A cross-sectional study of practices regarding HIV/AIDS among attendees of integrated counseling and testing center at the SMS Medical College, Jaipur

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ABSTRACT

Introduction: This proposed study was carried out among attendees of integrated counseling and testing center (ICTC) associated with the SMS Medical College, Jaipur which included general population as well as multiple types of high-risk behavior people to determine practices about the human immunodeficiency virus (HIV) and to correlate the socio-demographic profile of attendees with their practice about HIV/AIDS. Materials and Methods: This cross-sectional study was conducted among 177 attendees at ICTC at the SMS Medical College, Jaipur from May 2015 to October 2015. Data were collected through an anonymous pre-designed semi-structured questionnaire. Continuous variables were summarized as mean and standard deviation while categorical variables as proportion (%). Chi-square test was used for the analysis of categorical variable. Stepwise multiple logistic regression analysis was done to find out predictors of practice. All statistical calculations were done by using the Med Calc. 12.2.1.0 software. Results: Most participants were male (80.79%), age group 20–29 year (44.07%), married (57.63%), Hindu (92.09%), from OBC caste (36.72%), graduate (22.6%), from urban setting (53.11%), joint family (66.67%), from socio-economic Class 1 (31.07%), and referred by doctor (61.02%). About 22% agreed that they had sexual intercourse with a person other than spouse; 8.47% agreed on having more than one sexual partner; 8.39% male respondents agreed that they had sex with men. Poor practice was prevalent in 16.38%. Gender, age, literacy, mode of referral, socio-economic class, and area of residence were found significantly associated (P < 0.05) with high-risk behavior. Literacy of respondents was found only significant predictor of practice scores in stepwise multivariate regression analysis with following regression equation – Practice score = 2.9821 + 0.3421 (Education). Conclusion: Literacy of respondents was found only significant predictor of practice scores. Government should strengthen IEC activities and ongoing HIV/AIDS education and prevention programs.

Keywords: Human immunodeficiency virus, integrated counseling and testing center, practices, socio-demographic

Introduction

Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) is a fatal illness caused by a retrovirus known as HIV. At present no effective vaccine is available for the prevention of HIV infection. There were 2.1 million people newly infected and 1.5 million AIDS-related deaths worldwide in 2013. India is estimated to have around 20.9 lakh persons living with HIV in 2011.[1]

Lack of knowledge and social taboos related to sex issues are the major contributing factors for the spread of HIV/AIDS.[3] The social and cultural environment can affect the use of HIV prevention practices such as condom use. Illiteracy and ignorance can also prevent changes in practice of safe sex, as many truck drivers do not know how to use condom.[9] Integrated counseling and testing centers (ICTC) is a place where a person is counseled and tested for HIV, of his own free will or as advised by a medical provider.[4] The population availing these services is mainly persons engaged in the high-risk behavior, sexually transmitted...
infection (STI) patients, and TB patients are more prone to acquire HIV infection.5

Most of the studies done so far are either in general population or in any specific high-risk group (including care givers).8-9 So, in this study we focused on practices about HIV among attendees of ICTC associated with the SMS Medical College, Jaipur which included multiple types of high-risk behavior people and also general population. Common high-risk practices prevalent in local area will help program managers to sensitize high-risk population and bridge population to adopt preventive approaches.

This proposed study was carried out with following objectives:
1. To determine practices of ICTC attendees about HIV/AIDS at the SMS Medical College, Jaipur
2. To correlate the socio-demographic profile of attendees with their practice about HIV/AIDS.

Materials and Methods

This descriptive type of observational cross-sectional study was conducted at ICTC at the SMS Medical College, Jaipur from May 2015 to October 2015. Sample size was calculated at 95% confidence level assuming 50% right practices among ICTC attendees to take maximum variance. At the relative allowable error of 20%, minimum 100 attendees were required as sample size. However, best efforts were made to increase sample size as maximum as possible to enhance the precision.

All eligible attendees coming to ICTC at the SMS Medical College during the study period providing consent for the study were included in the study.

Inclusion criteria
1. Age 18 or above and both the sexes
2. Attendees of ICTC at the SMS Medical College, Jaipur
3. First time visitors
4. Who is able to read and write
5. Willing to participate in the study.

Exclusion criteria
1. Any problem which leads to inability to communicate
2. Diagnosed HIV positive patients.

Participants were explained the type and purpose of study and they were ensured of their anonymity. After getting signed consent form, data were collected through an anonymous pre-designed semi-structured questionnaire in both Hindi and English language. They were strictly instructed about not writing their name or disclose their identity on questionnaire. Data thus collected were entered in Microsoft excel sheet to prepare master chart and further statistical analysis.

Statistical analysis
Continuous variables were summarized as mean and standard deviation while nominal/categorical variables as proportion (%). Chi-square test was used for analysis of categorical variable. Stepwise multiple logistic regression analysis was done to find out predictors of practice. All variables found significantly associated with practice were entered in the Regression model. Probability of independent variable in retaining Regression model was kept <0.05 while that of removal as >0.10. All statistical calculations were done by using the Med Calc. 12.2.1.0 software. P < 0.05 was taken as significant.

Methods of scoring of practice in good, fair, and poor

The study population is 177 attendees of ICTC. There were eight question sets of males and six for females for practices. We gave score 0 for those responses which were believed as risk behavior for HIV transmission and 1 to non-responses and those responses which were not considered as risk behavior for HIV transmission. So the minimum and maximum possible scores for males was 0–8 and for females was 0–6. We divided in three sub-categories as follows:

- Poor practice : 0–2.
- Fair practice : 3–5.
- Good practice : 6 or > 6 (males = 6–8, females = 6).

Socio-economic status was determined as per latest BG Prasad Classification of 2014.

Results

Present study comprises 177 respondents attending ICTC, SMS Medical College, Jaipur. In our study, mean age of the participants were 32.97 ± 14.24 years. Maximum respondents (44.07%) were in age group 20–29 year followed by 30–39 year (18.64%), 40–49 year (16.95%), and <20 year age group (9.04%). About 1.13% respondents did not mention their age. Maximum participants (80.79%) were male and (57.63%) married. In this study, most of the respondents were Hindu (92.09%) and from OBC caste (36.72%). Maximum respondents were graduate (22.6%), followed by senior secondary (19.21%) and secondary (16.95%), while professional were minimum (3.39%). Nearly half (53.11%) of the respondents were from urban setting. Almost two-third of respondents were having joint family (66.67%). Maximum respondents were from socio-economic Class 1 (31.07%) and referred by doctor (61.02%) [Table 1].

Median age of first intercourse was 24 year. About 22% agreed that they had sexual intercourse with a person other than spouse. No one mentioned about paying money for sexual intercourse ever; 8.47% agreed on having more than one sexual partner; 8.39% male respondents agreed that they had sex with men [Table 1]; and 39.55% had ever heard about ICTC. In this study, poor practice was prevalent in 16.38% respondents while 57.06% respondents were having fair and 26.55% were having good practices [Graph 2].
Poor practices were maximum prevalent among age group ≥60 years (40%) followed by age group <20 years (37.5%), 50–59 years (33.33%) and minimum among 30–39 years age group (6.06%). Significant association was found between age groups and practices (P < 0.001) on applying Chi-square test. Poor practices were significantly more among those who reside in urban area (20.78%, P = 0.005). Maximum poor practice was having by those who belong to nuclear family (18.52%) and minimum was those belonging to joint family (16.10%, P = 0.368). Maximum poor practice was among general (22.95%) followed by SC (12.5%) and OBC (12.31%) and minimum in ST (0.00%, P = 0.370). Professionals were having maximum poor practices (66.67%) followed by middle (29.41%) and secondary literates (29.41%), while post-graduates showed minimum poor practice (0.00%). By applying statistical test, education was found to be significantly associated with practice (P < 0.001). Poor practice was significantly more among those who were referred by doctor (21.30%) as compared to those who came voluntarily (8.82%). Significant association was found between practice and referral on applying statistical test (P = 0.040) [Table 2].

Stepwise multivariate regression analysis was done to find out predictors of practice score [Table 3]. All variables found significantly associated with practice score in bivariate analysis were entered in the model. Criteria kept to retain in model was P = <0.05 and for removal P > 0.1. Except for education, all variables were removed from the model. Fitness into the model assessed by the analysis of variance (ANOVA) was found significant (P < 0.001). Coefficient and constant were mentioned in above table. Regression equation is as follows Y = a + bx. Practice score = 2.9821 + 0.3421 (Education).

**Discussion**

Present study comprises 177 respondents attending ICTC, SMS Medical College, Jaipur. Maximum participants (80.79%) were male similar to the study of Mansoor et al[10] (72.1%) and Shivaraj et al[11] (64%). In our study most participants (57.63%) were married, however, it was quite higher than the study of Mansoor et al[10] (6.6%). This may be because the study group of Mansoor et al[10] was freshmen in the Afghan Universities whereas in this study respondents were representing general adult population. In the present study, 53.11% respondents...
### Table 2: Practice according to socio-demographic variables of study population

| Variables                      | n   | Good, n (%) | Fair, n (%) | Poor, n (%) | P    |
|-------------------------------|-----|-------------|-------------|-------------|------|
| **Age groups (years)**        |     |             |             |             |      |
| <20                           | 16  | 6 (37.50)   | 4 (25)      | 6 (37.50)   | <0.001|
| 20-29                         | 78  | 14 (17.95)  | 58 (74.36)  | 6 (7.69)    |      |
| 30-39                         | 33  | 8 (24.24)   | 23 (69.7)   | 2 (6.06)    |      |
| 40-49                         | 26  | 9 (34.62)   | 10 (38.46)  | 7 (26.92)   |      |
| 50-59                         | 12  | 6 (50)      | 2 (16.67)   | 4 (33.33)   |      |
| ≥60                           | 10  | 4 (40)      | 2 (20)      | 4 (40.00)   |      |
| NR                            | 2   | 0           | 2 (100)     | 0 (0.00)    |      |
| **Sex**                       |     |             |             |             |      |
| Male                          | 143 | 45 (31.47)  | 75 (52.45)  | 23 (16.08)  | 0.019|
| Female                        | 28  | 2 (7.14)    | 22 (78.57)  | 4 (14.29)   |      |
| NR                            | 6   | 0           | 4 (66.67)   | 2 (33.33)   |      |
| **Marital status**            |     |             |             |             |      |
| Single                        | 67  | 16 (23.88)  | 42 (62.69)  | 9 (13.43)   | 0.487|
| Married                       | 102 | 31 (30.39)  | 53 (51.96)  | 18 (17.65)  |      |
| Do not want to answer         | 2   | 0           | 2 (100)     | 0           |      |
| NR                            | 6   | 0           | 4 (66.67)   | 2 (33.33)   |      |
| **Religion**                  |     |             |             |             |      |
| Hindu                         | 163 | 45 (27.61)  | 91 (55.83)  | 27 (16.56)  | 0.862|
| Muslim                        | 10  | 2 (20)      | 6 (60)      | 2 (20)      |      |
| NR                            | 4   | 0           | 4 (100)     | 0           |      |
| **Caste**                     |     |             |             |             |      |
| General                       | 61  | 18 (29.51)  | 29 (47.54)  | 14 (22.95)  | 0.370|
| OBC                           | 65  | 20 (30.77)  | 37 (56.92)  | 8 (12.31)   |      |
| SC                            | 32  | 7 (21.86)   | 21 (65.63)  | 4 (12.5)    |      |
| ST                            | 8   | 2 (25)      | 6 (75)      | 0           |      |
| NR                            | 11  | 0           | 8 (72.73)   | 3 (27.27)   |      |
| **Literacy**                  |     |             |             |             |      |
| Primary                       | 16  | 0           | 12 (75)     | 4 (25)      | <0.001|
| Middle                        | 17  | 6 (35.29)   | 6 (35.29)   | 5 (29.41)   |      |
| Secondary                     | 30  | 4 (13.33)   | 24 (80)     | 2 (6.67)    |      |
| Senior secondary              | 34  | 9 (26.47)   | 15 (44.12)  | 10 (29.41)  |      |
| Graduate                      | 40  | 12 (30)     | 24 (60)     | 4 (10)      |      |
| Post-graduate                 | 24  | 15 (62.5)   | 9 (37.5)    | 0           |      |
| Professional                  | 6   | 0           | 2 (33.33)   | 4 (66.67)   |      |
| NR                            | 11  | 0           | 8 (72.73)   | 3 (27.27)   |      |
| **Residence**                 |     |             |             |             |      |
| Rural                         | 94  | 35 (37.23)  | 48 (51.06)  | 11 (11.7)   | 0.005|
| Urban                         | 77  | 12 (15.58)  | 49 (63.64)  | 16 (20.78)  |      |
| NR                            | 6   | 0           | 4 (66.67)   | 2 (33.33)   |      |
| **Type of family**            |     |             |             |             |      |
| Nuclear                       | 54  | 18 (33.33)  | 26 (48.15)  | 10 (18.52)  | 0.368|
| Joint                         | 118 | 29 (24.58)  | 70 (59.32)  | 19 (16.1)   |      |
| NR                            | 5   | 0           | 5 (100)     | 0           |      |
| **Socio-economic class**      |     |             |             |             |      |
| Class 1                       | 55  | 23 (41.82)  | 28 (50.91)  | 4 (7.27)    | <0.001|
| Class 2                       | 38  | 6 (15.79)   | 22 (57.89)  | 10 (26.32)  |      |
| Class 3                       | 25  | 10 (40)     | 8 (32)      | 7 (28)      |      |
| Class 4                       | 25  | 2 (8)       | 23 (92)     | 0           |      |
| Class 5                       | 26  | 4 (15.38)   | 18 (69.23)  | 4 (15.38)   |      |
| NR                            | 8   | 2 (25)      | 2 (25)      | 4 (50)      |      |
| **Referred by**               |     |             |             |             |      |
| Doctor                        | 108 | 23 (21.3)   | 62 (57.41)  | 23 (21.3)   | 0.040|
| Voluntary                     | 68  | 23 (33.82)  | 39 (57.35)  | 6 (8.82)    |      |
| NR                            | 1   | 1 (100)     | 0           | 0           |      |
| **Total**                     | 177 | 47 (26.55)  | 101 (57.06) | 29 (16.38)  |      |

NR: Non-respondents
were from urban setting which is almost similar to study of Shivraj et al.[13] (67%).

In our study, 26.55% respondents were having good practices, 57.06% respondents were having fair, and 16.38% respondents were having poor practices. Similar results were found by Kavithai et al.[12] where good, satisfactory, and poor practices were prevalent in 21.9%, 56.2%, and 21.9%, respectively, among medical students. While Mansoor et al.[10] found 30% respondents in high-risk behavior (poor practice). Different methods of ascertaining high-risk behavior in both the studies may be the reason behind it. Similar to the study of Mansoor et al.,[10] poor practices regarding high-risk behaviors were statistically more common in males than females. Median age at first sexual intercourse was 24 years in the present study which was significantly higher than study of Ruikar et al.[14] and BSS 2006[15] in which it was 15 years and 19 years, respectively. This difference may be due to variation in cultural practices at different places and in different time frame. None of the study participants in the present study accepted to be indulged in visiting female sex worker or paid sex, whereas 37%, 49%, and 58.8% respondents of Raza et al.[16] Thakur et al.[17] and Singh and Joshi[18] studies admitted it, respectively. This is probably due to the difference in study population as other studies were in high-risk groups, whereas our study population was representing the general population. About 13% seronegative and 22% seropositive had link with commercial sex worker (CSW) in study of Bansal et al.[19] About 20.2% HIV positive and 2.8% HIV negative participants had sex with CSW in Chauhan et al.'s study.[19]

In our study 8.47% agreed on having more than one sexual partner while 19% seronegative and 32% seropositive had multiple sex partners in Bansal et al.'s study,[18] 30.8% HIV positive and 8% HIV negative participants had multiple sex partner in Chauhan et al.'s study.[19] 18.18% respondents of the present study admitted that they used condom while having sex with female sex worker. Condom usage was staggering low at <10% in whole study group in Bansal et al.'s study.[19]

About 0% HIV positive and 0.3% HIV negative participants used condom in Chauhan et al.'s study.[19] In the present study, 8.39% male respondents admitted that they had sex with a man which is higher than BSS 2006[15] where 3% of males were found engaged in sexual activity with male. In the present study, 39.55% respondents had heard about ICTC which is higher than 20% respondents of BSS 2006[15] which is probably due to increase in overall awareness of HIV in past few years.

### Conclusion and Recommendation

Good practices were found in only one-fourth of the respondents. Gender, age, literacy, mode of referral, socio-economic class, and area of residence were found significantly associated with high-risk behavior. Literacy of respondents was found only significant predictor of practice scores in stepwise multivariate regression analysis. Government should strengthen IEC activities and ongoing HIV/AIDS education and prevention programs to increase awareness. Condom promotion programs should be strengthened and availability of the condoms should be ensured at appropriate place through social marketing and condom vending machines. Network of ICTC should be expanded to cover outreach areas.

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### Conflicts of interest

There are no conflicts of interest.

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