

## Original Research Article

# Knowledge and awareness among nurses in tertiary care hospitals of Kolkata regarding HIV positive patient care: a cross-sectional study

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## ABSTRACT

**Background:** Nursing staff have immense contribution in the generation of healthcare and medical care services and act as pillars on which the entire hospital care facility is dependent. This can only be ensured if the hospital staff are well trained and fully updated about the recent treatment protocols to handle the complicated situation of the patients. Objectives of the study was to assess provider's knowledge of HIV/AIDS, misconceptions and practices in the areas of virology, mode of transmission, prevention.

**Methods:** This was a cross-sectional study conducted in five tertiary care hospitals of Kolkata, for a period of three months. The sample size of 250 nursing staffs from 5 hospitals were selected by applying simple random sampling technique. The data was collected by oral questionnaire method and results were analysed by appropriate statistical methods.

**Results:** Among the 250 respondents, 62% received training on HIV/AIDS, 79.6% were aware of the fact that HIV/AIDS is caused by a virus, 86% of respondents correctly know that HIV is the agent that causes AIDS and 65% of respondents correctly answered that later stage of HIV is known as AIDS. It was observed that most of the respondents (94%) have good knowledge about spread of HIV via different modes of sexual contact. The fact that AIDS can be transmitted through blood in various ways is also known to most of nurses.

**Conclusions:** The results of this study can be utilized in stressing on the importance of imparting training to the nurses and other healthcare workers related to HIV/AIDS patient care.

**Keywords:** Awareness, HIV/AIDS, Knowledge, Nurses

## INTRODUCTION

Nursing staff have immense contribution in the generation of healthcare and medical care services and act as pillars on which the entire hospital care facility is dependent. The line and functional organization in a hospital is the process of managing and controlling the nursing services in a hospital. In line organization, the Nursing Superintendent determines the number and types

of nurses in the hospital, makes provisions for their recruitments, trains them, directs them, controls them and makes efforts to motivate them continuously. In functional organization, the doctors prescribe a course of treatment for the patients, which are carried out by the nurses. The hospital administrator focuses on the instrumentality in controlling and supervising the nursing staff, so that they offer the best possible services to the patients. As the nurses play an essential role in improving

the quality of healthcare services in a hospital, it is the responsibility of a hospital manager to ensure that they are constantly trained and supervised. In-patient services in a hospital are related to the services provided to the patients after they are admitted to the hospital and it focuses on ward management where the patients are admitted and the nursing staff offers to them different services with the support of doctors and the paramedical staff.<sup>1</sup>

In the present world, several patients are infected with Human Immunodeficiency Virus and they require greater amount of care and empathy, due to the complexity of their disease. This can only be ensured if the hospital staff are well trained and fully updated about the recent treatment protocols to handle the complicated situation of the patients. HIV is the cause of the Acquired Immunodeficiency Syndrome or AIDS where there is impairment of the immune system of the infected patient making him prone to other infections which ultimately cause death. Though the doctors bear the responsibility of managing the HIV patients based on the severity of their illness, but even in the ward services, they need co-operation of a fully dedicated team and the supporting infrastructural facilities.<sup>2</sup> The present study was focused to assess provider's knowledge of HIV/AIDS in the areas of virology, mode of transmission, prevention, to identify fears and misconceptions about perceived risk of HIV infection and to assess practices in taking universal protective measures.

## METHODS

This was a cross-sectional institution based study conducted in five tertiary care hospitals of Kolkata, for a period of three months (01-12-2019 to 29-02-2020). The sample was selected by applying simple random sampling technique using computer generated random numbers after assigning all the eligible nurses a serial number. The inclusion criteria laid for sample selection was the nursing staffs must have a minimum of 3 years working experience and those who gave informed consent for participating in the study. The sample size comprised of 250 nursing staffs from 5 hospitals.

Each of them were provided with a pretested, predesigned close ended Questionnaire, which was pre-validated for this study to obtain quantitative data to identify predictive factors associated with patient care. The subjects were fully informed about the purpose and design of the study and informed consent was taken. Knowledge component of nurses was assessed under the mode of transmission of HIV, prevention of HIV, risk of professional exposure, use of disposable instruments, transmission of HIV from mother to child, exclusive breast feeding and weaning.

Their common beliefs towards HIV positive patient care was also assessed, along with their risk perception in

various daily nursing activities. The variables to assess common practice included HIV testing in suspected cases, use of personal protective devices, proper disposal of hazardous and contaminated materials and discrimination between HIV positive cases with others. The data was collected and analyzed by suitable and appropriate statistical methods. The institutional ethical clearance was taken prior to the initiation of the study.

## RESULTS

This was a cross-sectional institution based study conducted in five tertiary care hospitals of Kolkata, for a period of three months 01 December 2019 to 29 February 2020. The awareness and knowledge of the nurses were assessed and analysed by suitable and appropriate statistical techniques.

The results reflected that, among the 250 respondents, 62% received training on HIV/AIDS, it was found that 79.6% were aware of the fact that HIV/AIDS is caused by a virus. 86% of respondents correctly know that HIV is the agent that causes AIDS. 65% of respondents correctly answered that later stage of HIV is known as AIDS. It was observed that most of the respondents (94%) have good knowledge about spread of HIV via different modes of sexual contact.

The fact that AIDS can be transmitted through blood in various ways is also known to most of nurses e.g. receiving blood from HIV+ patients (86%) and exposure to blood when taking care of patients (86.8%).

**Table 1: Nurses according to their training on HIV/AIDS (n=250).**

Training	Total	Percentage
Received	155	62
Not received	95	38
<b>Total</b>	<b>250</b>	<b>100</b>

96% nurses know that an accidental needle stick injury in the workplace can also transmit AIDS. AIDS is transmitted from mother to child, this is well known to respondents, as 76.8% of them know it spreads while breast feeding and 96% nurse know that it is transmitted while delivery of the baby.

Regarding knowledge on different preventive strategies 90.8% nurses know that instruments and equipment should be properly sterilized to prevent HIV transmission, 94.4% respondents know that personal protective devices must be used during invasive procedures and 94% knew that AIDS can be prevented by using condom during intercourse. However only 68.8% of the respondents are correctly aware of the fact that 'Not recapping of needle' is an important preventive strategy, which is not a good response.

**Table 2: Assessment of knowledge regarding HIV/AIDS among nurses (n=250).**

Knowledge variables	Received HIV training (n=155)	Received no training (n=95)	Total (n=250)
	N (%)	N (%)	N (%)
HIV is a different disease from AIDS	140 (90.3)	59 (62.1)	199 (79.6)
HIV is the virus that causes AIDS	129 (83.2)	86 (90.5)	215 (86.0)
The later stage of HIV is known as AIDS	111 (71.6)	45 (47.3)	156 (65.0)
STD increase the risk of HIV infection	155 (100)	93 (98)	248 (99.2)
Transmitted by vaginal and anal intercourse	143 (92.3)	92 (96)	235 (94)
Transmitted by blood transfusion	150 (96.7)	65 (68.4)	215 (86)
Transmitted by needle stick injury	150 (96.7)	90 (94.7)	240 (96)
Transmitted From mother to child	150 (96.7)	90 (94.7)	240 (96)
Exposure while caring for patients	137 (88.4)	80 (84.2)	217 (86.8)
Transmitted by breast feeding	122 (78.7)	70 (73.6)	192 (76.8)
Prevented by using personal protection	146 (94.2)	90 (94.7)	236 (94.4)
Prevented by condom during intercourse	145 (93.5)	90 (94.7)	235 (94)
Prevented by using separate equipment for HIV positive patients	83 (53.5)	30 (31.5)	113 (45.2)
Nevirapine is the treatment of choice	133 (85.8)	71 (74.7)	204 (81.6)
HIV positive mother should exclusively breast feed infant	83 (53.5)	43 (45.2)	126 (50.4)
HIV positive mother should formula feed infant	90 (58.1)	52 (54.7)	142 (56.8)
HIV positive mother should mixed feed infant	97 (62.6)	52 (54.7)	149 (59.6)

**Table 3: Attitude and belief of nurses towards care of HIV positive patients (n=250).**

Attitude and belief variables	Trained		Not trained		Total	
	Agree	Disagree	Agree	Disagree	Agree	Disagree
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
HIV patients should be put in same room with other patients	123 (79.30)	26 (16.70)	57 (60)	31 (32.60)	180 (72)	57 (22.80)
Children should be removed from the home of HIV patients	23 (14.8)	119 (76.7)	11 (11)	77(81)	34 (13)	196 (78.4)
HIV patients should be isolated from the community	12 (7.7)	121 (78)	5 (5.2)	77 (81)	17 (6.8)	198 (79.2)
HIV patients have right to the same quality of care and respect as other patient	152 (98)	0	92 (97)	3 (3)	244 (97)	3 (1)
Status of HIV+ person must be kept confidential	132 (85)	8 (5)	77 (81)	9 (9.4)	209 (84)	17 (7)

**Table 4: Statement related to risk perception of nurses towards HIV positive patients.**

Risk perception variables	Trained (n=155)		Not trained (n=95)		Total (n=250)	
	Risk	No risk	Risk	No risk	Risk	No risk
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Touching HIV+ patient when assessing them	39 (25)	116 (75)	25 (26.3)	70 (73.7)	64 (26)	186 (74)
Not knowing a patient's HIV status while providing care	137 (88)	18 (12)	87 (91.5)	8 (8.40)	224 (89)	26 (11)
Wound dressing without protection in HIV+ patient	153 (98)	2 (2)	94 (99)	1 (1)	247 (99)	3 (1)
Delivering babies of HIV+ mother without protection	155 (100)	0 (0)	94 (99)	1 (1)	249 (99)	1 (1)
Recapping needles after using them on HIV+ patient	138 (89)	17 (11)	88 (93)	7 (7)	226 (90)	24 (10)

**Table 5: Protective practice of nurse towards HIV positive patients.**

Protective practice of nurse	Trained (n=155)		Not trained (n=95)		Total (n=250)	
	Always	Never	Always	Never	Always	Never
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
<b>Wearing gloves</b>	122 (78.7)	7 (4.5)	81 (85.3)	3 (5.2)	209 (83.6)	10 (4)
<b>Hand washing</b>	150 (96.7)	2 (3.3)	94 (99)	1 (1)	244 (98)	3 (2)
<b>Wearing Aprons</b>	74 (47.7)	13 (8.4)	54 (56.8)	9 (9.5)	128 (51)	22 (9)
<b>Using eye protection</b>	53 (34.2)	20 (13)	31 (32.6)	19 (20)	84 (33.6)	39 (16)
<b>Wearing mask</b>	61 (39.3)	20 (12.9)	44 (46.3)	10 (10.5)	105 (42)	30 (12)
<b>Needle recapping</b>	62 (40)	82 (52.3)	34 (35.8)	50 (52.6)	96 (38.4)	132 (53)
<b>Wiping blood spills</b>	96 (61.9)	46 (29.7)	59 (62.1)	24 (25.3)	155 (62)	70 (28)
<b>Covering broken skin</b>	132 (85.2)	6 (3.8)	88 (92.6)	7 (7.4)	220 (88)	13 (5)
<b>Putting used needle in sharps container</b>	122 (78.7)	14 (9)	83 (87.4)	7 (7.4)	205 (82)	21 (8)
<b>Mandatory testing all patients before surgery</b>	134 (86.4)	2 (1.2)	90 (94.7)	5 (5.3)	224 (89.6)	7 (3)

It was observed that 72% of them correctly believed that HIV positive patients should be put in same room with other patients, while 78.4% of them believed that children should not be removed from the home of HIV patients. Only 6.8% of the nurses believed that the AIDS patients should be isolated from the community because of their illness. Overall, 97% of nurses believed that HIV patients have right to the same quality of care and respect as other patients and 84% believed that the status of HIV infected person must be kept confidential. 26% nurses think that touching HIV positive patients when assessing them is associated with risk.

It showed that most of the nurses have an overestimated risk perception regarding the spread of HIV during casual contact. Regarding perceived risk during medical procedure our study revealed that 99% of the nurses can correctly perceive the high amount of risk involved in cleaning and dressing a wound without protection in a HIV positive person. About recapping needle after withdrawing blood from HIV positive patient only 9.6% nurses perceive this to be of no risk at all. It showed that most of the nurses have a correct risk perception regarding spread of HIV during medical procedure.

It is also observed that 53% of nurses never recap needle, 62% of nurses always wipe any blood spills, 88% of nurse always covers any broken skin during practice, 8% of nurse never put used needle in sharp container and 89.6% of nurse thinks that HIV testing is mandatory before any surgery.

## DISCUSSION

The analysed results were obtained and they were being compared to some national and international studies. The comparisons show among the 250 respondents, 62% received training on HIV/AIDS and 38% did not receive any training, as observed in Table 1. In present study, regarding knowledge about HIV, as observed in Table 2,

it was found that 79.6% were aware of the fact that HIV/AIDS is caused by a virus. 86% of respondents correctly know that HIV is the agent that causes AIDS. 65% of respondents correctly answered that later stage of HIV is known as AIDS. These findings were quite similar to the findings of previous studies of several research workers like a study by Sachdeva et al revealed that a majority of nurses were able to correctly write the full form of AIDS (95.8%) in comparison to HIV (72.6%) and the difference between two terminologies were known to 81.1%.<sup>3</sup> It was observed that most of the respondents (94%) have good knowledge about spread of HIV via different modes of sexual contact. The fact that AIDS can be transmitted through blood in various ways is also known to most of nurses e.g. receiving blood from HIV+ patients (86%) and exposure to blood when taking care of patients (86.8%). A study by Bhat et al revealed only 63 (25%) subjects had the correct information of the 0.3% risk of infection through needle stick injury but majority of them were First year Nursing students.<sup>4</sup> Another study conducted among nurses in Turkey revealed that 88.65% knew that HIV/AIDS was caused by a virus and 80% knew the definition of AIDS.<sup>5</sup> 96% nurses know that an accidental needle stick injury in the workplace can also transmit AIDS. In contrast, a study conducted among experienced nurses in China revealed that all knew of transmission through infected blood and needle stick injuries.<sup>6</sup> AIDS is transmitted from mother to child this is well known to respondents, as 76.8% of them know it spreads while breast feeding and 96% nurse know that it is transmitted while delivery of the baby. Regarding knowledge on different preventive strategies 90.8% nurses know that instruments and equipment should be properly sterilized to prevent HIV transmission, 94.4% respondents know that personal protective devices must be used during invasive procedures and 94% knew that AIDS can be prevented by using condom during intercourse. However only 68.8% of the respondents are correctly aware of the fact that 'not recapping of needle' is an important preventive strategy, which is not a good

response. This was similar to the findings of the study by Manzoor et al in Abbottabad, Pakistan.<sup>7</sup> Knowledge regarding Infant Feeding Practices was also poor among nurses, as only 50.4% knew that exclusive breast feeding should be done, while 56.7% believe that the infant should be formula fed and 59.6% responded that mixed feeding of infant should be practiced. 81.6% of the respondents correctly know that Nevirapine is the treatment of choice in AIDS.

As far as the attitude of the respondents is concerned, as summarized in Table 3, it was observed that 72% of them correctly believed that HIV positive patients should be put in same room with other patients, while 78.4% of them believed that children should not be removed from the home of HIV patients. Only 6.8% of the nurses believed that the AIDS patients should be isolated from the community because of their illness. Overall, 97% of nurses believed that HIV patients have right to the same quality of care and respect as other patients and 84% believed that the status of HIV infected person must be kept confidential. These findings were consistent with those observed by Magazine et al in Karnataka, India.<sup>8</sup> Regarding perceived risk of infection through casual contact, as observed in Table 4 of our study that only 26% nurses think that touching HIV positive patients when assessing them is associated with risk. 89% respondent feel that lack of knowledge about HIV status of patient is of some risk to them. It showed that most of the nurses have an overestimated risk perception regarding the spread of HIV during casual contact. Regarding perceived risk during medical procedure our study revealed that 99% of the nurses can correctly perceive the high amount of risk involved in cleaning and dressing a wound without protection in a HIV positive person. About recapping needle after withdrawing blood from HIV positive patient only 9.6% nurses perceive this to be of no risk at all. It showed that most of the nurses have a correct risk perception regarding spread of HIV during medical procedure. These findings were similar to those observed by Fortenberry et al.<sup>9</sup> In our study regarding practice, summarized in Table 5, it is observed that 53% of nurses never recap needle, 62% of nurses always wipe any blood spills, 88% of nurse always covers any broken skin during practice, 8% of nurse never put used needle in sharp container. 89.6% of nurse thinks that HIV testing is mandatory before any surgery. In other studies, like a study of nurses in Zambia, it was found that 76.1% practiced universal precaution.<sup>10</sup>

Overall, considering all the different variables, Knowledge, and awareness of nurses regarding HIV positive patient care, it can be concluded that there is significant difference between trained and untrained nurses regarding the above facts. The results of this study can be utilized in stressing on the importance of imparting training to the nurses and other healthcare workers related to patient care.

## CONCLUSION

It is evident from the results obtained that special training among nurses regarding care of HIV positive patient leads to an improvement in their knowledge of this disease, which is reflected in their change in attitude towards these patients and also in their practice involving them. Hence, periodic training for HIV/AIDS should be made compulsory for all nurses related to epidemiology of HIV, clinical features of the disease, its diagnosis and management, maintenance of Universal precautions, Post-exposure prophylaxis measures, importance of a humanitarian and supportive approach towards the patient. Such training should include both theoretical knowledge and practical demonstration in the ward and operating room and should be followed by an evaluation process through written and practical examination. Training should be repeated after a specific time period regularly to ensure continued and updated knowledge. The study focuses on the need to train the nursing staff and ensure better patient care in the hospital. The hospital administrator has the responsibility to ensure that the healthcare worker is dedicated, motivated and updated with the recent international treatment protocol, to ensure that the hospital can provide efficient patient care services.

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