, Chittoor (Dist.) Andhra Pradesh

***Corresponding author: Dr.Pavithra D.P[3]**
[3]Associate Professor, Dept. Of Microbiology, Dr B.R. Ambedkar Medical College and Hospital, Bangalore.

Abstract

Introduction: Needlestick injuries (NSIs) pose a significant occupational hazard to healthcare workers (HCWs), with the potential to transmit numerous blood-borne infections, including HIV. Post-exposure prophylaxis (PEP) serves as a critical intervention to mitigate this risk. Despite various awareness programs, knowledge gaps regarding PEP, particularly among nursing professionals in India, remain a challenge. This study aimed to assess the knowledge, attitude, and practice (KAP) of nursing students toward PEP, identifying areas for improvement to enhance safety and preparedness.

Materials and Methods: A cross-sectional study was conducted among 338 nursing students using a self-administered questionnaire distributed via Google Forms. The questionnaire, structured into sections on knowledge, attitude, and practice regarding PEP, was adapted from relevant literature and pre-tested on 5% of participants. Responses were analyzed using simple percentage methods.

Results: Of the participants, 94.1% were aware of PEP, with training (46.7%) being the primary source of information. While 57.1% correctly identified NSIs as an indication for PEP, only 49.4% recognized 72 hours as the maximum window for initiating PEP, and 61.2% knew the correct duration of 28 days. Despite high awareness of PEP guidelines (92.6%), only 40.2% were familiar with their content. A majority (87%) believed PEP effectively reduces HIV transmission, yet gaps in adherence were observed. Among the 5.3% exposed to NSIs, only 27.8% were placed on PEP, with all completing the treatment. Reasons for non-adherence included fear of adverse effects and lack of information.

Conclusion: The study highlights substantial awareness of PEP among nursing students but reveals critical knowledge gaps regarding its indications, timing, and duration. Enhanced and ongoingeducational initiatives are essential to address misconceptions and promote adherence to

PEP protocols. Strengthening training programs and ensuring accessible PEP guidelines can significantly improve HCWs' safety and reduce the risk of occupational HIV exposure.

Key words: Post exposure prophylaxis, Blood borne infections, Health care workers.

INTRODUCTION:

Needlestick injuries (NSIs) can occur when medical personnel unintentionally come into contact with blood or infectious materials. Such injuries have the potential to spread at least 26 distinct diseases. Nearly 3 out of 35 million healthcare workers worldwide suffer needlestick injuries annually, placing them at risk of coming into contact with blood-borne infections, according to the World Health Organization (WHO).1,2Even with improvements in prevention strategies, occupational exposures will continue to happen. As a result, post-exposure prophylaxis (PEP) is crucial in these circumstances. It is imperative that healthcare professionals (HCWs) understand the hazards involved in treatment processes and take the necessary precautions when working with patients.3

In India, despite numerous awareness programs, estimating the annual incidence of needlestick injuries (NSIs) across various occupations remains challenging due to a lack of comprehensive data.4Given the significant knowledge gap surrounding needlestick injuries (NSIs) in the nursing profession in India, this study is essential to assess the awareness and understanding of preventive and prophylactic measures among nursing students and professionals. By investigating the prevalence of NSIs and the existing knowledge regarding their management, we aim to identify critical areas for improvement. The study seeks to provide insights that can inform the development of targeted educational interventions, ultimately enhancing the safety and preparedness of nursing personnel in clinical settings. Addressing this knowledge gap is crucial not only for protecting the health of healthcare workers but also for ensuring better patient safety and care outcomes.

Materials and methods:

A cross-sectional study design was employed to assess the KAP of nursing students about PEP against blood borne infections. A self-administered questionnaire was used to collect information on the KAP of healthcare professionals towards PEP. The data collection tool was adapted after reviewing different literature, guidelines, and previous studies, which were organized according to the objectives of the study. The data collection tools contain three different parts which include; existing knowledge about PEP, attitude, and practice towards PEP. The prepared questionnaire was pre-tested on 5% of the respondents. Questionnaire was distributed to the participants using google form through whats app link. Further the responses were analysed using simple percentage method.

Results: A total of 338 nursing students of the study region were participated. Majority were females 293(86.7%).

Knowledge

Majority of the participants in the study heard about PEP 94.1%. Major source of information regarding PEP was found to be training 158(46.7%). The majority (57.1%, n = 193) identified any needle stick injury during work as an indication for PEP initiation. In contrast, only a small proportion (6.8%, n = 23) indicated that PEP should be used when the HIV status of the source is unknown. Additionally, 16.6% **(**n = 56**)** of respondents believed that PEP should be considered if the source patient is at high risk of being HIV positive based on their background or behaviors, even if their HIV status is not confirmed. Nearly half of the respondents **(**49.4%, n = 167**)** correctly identified 72 hours as the maximum time limit to initiate PEP for it to be effective. A smaller proportion believed that PEP should be started within24 hours **(**24.9%, n = 84), followed by 12 hours **(**14.5%, n = 49**)** and 48 hours **(**11.2%, n = 38**)**Regarding the length of time that post-exposure prophylaxis (PEP) should be taken, the majority of respondents **(**61.2%, n = 207**)** correctly indicated

that 28 days is the standard duration. However, some respondents with 16.6% **(**n = 56**)** believing that PEP should be taken for more than 40 days**,** and6.8% **(**n = 23**)** suggesting a duration of exactly 40 days. Additionally, 15.4% **(**n = 52**)** thought that PEP should be taken for a lifetimeKnowledge regarding PEP.

Attitude.

When asked about their familiarity with post-exposure prophylaxis (PEP) guidelines, only 40.2% **(**n = 136**)** of respondents reported being aware of these guidelines, while a majority **(**59.8%, n = 202**)** indicated that they were unfamiliar with them. The vast majority of respondents **(**92.6%, n = 133**)** agreed that there should be clear and accessible PEP guidelines available in working areas to guide healthcare professionals in managing potential HIV exposures. In contrast, only 7% **(**n = 25**)** did not see the need for such guidelines. The majority of respondents **(**87%, n = 294**)** believed that post-exposure prophylaxis (PEP)effectively reduces the likelihood of HIV transmission following occupational exposure. However, 13% **(**n = 44**)** of respondents expressed doubts about PEP's efficacy.

Practice

A small proportion of respondents **(**5.3%, n = 18**)** reported having been exposed to HIV at work in situations that required post-exposure prophylaxis (PEP), while the vast majority **(**94.7%, n = 320**)** had never experienced such exposures. Among those who had been exposed (n = 18), only 27.8% **(**n = 5**)** were actually placed on PEP, while 72.2% **(**n = 13) did not receive PEP despite the exposure. Notably, all of the individuals who were started on PEP (100%, n = 5) completed the full course of treatment

Knowledge towards PEP

Have you heard PEP		Yes (94.1%)	No (5.9%)
what source did you get the information:			
Friends	33(9.8%)		
Journals	26(7.7%)		
Mass media	46(13.6%)		
Others	75(22.2%)		
Training	158(46.7%)		
When do you think PEP should be indicated			
Any needle stick injury during work	193(57.1%)		
HIV with unknown	23(6.8%)		
Patient at high risk	56(16.6%)		
Patient known with HIV	66(19.5%)		
What is the maximum time to delay PEP			
12 Hours	49 (14.5%)		
24 Hours	84(24.9%)		
48 Hours	38(11.2%)		
72 Hours	167(49.4%)		
What is the preferable time to take PEP			
After 12 hours of exposure	40(11.8%)		
After 6 hours of exposure	35(10.4%)		
After 72 hours of exposure	63(18.6%)		
As early as possible	75(22.2%)		
Within two hours of exposure	125(37.0%)		
Effectiveness of PEP is not 100%		Yes 218(64.5%)	No 120 (35.5%)
What is the length of time to take PEP			
>40 days	56(16.6%)		
28 days	207(61.2%)		
40 days	23(6.8%)		
Lifetime	52(15.4%)		
Have you attended any training about PEP		Yes 102(30.2%)	No 236(69.8)

Attitude towards PEP

Do you know about the PEP guidelines	Yes 136 (40.2%)	No 202 (59.8%)
There should be PEP guidelines in working areas	Yes 133(92.6%)	No 25(7%)
PEP reduces the likelihood of HIV transmission after occupational exposure		
Yes 294(87%)	No 44(13%)	
Believe PEP works	Yes 230 (94.7%)	No 18 (5.3%)

Practice towards PEP

Ever exposed to HIV (needing PEP)	Yes 18 (5.3%)	No 320 (94.7%)
Placed on PEP	Yes 5 out of 18	No 13 out of 18
Continued PEP	Yes 5 out of 5 (100%)	No (0)

Discussion: The findings of this study highlight several important insights into the knowledge and awareness of healthcare workers regarding post-exposure prophylaxis (PEP). A significant majority (94.1%) of participants had heard about PEP, which is encouraging, as awareness is a critical first step in preventing occupational exposure to HIV. However, there were notable gaps in understanding key aspects of PEP, especially regarding its indications, timing, and duration.

In the present study, 37% of the respondents were aware of the time when PEP is needed to be initiated and correctly reported that it should be done within 2 hours from the instance of HIV exposure. In this regard, the percentage of awareness among participants in this study were lower compared to the result in Hawassa university midwifery and nursing graduating students (48.1%).5, but much lower than Nigerian health professionals (97%) 6

There were also notable misconceptions regarding the recommended duration for PEP. Although the majority (61.2%) correctly indicated that PEP should be taken for 28 days, a significant proportion (16.6%) believed that it should be taken for more than 40 days, while others (6.8%) suggested a precise duration of 40 days. Alarmingly, 15.4% of respondents thought PEP should be taken for a lifetime. In the present study, 18(5%) of the participants sustained needle stick injuries required PEP. Participants HIV risky exposure was extremely low compared to previous studies. This finding is lower compared with studies conducted among healthcare workers in Eastern Ethiopia (17.2%) 7 and Gondar University hospital (33.8%).8 But our findings were extremely lower than the findings reported from Southwest Ethiopia (68.5%). 9 and tertiary care hospitals in South India (74.5%). 10 The major cause of exposure among our respondents were due to lack of protective barriers at work place. Similar reasons were reported in studies conducted among healthcare workers in Southwest Ethiopia.9 and Malaysia hospitals.11

As per the studies conducted previously regarding immediate measures taken after exposure are not in line with the PEP guidelines. As per the study conducted by Shamil et al, 12half of the respondents washed thier exposed area with water and soap and one-fourth washed the exposed area with alcohol and iodine, whereas a study conducted in DebreMarkos revealed that 68.6% of respondents washed the wound with soap and water and 14.9% squeezed and washed with alcohol.13

In the present study, 13 out of 18 were not taken PEP. In this study, the major reasons for not taking PEP were fear of its adverse effects and lack of information about the existence of service. A similar study in DebreMarkos Ethiopia revealed that 52.6% did not take PEP because the source patient was HIV negative and 31.5% because of negligence and unaware of PEP.13The study in Bhutan however showed that the major reasons were the absence of PEP service (30.2%) and lack of support to report incidents (22.6%).14Whereas a study from Jimma reported that 33.8% of the respondents were unaware of the existence of PEP service and protocol, 23.2% had a lack of understanding on the value of reporting exposures, and 32.2% had a fear stigma and discrimination.15

These gaps in knowledge emphasize the urgent need for enhanced training programs focused on practical and evidence-based guidelines for PEP. Institutions should prioritize not only initial training but also ongoing education that keeps healthcare workers updated on the latest protocols. Clearer communication about the indications, timing, and duration of PEP is essential to ensure healthcare workers can confidently and correctly manage occupational exposures to HIV. This will ultimately contribute to improved safety and better prevention strategies in healthcare settings.

Conclusion:

This study reveals that while there is a high level of awareness regarding post-exposure prophylaxis (PEP) among healthcare workers, significant gaps exist in their understanding of its appropriate use, particularly concerning its indications, timing, and duration. Although training has been the primary source of information, the findings indicate a need for more comprehensive and consistent educational initiatives to address misconceptions and improve knowledge.

Timely and accurate knowledge of PEP is essential to protect healthcare workers from occupational HIV exposure. Therefore, healthcare institutions should prioritize targeted training programs to enhance understanding of PEP guidelines. Strengthening these educational efforts can empower healthcare workers to respond effectively to potential exposures, thereby improving their safety and reducing the risk of HIV transmission in healthcare settings. Ultimately, bridging these knowledge gaps is crucial for promoting adherence to PEP protocols and safeguarding the well-being of healthcare professionals.

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