

# Knowledge, Attitude and Practice toward Occupational Exposure to HIV Infection among Nursing Staff of Tertiary Care Hospital, Faridkot, India

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## ABSTRACT

**Introduction:** Nursing staff in a hospital plays an important role in providing treatment and care to the HIV patients. Study was done to assess the knowledge, attitude and practice towards occupational exposure to HIV infection among nursing staff of Tertiary Care Hospital, Faridkot City, Punjab, India.

**Material and methods:** A cross-sectional survey was conducted among all the nursing staff of Tertiary Care Hospital, Faridkot, City, Punjab. A self-administered structured questionnaire consisting of 20 items was used to assess their knowledge, attitude and practice towards occupational exposure to HIV infection. ANOVA test, student t-test and multivariate regression analysis were used for statistical analysis. Confidence Level and level of significance were set at 95% and 5% respectively.

**Results:** The mean scores for knowledge, attitude and practice were 40.75±2.69, 17.68±2.81 and 18.06±1.38 respectively. Analysis revealed that work experience was significantly associated with both knowledge and attitude means scores ( $p \leq 0.05$ ).

**Conclusion:** The results suggest that health care workers (nursing staff) had sufficient knowledge about different modes of transmission of HIV infection. They also admit positive attitude. But, the practices of universal precautions were found inadequate.

**Keywords:** Nursing Staff, Knowledge, Attitude, Practice, HIV

## INTRODUCTION

According to World Health Organization 2.5% of global HIV cases are due to occupational exposure among health care workers.<sup>1,2</sup>

The Irrational and discriminatory treatment of HIV/AIDS patient is the result of health professional's fear of contagion at workplace.<sup>3</sup> Unfortunately, most of health professionals have this kind of perspective and practice about people living with HIV/AIDS.<sup>4</sup>

Nurses reaction are varied about HIV/AIDS patient, from positive appropriate care to inadequate isolation techniques, minimum contact with such patients, and even avoidance to care of HIV/AIDS patients.<sup>5</sup>

Most of previous studies have showed nurses negative attitude regarding to care of HIV/AIDS patients. One factor that cause to negative attitude is fear of being affected by occupational exposure in contact to HIV/AIDS individuals. Social stigma is the second factor affected nurses attitude in contact with HIV/AIDS patients. Thus, negative attitude cause to poor management of Patients living with HIV /AIDS who need support, treatment and care.<sup>6</sup>

In view of these observations, this cross sectional study was conducted to assess the knowledge, attitude and practice towards occupational exposure to HIV infection among nursing

staff of Tertiary Care Hospital, Faridkot, India.

## MATERIAL AND METHODS

A cross sectional study was conducted among all the health care workers (nursing staff) of the Tertiary Care Hospital, Faridkot, Punjab, India in the month of April 2017. The study protocol was reviewed by the Ethical Committee & granted ethical clearance.

### Pre-testing of questionnaire

A structured questionnaire was developed and tested among a convenience sample of 10 participants, who were later interviewed to check the overall acceptability and clarity for it. Cronbach's coefficient was found to be 0.80. Mean Content Validity Ratio (CVR) was calculated as 0.87 based on the opinions expressed by a panel of five academicians. Face validity was observed that 92% of the participants found the questionnaire to be informal.

### Questionnaire

The questionnaire, designed to obtain nursing staff knowledge, attitude and practice towards Occupational exposure to HIV infection, consisted of three sections. Section I solicited general demographic details. Section II integrated questions to collect information about knowledge regarding occupational exposure to HIV infection. Section III comprised of questions which aimed to assess the attitude regarding occupational exposure to HIV infection. Section IV consisted of questions regarding practice of universal precautions. The participant's responses for section II and III were ordered according to how much they agreed with each statement that was based on the 3 point Likert scale with alternatives: disagree, don't know, and agree. For section IV the response were ranked as never, sometimes and always.

### Methodology

Among total 166 health care workers (nursing staff); a pilot

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study was conducted on 10 participants. These were not included in the main study and the final sample size was achieved 156. On the pre decided days the questionnaires were distributed among all nursing staff (n = 156) who were asked to give the written informed consent and were requested to rate each item of the questionnaire. After 2-3 follow ups 100% response rate was achieved.

## STATISTICAL ANALYSIS

The data was analyzed using SPSS 20 (SPSS Inc. Chicago, IL, USA) Windows software program. Each item of the questionnaire was coded 1-5 (strongly disagree to strongly agree). Several items were re-coded to ensure that, for all items, a high score indicated a positive knowledge and attitude and a low score indicated a negative knowledge and attitude. Mean knowledge, attitude and practice scores and standard deviation were calculated. Demographic information and the survey data was analyzed using the student's t-test and one way ANOVA with Post Hoc Bonferroni test. Multivariate logistic regression analysis models were

used to check relation between independent (age, sex, hours of exposure and work experience) and dependent variables (knowledge, attitude and practice). Confidence level and level of significance were fixed at 95% and 5% respectively.

## RESULTS

Table 1: A total of 156 participants with the mean age (in years) of  $32.85 \pm 5.23$  participated in the survey. Majority of the respondents were females (78.2%) and in the age group of 35-44 years (58.3%). (53.2%) of the participants had 5-10 years of work experience and 53.2% had less than 3 hours of exposure to patients.

Table 2: The mean knowledge, attitude and practice scores of the study population were evident as  $40.75 \pm 2.69$ ,  $17.68 \pm 2.81$  and  $18.06 \pm 1.38$  respectively. When post hoc Bonferroni test was applied, mean knowledge and attitude score among those who had less than 5 years of experience ( $38.67 \pm 3.15$ ) ( $16.72 \pm 2.03$ ) was found to be significantly lesser than among those who had more than 10 years of experience ( $42.30 \pm 3.32$ ) ( $18.48 \pm 2.81$ ) ( $p=0.00$ ) ( $p=0.03$ ).

Table 3: when asked for various modes by which HIV is not transmitted, majority of the correct responses were recorded for blood (99%), urine (87.4%), feces (89.3%), mosquito bite (96.1%) and sweat/tears (88.3%). Nearly half of the nursing students gave correct responses to cerebrospinal fluid (45.6%), breast milk (57.3%) and saliva (53.4%) as source of HIV transmission. Attitudes of nurses towards universal precautions and various aspects of nursing HIV patients were mixed (ie both positive and negative). Surprisingly more than one third of them (48.2%) were against the continuation of job if a nurse is HIV positive.

Almost all of them (99%) also stressed on universal precautions while nursing. For majority of them self-protection was priority to confidentiality of HIV status of the patient.

Table 4: Multivariate logistic regression analysis revealed that both knowledge and attitude had a significant association with years of work experience [OR = 0.93 (0.57 - 5.07)] [OR = 2.56 (0.31 - 4.95)] respectively.

| Sample characteristics       | Frequency (%) |
|------------------------------|---------------|
| Age (in years)               |               |
| 25-34                        | 43 (27.6)     |
| 35-44                        | 91 (58.3)     |
| > 45                         | 22 (14.1)     |
| Sex                          |               |
| Female                       | 122 (78.2)    |
| Male                         | 34 (21.8)     |
| Work experience (in years)   |               |
| <5                           | 36 (23.1)     |
| 5-10                         | 83 (53.2)     |
| >10                          | 37 (23.7)     |
| Hours of exposure (in hours) |               |
| < 3                          | 83 (53.2)     |
| > 3                          | 73 (46.8)     |
| Total                        | 156 (100)     |

**Table-1:** Profile of demographic characteristics of study participants

| variables                  | Knowledge   |            | Attitude    |         | Practice   |         |
|----------------------------|-------------|------------|-------------|---------|------------|---------|
|                            | Mean±SD     | P value    | Mean±SD     | P value | Mean±SD    | P value |
| Sex                        |             |            |             |         |            |         |
| Male                       | 41.55±3.74  |            | 17.38±2.16  |         | 18.34±2.31 |         |
| Female                     | 41.12±3.64  | 0.47       | 18.29±1.98  | 0.88    | 18.09±1.91 | 0.12    |
| Age (in years)             |             |            |             |         |            |         |
| 25-34                      | 41.86±3.70  |            | 17.64±2.09  |         | 18.07±2.10 |         |
| 35-44                      | 42.30±3.49  |            | 17.74±2.04  |         | 18.72±2.03 |         |
| >45                        | 42.42±3.77  | 0.06       | 17.66±2.34  | 0.96    | 19.08±2.96 | 0.09    |
| Hours of exposure          |             |            |             |         |            |         |
| < 3                        | 44.46±2.89  |            | 18.19±1.92  |         | 20.20±1.82 |         |
| > 3                        | 43.74±2.96  | 0.09       | 17.68±2.04  | 0.07    | 20.33±1.63 | 0.18    |
| Work experience (in years) |             |            |             |         |            |         |
| <5                         | 38.67±3.51a |            | 16.72±2.03a |         | 18.37±2.03 |         |
| 5-10                       | 40.02±4.21  |            | 17.75±2.21  |         | 18.44±1.90 |         |
| >10                        | 42.30±3.32a | 0.00*      | 18.48±2.13a | 0.03*   | 18.84±2.59 | 0.08    |
| Total                      | 40.75±2.69  | 17.68±2.81 |             |         | 18.06±1.38 |         |

Statistical tests applied: t test, one way ANOVA. \*indicates statistically significant difference at  $p \leq 0.05$ ; Post hoc Bonferroni test: Groups with same letter (a) superscripted showed statistically significant difference.

**Table-2:** Association of mean knowledge, attitude and practice score with independent variables.

| Knowledge   | Disagree   | Don't know | Agree      |
|---|------------|------------|------------|
| Blood transfusion   | 0(0%)      | 0(0%)      | 156(100%)  |
| Semen/Vaginal secretions  | 15(9.6%)   | 40(25.6%)  | 101(64.7%) |
| Cerebrospinal fluid   | 26(16.7%)  | 38(24.4%)  | 52(58.9%)  |
| Urine   | 7(4.5%)    | 19(12.2%)  | 130(83.3%) |
| Feces   | 7(4.5%)    | 13(8.3%)   | 136(87.2%) |
| Sweat/Tears   | 16(10.2%)  | 8(5.2%)    | 132(84.6%) |
| Breast milk   | 32(20.5%)  | 38(24.4%)  | 86(55.1%)  |
| Saliva  | 44(28.2%)  | 40(25.6%)  | 72(46.2%)  |
| Mosquito bite   | 102(65.4%) | 10(6.4%)   | 44(28.2%)  |
| Needle stick injury   | 5(3.2%)    | 23(14.7%)  | 128(82.1%) |
| Attitude  | Disagree   | Don't know | Agree      |
| 1. All in patients should be tested for HIV   | 4(2.5%)    | 11(7%)     | 141(90.4%) |
| 2. Universal precautions are to be applied for all patients                             | 2(1.3%)    | 10(6.4%)   | 144(92.3%) |
| 3. Self- protection is more important than confidentiality of HIV status of the patient | 13(8.3%)   | 5(3.2%)    | 138(88.5%) |
| 4. HIV positive nurses should resign the job  | 50(32.1%)  | 34(21.8%)  | 72(46.1%)  |
| 5. All nurses should be tested for HIV  | 8(5.1%)    | 2(1.3%)    | 146(93.6%) |
| Practice  | Never      | Sometimes  | Always     |
| Wash hands while nursing  | 86(55.1%)  | 44(28.2%)  | 26(16.7%)  |
| Use gloves every time   | 19(12.2%)  | 27(17.3%)  | 110(70.5%) |
| Use face mask every time  | 10(6.4%)   | 12(7.7%)   | 134(85.9%) |
| Use gown every time   | 0(0%)      | 0(0%)      | 156(100%)  |
| Use eye protective goggle every time  | 86(55.1%)  | 44(28.2%)  | 26(16.7%)  |

**Table-3:** Frequency of responses regarding knowledge, attitude and practice.

| Variables | Age (<45/>45 years) | Sex (female/male)  | Hours of exposure (<3/>3) | Work experience (<10/>10 years) |
|-----------|---------------------|--------------------|---------------------------|---------------------------------|
| Knowledge | 1.83 (0.47 - 7.08)  | 0.67 (0.12 - 3.70) | 2.45 (0.42 - 5.03)        | 0.93 (0.57 - 5.07)*             |
| Attitude  | 1.33 (0.60 - 2.90)  | 1.02 (0.38 - 2.70) | 3.69 (1.79 - 7.60)        | 1.28 (0.49 - 3.34)              |
| Practice  | 1.57 (0.3 - 7.92)   | 0.55 (0.06 - 4.80) | 0.17 (0.02 - 1.45)        | 2.56 (0.31 - 4.95)*             |

Italicized category is taken as reference group

**Table-4:** Multiple logistic regression Odd ratios (95 % CI) for knowledge, value, opinion and practice Score as dependent variable among nursing staff.

## DISCUSSION

The present study was conducted among 156 health care workers (nursing staff) of Tertiary Care Hospital, Faridkot city, Punjab to assess their knowledge, attitude and practice towards occupational exposure to HIV infection.

In the present study, knowledge and attitude toward HIV infection was found to be associated with years of work experience. Multivariate analysis revealed that knowledge and attitude showed significant association with years of work experience. Health care workers (nursing staff) who had more than 10 years of work experience had more knowledge and positive attitude than among those who had 5-10 or less than 5 years of work experience. This was in agreement with the results of the studies conducted by Hentgen Vet al.<sup>7</sup> and Jain M et al.<sup>8</sup> in which the optimal knowledge regarding transmission of HIV/blood-borne pathogens was reported.

In the present study 95.1% of the nursing staff wanted HIV testing for every patient. This is substantiated by findings of Jain M et al.<sup>8</sup> and Yamini et al.<sup>9</sup> who reported HIV status of the patient was an important factor in the implementation of standard precautions.

In our study we had found strange attitudes such as 'isolation of HIV patients in quarantine', 'discomfort for use of gloves' and 'reporting of accidental exposure is not important' were reported by Hentgen V et al.<sup>9</sup>, Le Pont F et al.<sup>10</sup> and Shriyan A

et al.<sup>11</sup> in their studies among healthcare workers, respectively. In the present study 48.2% of the health care workers (nursing staff) believed that if a nurse is HIV positive he/she should discontinuing nursing. It must be emphasized that illness due to blood borne pathogens such as HIV, HBV and HCV and TB infection is not a cause for discontinuation of employment. HIV-positive nurses should be allowed to work, provided they practice universal precautions for infection control.<sup>12</sup> The International Labour Organization (ILO) Code of Practice affirms that HIV infection and AIDS should be managed in the workplace like any other serious illness and workers should enjoy normal job security as long as they are medically fit.<sup>13</sup> Varying rates of accidental exposures were reported by Singru SA et al.<sup>14</sup> (39.63%), Le Pont F et al.<sup>10</sup> (75%), Tetali S et al.<sup>15</sup> (74.5%) and Mashoto KO et al.<sup>16</sup> (48%) in their studies across the globe. It calls for the capacity building of health care workers (nurses) to change their attitudes and shoring up of universal precaution practices in their work environment.

The present study surveyed all the health care workers (nursing staff) of Tertiary Care Hospital, Faridkot city with a 100% response rate. The assessment of knowledge, attitude and practice were based on health care workers (nursing staff) self-report. Limitations of the present study are we are not sure how truthfully and thoughtfully the respondents answered the questionnaire and level of subjectivity is not acknowledged in the present study.

## CONCLUSION

The present study concluded that health care workers (nursing staff) had sufficient knowledge about modes of transmission for HIV infection. They also acknowledge the positive attitude toward universal precautions but deficiencies in the practices of proposed universal precautions were observed. To overcome this, professional and government bodies should create clear strategies for enhancing and improving health care workers (nursing staff) knowledge and make them buoyant in practicing the universal precautions whenever required. This study gives new outlook for more detailed research among other health care professional residing in different parts of the country.

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## REFERENCES

1. Atul Agrawal, Ajeet Saoji, N. B. Kasturwar. Knowledge among Nurses towards HIV/Aids in Tertiary Care Hospital, Nagpur
2. WHO. Reducing risks. Promoting healthy life. The world health report 2002. Geneva: World Health Organization; 2002
3. Eisenberg L. The genesis of fear: AIDS and the public's response to science. *Journal of Medicine and Health Care*. 1986; 14:243-249.
4. Aghamolaei. T, Tavafian. S, Hasani. L, Zare. S. Attitudes of Healthcare Providers towards Patients with HIV/AIDS in Bandar Abbas. *Arch Iranian Med*. 2009;12:298–301.
5. Walusimbi M, Okonsky J.G. Knowledge and attitude toward caring for HIVpatient in Uganda. *Journal of Applied Nursing Research*. 2004;17:92-99.
6. Baylor A.R, McDaniel A. Nurses attitude toward caring for patient with Acquired Immunodeficiency Syndrome. *Journal of Professional Nursing*. 1996;12:99-105.
7. Hentgen V, Jaureguiberry S, Ramiliarisoa A, Andrianantoandro V, Belec M. Knowledge, attitude and practices of health personnel with regard to HIV/AIDS in Tamatave (Madagascar). *Bull Soc Pathol Exot*. 2002;95:103-8.
8. Jain M, Dogra V, Mishra B, Thakur A, Loomba PS. Infection control practices among doctors and nurses in a tertiary care hospital. *Ann Trop Med Public Health*. 2012;5:29-33.
9. Yamini, Jain A, Mandelia C, Jayaram S. Perception and practice regarding infection control measures amongst healthcare workers in district government hospitals of Mangalore, India. *Int J Health Allied Sci*. 2012;1:68-73.
10. Le Pont F, Hatungimana V, Guiguet M, Ndayiragije A, Ndoricimpa J, Niyongabo T, Larouze B. Assessment of occupational exposure to human immunodeficiencyvirus and hepatitis C virus in a referral hospital in Burundi, Central Africa. *Infection Control and Hospital Epidemiology*. 2003;24:717-718
11. Shriyan A, Annamma RR. Incidence of occupational exposures in a tertiary health care center. *Indian J Sex Transm Dis*. 2012;33:91-7.
12. Joint ILO/WHO Guidelines on Health Services and HIV/AIDS (2005).Geneva: ILO
13. WHO. International Labour Organisation (2002). HIV/AIDS and the World of Work, ILO Code of Practice: ILO, Geneva. Available on [www.ilo.org/public/english/support/publ/books.htm](http://www.ilo.org/public/english/support/publ/books.htm) accessed on 10-09-2013.
14. Singru SA, Banerjee A. Occupational exposure to blood and body fluids among health care workers in a teaching hospital in Mumbai, India. *Indian J Community Med*. 2008;33:26-30.
15. Tetali S, Choudhury P L. Occupational exposure to sharps and splash: Risk among health care providers in three tertiary care hospitals in South India. *Indian J Occup Environ Med*. 2006;10:35-40.
16. Mashoto KO, Mubyazi GM, Mohamed H, Malebo HM. Self-reported occupational exposure to HIV and factors influencing its management practice: a study of healthcare workers in Tumbi and Dodoma Hospitals, Tanzania.*BMC Health Serv Res*. 2013;13:276.

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