

Correlates of anxiety and depression among HIV test-seekers at a Voluntary Counseling and Testing facility in Pune, India

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Abstract

Objective: We assessed the extent of anxiety/depression/distress using Hospital Anxiety and Depression Scale (HADS) among a cross-section of HIV test-seekers at a Voluntary Counseling and Testing (VCT) facility in Pune, India. **Methods:** HADS has 14 items for uniscale with 7 items each for anxiety and depression rated on a four-point Likert scale. Between September 2002 and March 2003, HADS was administered to 150 consecutive HIV tests-seekers attending NARI-Talera VCT facility. Subsequently, HIV testing was done after obtaining informed consent. **Results:** HADS showed strong internal consistency (Cronbach- α 0.77). The prevalence of risk behavior (73.3%) and HIV (45.5%) were high. Education levels influenced anxiety ($p = 0.033$; 0.008), more so in women ($p = 0.044$). Repeat test-seekers exhibited significant depression (AOR: 2.9; 95% CI: 1.4–6.1; $p = 0.004$) and distress (AOR: 2.5; 95% CI: 1.2–5.3; $p = 0.017$). Marital status influenced the uniscale scores. The HIV positive repeat test-seekers were more anxious ($p = 0.035$) and depressed (0.037). **Conclusions:** Existence of emotional distress among HIV test-seekers, particularly among repeat test-seekers, possibly ‘AIDS-anxious’ individuals indicates additional counseling needs specifically by introducing gender and education sensitive interventions. VCT staff can be trained to assess emotional distress among HIV test-seekers to formulate long-term intervention.

Key words: Anxiety, Counseling, Depression, HIV testing, Voluntary Counseling & Testing Centre (VCTC)

Abbreviations: AIDS – acquired immune deficiency syndrome; AOR – adjusted odds ratio; CI – confidence interval; ELISA – enzyme-Linked immunosorbent assay; HADS – hospital anxiety depression scale; HIV – human immunodeficiency virus; OPD – out patient department; OR – odds ratio; SD – standard deviation; STI – sexually transmitted infections; TB – tuberculosis; VCT – voluntary counseling and testing; VCTC – voluntary counseling and testing center

Introduction

With a population of over one billion, even current low HIV prevalence estimates in India translate into over 5.1 million HIV infected individuals [1]. The HIV epidemic in India has spread to the general population and to the rural areas [2, 3].

Thus restricting screening for HIV in Sexually Transmitted Infections (STI) clinics will not help in identifying the large HIV infected population. The National AIDS Control Organization (NACO) of India has laid emphasis on establishment of Voluntary Counseling and Testing Centers (VCTC) and over 600 VCTCs have been set up

in India [4]. The role of ‘voluntary counseling and testing’ (VCT) as a convenient and cost effective tool for monitoring the HIV epidemic is known [5, 6] and global advocacy for VCTC is gaining strength. Key to overall success and cost effectiveness of the VCT program is in its high coverage and good quality counseling [7].

Individuals going for HIV test may be experiencing significant distress. A study conducted among HIV test-seekers in India recommended that psychiatric morbidity existing prior to the knowledge of HIV status should be diagnosed and managed [8]. The Common Mental Disorders (CMDs) prevalent in India are anxiety and depression [9]. It is important to diagnose distress among HIV test-seekers because such a state has been reported to result in high risk behavior for HIV [10–12]. Such people can transmit HIV infection to others having sex with them [13–14]. Therefore, identifying and managing these distressed conditions can be an effective intervention strategy.

Depression has been reported to be a severe manifestation of HIV disease progression [15–17]. Hence, prior diagnosis of anxiety and depression among HIV test-seekers may help in better case management, appropriate clinical care and can result in slowing disease progression [18–19]. Such knowledge can result in implementing effective coping strategies that may improve the quality of life of the HIV infected people.

No reports are available on the assessment of emotional distress specifically among persons seeking HIV test in India. Hospital Anxiety and Depression Scale (HADS) allows rapid assessment for anxiety and depression that can have implications on patient management [16]. It has been used to assess anxiety and depression among various categories of patients in outpatient set-up and has been tested on cancer patients as well as HIV infected individuals in Indian settings as a screening instrument for psychiatric morbidity [17, 20].

In this study, we report the correlates of anxiety and depression among men and women attending VCT facility for HIV testing. The aim of the present study was to use HADS to identify anxiety, depression and distress among HIV test-seekers at their first visit to the VCTC prior to HIV testing at Talera VCT facility in Pune, India. We also tested the hypothesis that anxiety and

depression among HIV test-seekers might vary by their socio-demographic characteristics and previous experience of HIV testing.

Methods

Study participants

National AIDS Research Institute, Pune, India operates a VCT facility at Talera municipal hospital. The VCT facility is equipped with clinical and laboratory infrastructure that provides standard care and treatment to all VCT facility attendees. This facility caters to the HIV testing needs of the general clientele of Talera hospital, mostly from outpatient clinics of general medicine and STI and those who reach this center on their own (self referral). Additionally, the facility receives referral for counseling, HIV testing and psychological intervention from various hospitals in the vicinity, Non-Governmental Organizations, Community Based Organizations and private medical practitioners from the surrounding peri-urban and rural areas.

Between September 2002 and March 2003, 150 sequential HIV test-seekers attending Talera hospital VCT facility were assessed for current levels of anxiety and depression prior to pre-test counseling and HIV testing. Some HIV test-seekers were repeat test-seekers who might have been having a previous report that was not disclosed to the clinic staff prior to HADS administration. Therefore, the researchers were blinded to HIV report of all the participants at the time of administration of HADS. The study was approved by the Ethics committee of National AIDS Research Institute, Pune, India.

Assessment of anxiety and depression

The psychometric properties, high internal consistency and reliable factor structure of HADS has already been established [21, 22]. The reported sensitivity and specificity of approximately 0.80 of HADS is very similar to that of General Health Questionnaire (GHQ) [23]. It is a brief self-administrable rating scale having no physical or somatic symptom. This scale can be administered

by any trained counselor especially in out patient settings.

HADS was utilized in this study for assessing clinically significant degrees of anxiety and depression as the scores are not affected by somatic symptoms [20]. HADS consists of 14 items in two subscales: 7 items for anxiety and 7 items for depression. A combine scale of all 14 items can be used to assess distress. Each item is rated on a four-point Likert scale (0–3) allowing the responses to be categorized as likelihood of anxiety, depression and distress. The score of ‘0’ indicates least stress and ‘3’ indicates maximum stress for that particular item in the scale. The scale was translated in local language by an experienced translator without altering the contents of original version and its reliability was confirmed by matching the back translation with the original version. The scale was pilot tested on 25 patients attending Talera medicine OPD before finalizing the translated version. The counselors were trained in administering HADS. The scale was interview administered to all the consenting individuals attending the facility.

HIV testing and counseling

Subsequent to the administration of HADS, pre-test counseling was provided to all the HIV test-seekers after obtaining separate written informed consent for HIV test. Serum samples were screened initially using commercially available enzyme-linked immunosorbent assay (ELISA) kits for detection of HIV-1 and HIV-2 antibodies (Lab Systems HIV EIA, LAB SYSTEMS, OY, Finland/Microlisa HIV, J. Mitra and Company Limited). Specimens positive by ELISA were confirmed using the rapid HIV tri dot test (J. Mitra and Company Limited, India). Specimens that were discrepant by these assays were confirmed using either a third ELISA or the HIV-1 or HIV-2 Western Blot (INNO-LIA HIV Confirmation, Innogenetics, N. V. Belgium).

Socio-demographic information and risk behavior

Additionally, a separate structured questionnaire in local language was interview administered by the counselors to obtain information on

demographics, practices related to HIV/AIDS and present or past STI. The history of risk exposure was defined as spouse of STI patient or that of HIV infected individual, present and past history of STI and self risk behavior. The information related to the patient referral was either taken directly from the client or noted from letters of their referring physicians. Finally, appointments were given for post HIV test counseling to all the HIV test-seekers.

Statistical analysis

The statistical analysis was carried out using SPSS (version 10.0) package.

Alpha model was used to measure internal consistency of the scale and measure the appropriateness of the HADS in the VCT setting.

HADS scores were calculated for anxiety, depression and distress (uniscale) separately. The ranges of scores possible for anxiety/depression sub-scales and uniscale were 0–21 and 0–42 respectively. The differences in mean scores of anxiety and depression among men and women were analyzed using *t*-test and ANOVA.

Predetermined cut off scores of 7, 8 or 16 respectively were used for defining ‘caseness’ for anxiety, depression and distress respectively based on specificity and sensitivity documented in the study conducted among cancer patients in India [24]. Thus, individuals with scores more than 7 on the anxiety sub-scale were categorized as ‘anxious’ and those with more than 8 on the depression sub-scale were categorized as ‘depressed’. Individuals with more than 16 uniscale scores were categorized to be ‘distressed’.

Individuals in ‘anxious’ and ‘not anxious’; ‘depressed’ and ‘not depressed’; ‘distressed and ‘not distressed’ categories were separately analyzed using logistic regression to find out the covariates of anxiety, depression and distress using variables related to demographic characteristics, risk behavior/risk, HIV testing category, subsequent HIV report and referral category. Pearson chi square test was applied to find correlation between anxiety; depression sub-scales and uniscale distress scores. Subgroup analysis was also done for HIV positive and HIV negative individuals to assess the association with various characteristics. The relationship of various characteristics with anxiety,

depression and distress was analyzed by gender. Multivariate stepwise forward logistic regression model was used to ascertain independent association of the variables with the study outcomes; namely anxiety, depression and distress as diagnosed by HADS uniscale.

Results

Reliability of scale

Cronbach's α score of the HADS (uniscale) in the setting of VCTC was observed to be 0.77. The reliability score for anxiety and depression scales were 0.612 and 0.605 respectively.

Profile of VCTC attendees

Of the total 150 consecutive HIV test-seekers, all agreed for their assessment by HADS. Seven individuals subsequently refused HIV testing. The male to female ratio was 1.8:1 (98:52). The mean age of the attendees was 28.7 years (SD = 6.7 years); 29.2 and 27.8 years respectively for men and women. [Data not shown in the tables]. Out of 150 HIV test-seekers reporting to VCT facility, 66% were getting their HIV test done for the first time while 29% were repeat test-seekers and 5% did not undergo testing. More women (31%) than men (18%) were among the repeat test-seekers who came on their own for confirmation of their HIV test done outside this VCT facility ($p = 0.328$).

Overall, 73.3% reported some risk behavior, either of their own (61.3%) or being a spouse of high-risk individual (12%). The overall HIV prevalence in the study population was 45.5% (65/143). Like men almost half of the women test-seekers came on their own (51%).

A significant correlation was observed between anxiety and depression sub scales ($r = 0.700$; $p = 0.001$) for all attendees as well as in those who tested HIV positive ($r = 0.739$; $p = 0.002$).

Anxiety, depression & distress among HIV test-seekers

The anxiety, depression and distress (uniscale) mean scores were 9.4 (SD 4.1), 8.3 (SD 4.2) and

17.7 (SD 7.7) respectively. Among HIV infected individuals and uninfected individuals, the mean anxiety scores were 9.3 (SD 4.5) and 9.4 (SD 3.95) respectively ($p = 0.803$). The mean depression scores were 8.8 (SD 3.6) and 7.8 (SD 4.2) respectively ($p = 0.146$). Similarly, the mean uniscale distress score among HIV infected individuals and uninfected individuals were 18.1 (SD 8.2) and 17.2 (SD 7.4) respectively ($p = 0.510$).

The mean scores for anxiety, depression and distress stratified by gender, were analyzed using *t*-test and ANOVA [Data not shown in the table]. Although not statistically significant, women did have higher mean anxiety, depression and distress scores (10.2, 9.0 & 19.1) as compared to men (9.0, 7.9 & 17); ($p = 0.099$, $p = 0.153$ and $p = 0.095$ respectively).

Comparison of mean anxiety and distress scores among men and women revealed statistically significant difference in the highest age group category ($p = 0.047$ & $p = 0.039$ respectively) and reported risk category ($p = 0.031$). Only 'highly educated' category showed significant differences across all three mean scores viz. anxiety ($p = 0.002$), depression ($p = 0.003$) and distress ($p = 0.001$). Figure 1(a-c) delineates the gender-education interaction where among men, higher the education, lower were the anxiety/depression/distress scores while women with higher education reported higher anxiety/depression/distress level/s. Other demographic characteristics did not show significant difference among men and women.

Based on the cut-off scores, in all, 93, 67 and 56 [65, 45 and 37%] HIV test-seekers were categorized as 'anxious', 'depressed' and 'anxious and depressed' respectively. Seventy individuals [47%] were categorized as 'distressed'. Table 1 shows the univariate analysis of anxiety, depression and distress (uniscale) assessed by cut-off score. Anxiety differed significantly with gender ($p = 0.044$) and education ($p = 0.022$). The individuals who were functional literate or had received lower education were 2-3 times likely to be anxious as compared to highly educated persons. Depression differed significantly for referral category ($p = 0.018$). Individuals referred by STD OPD or Medicine/TB OPD were 2-3 times likely to be depressed or distressed as compared to self-referred individuals. In the education category, individuals with lower level of education were

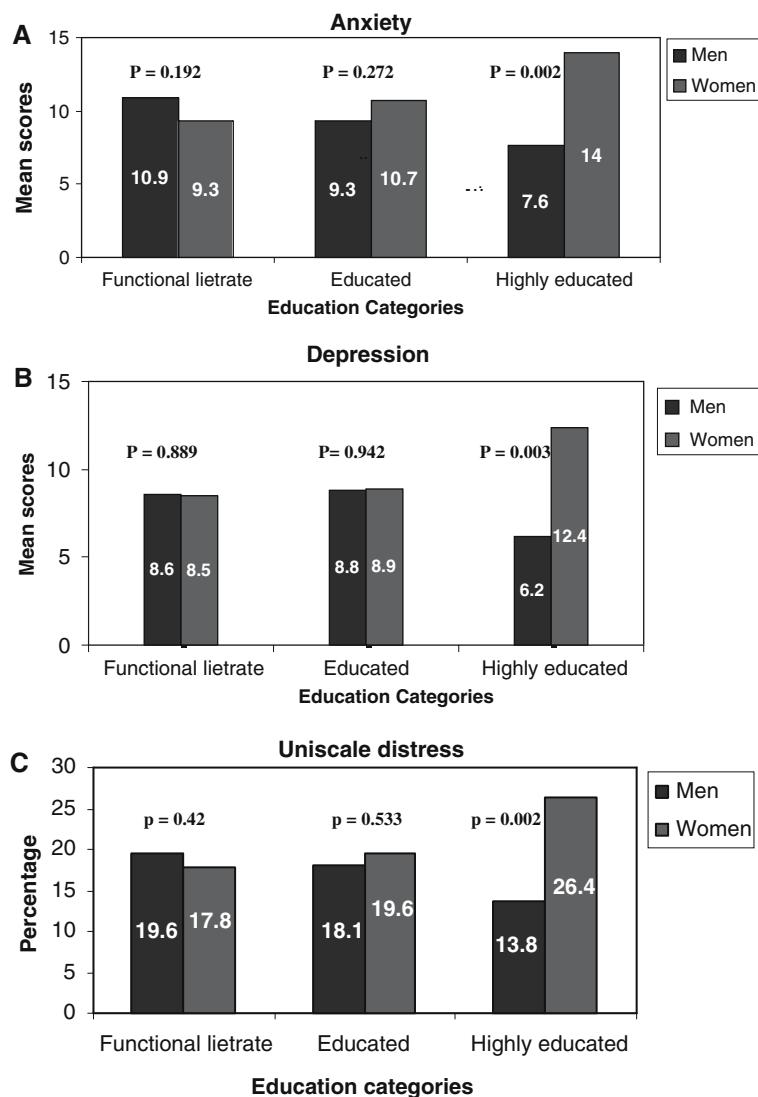


Figure 1. Relationship between education and levels of anxiety, depression and distress among men and women. (A–C) In this study population, women HIV test-seekers with higher level of education showed higher anxiety, depression and distress mean scores as compared to the men. Women in highest level of education category showed significant difference for mean anxiety, depression and distress scores as compared to men in the same category.

more likely to be depressed than highly educated persons. The repeat test-seekers were more likely to be depressed and distressed (OR: 0.34, 95% CI: 0.2–0.7, $p = 0.004$; OR: 0.45, 95% CI: 0.2–0.9, $p = 0.031$ respectively) as compared to first time HIV test-seekers.

We did not observe significant relations with anxiety/depression/distress and HIV status. Among the 65 HIV infected individuals, the likelihood of anxiety, depression and distress

(uniscale) was 55.4, 49.2 and 49.2% respectively (Table 1). The HIV infected individuals who reported either for the first time or for repeat HIV testing, the likelihood of being anxious (OR: 2.99; 95% CI: 1.1–8.3; $p = 0.035$) or depressed (OR: 2.92; 95% CI: 1.1–8.0; $p = 0.037$) varied significantly while distress did not show significant difference with HIV testing category ($p = 0.110$) (Figure 2). No significant association was observed in relation to other socio-demographic

Table 1. Socio-demographic correlates of anxiety and depression scores in Voluntary Counseling Testing facility attendees using univariate analysis

Characteristics	Anxiety			Depression			Unscale distress cases			
	Freq (%)	Morbidity cases = 93	Odds ratio (95% CI)	p value ^a	Morbidity cases = 67	Odds ratio (95% CI)	p value ^a	Morbidity cases = 70	Odds ratio (95% CI)	p value ^a
Gender										
Male	98 (65.3)	55 (56.1)	1 (Ref)		39 (39.8)	1 (Ref)		41 (41.8)	1 (Ref)	
Female	52 (34.7)	38 (73.1)	2.12 (1.02–4.41)	0.044	28 (53.8)	1.77 (0.90–3.48)	0.101	29 (55.8)	1.75 (0.89–3.45)	0.105
Age groups										
Below 21	19 (12.7)	15 (78.9)	1 (Ref)		12 (63.2)	1 (Ref)		11 (57.9)	1 (Ref)	
22–26	46 (30.7)	27 (58.7)	0.38 (0.11–1.32)	0.128	19 (41.3)	0.41 (0.14–1.24)	0.113	20 (43.5)	0.56 (0.19–1.65)	0.292
27–31	40 (26.7)	23 (57.5)	0.36 (0.10–1.28)	0.115	17 (42.5)	0.43 (0.14–1.33)	0.142	18 (45)	0.56 (0.20–1.79)	0.356
32 & above	45 (30.0)	28 (62.2)	0.44 (0.12–1.54)	0.199	19 (42.2)	0.43 (0.14–1.27)	0.130	21 (46.7)	0.64 (0.22–1.88)	0.413
Marital status										
Never married	43 (28.7)	23 (53.5)	1 (Ref)		18 (41.9)	1 (Ref)		15 (34.9)	1 (Ref)	
Ever Married	107 (71.3)	70 (65.4)	1.65 (0.80–3.38)	0.175	49 (45.8)	1.17 (0.57–2.40)	0.661	55 (51.4)	1.97 (0.95–4.11)	0.069
Education										
Highly educated	37 (24.7)	16 (43.2)	1 (Ref)		11 (29.7)	1 (Ref)		13 (35.1)	1 (Ref)	
Educated	66 (44.0)	43 (65.2)	2.45 (1.07–5.60)	0.033	35 (53.0)	2.67 (1.14–6.27)	0.024	31 (47)	1.64 (0.71–3.75)	0.246
Functional literate	47 (31.3)	34 (72.3)	3.43 (1.38–8.54)	0.008	21 (44.7)	1.91 (0.77–4.74)	0.164	26 (55.3)	2.29 (0.94–5.55)	0.068
Occupation										
Employed	108 (72.0)	64 (59.3)	1 (Ref)		49 (45.4)	1 (Ref)		50 (46.3)	1 (Ref)	
Unemployed	42 (28.0)	29 (69.0)	1.65 (0.30–3.27)	0.269	18 (42.9)	1.10 (0.54–2.27)	0.781	20 (47.6)	0.95 (0.46–1.94)	0.884
Background										
Urban	84 (56.0)	49 (58.3)	1 (Ref)		38 (45.2)	1 (Ref)		40 (47.6)	1 (Ref)	
Semi-urban	59 (39.3)	38 (64.4)	1.29 (0.65–2.57)	0.464	24 (40.7)	0.83 (0.42–1.63)	0.588	25 (42.4)	0.81 (0.41–1.58)	0.535
Rural	7 (4.7)	6 (85.7)	4.29 (0.49–37.2)	0.187	5 (71.4)	3.03 (0.56–16.5)	0.200	5 (71.4)	2.75 (0.51–15.0)	0.242
Family type										
Staying alone	12 (8.0)	7 (58.3)	1 (Ref)		7 (58.3)	1 (Ref)		7 (58.3)	1 (Ref)	
Nuclear	119 (79.3)	73 (61.3)	1.13 (0.34–3.78)	0.839	53 (44.5)	0.57 (0.17–1.91)	0.365	55 (46.2)	0.61 (0.18–2.04)	0.427
Joint	19 (12.7)	13 (68.4)	1.55 (0.35–6.94)	0.568	7 (36.8)	0.42 (0.10–1.83)	0.246	8 (42.1)	0.52 (0.12–2.25)	0.381
HIV report										
Positive	65 (43.3)	36 (55.4)	1 (Ref)		32 (49.2)	1 (Ref)		32 (49.2)	1 (Ref)	
Negative	78 (52.0)	51 (65.4)	1.52 (0.77–2.99)	0.223	30 (38.5)	0.65 (0.33–1.26)	0.197	33 (42.3)	0.76 (0.39–1.47)	0.408
Refused Testing	7 (4.7)	6 (85.7)	4.83 (0.55–42.45)	0.155	5 (71.4)	2.58 (0.47–14.3)	0.278	5 (71.4)	2.58 (0.47–14.3)	0.278
Behavior										
Reported risk	110 (73.3)	67 (60.9)	1 (Ref)		52 (47.3)	1 (Ref)		52 (47.3)	1 (Ref)	
No reported risk	40 (26.7)	26 (65.0)	0.84 (0.39–1.75)	0.648	15 (37.5)	0.67 (0.32–1.41)	0.288	18 (45)	1.09 (0.53–2.27)	0.805
Referral category^b										
Self referral	76 (50.7)	48 (63.2)	1 (Ref)		25 (32.9)	1 (Ref)		29 (38.2)	1 (Ref)	
STD OPD	42 (28)	25 (59.5)	0.86 (0.39–1.85)	0.697	24 (57.1)	2.72 (1.25–5.91)	0.012	21 (50.0)	1.62 (0.76–3.47)	0.214
Medicine/TB OPD	31 (20.7)	19 (61.3)	0.92 (0.39–2.183)	0.856	17 (54.8)	2.48 (1.05–5.82)	0.037	19 (61.3)	2.57 (1.08–6.05)	0.031

HIV testing category ^{c,d}	44 (29.3)	31 (70.5)	1 (Ref)	0.55 (0.25–1.17)	0.119	27 (61.4)	35 (35.4)	1 (Ref)	0.34 (0.16–0.72)	0.004	26 (59.1)	39 (39.4)	1 (Ref)	0.45 (0.22–0.93)	0.031
Repeater															
First time	99 (66.0)	56 (56.5)													

CI: Confidence Interval; OPD: Out Patient Department; STD: Sexually Transmitted Disease; TB: Tuberculosis.

^a*p* values for the whole construct and categories are shown.

^bSocio demographic data of one respondent was not available in some categories.

^cAmong HIV testing category, data on six respondents are missing for anxiety and data on five respondents are missing for depression.

^dSeven respondents refused HIV testing and data of these respondents were not considered in this variable.

factors among HIV positive individuals who came for the first-time or were repeat test-seekers. There was no significant difference observed among HIV negative first time or repeat test-seeking individuals.

Among HIV un-infected individuals, anxiety and depression was observed in 65% and 39% individuals respectively. Out of the seven individuals who refused testing, six were anxious, five were depressed while five showed distress (uniscale) defined by the cut-off scores (Table 1).

Amongst all the variables included in the multivariate analysis, two variables namely ‘HIV testing category’ and ‘marital status’ showed significant association with various distress categories [Data not shown in the table]. The repeat test-seekers were 2–3 times more likely to be depressed (AOR: 2.9; 95% CI: 1.4–6.0; *p* = 0.004) and distressed (AOR: 2.5; 95% CI: 1.2–5.3; *p* = 0.017). Those who were in the ‘never married’ category were more likely to be distressed as compare to ‘ever married’ [AOR: 0.43; 95% CI: 0.2–1.0; *p* = 0.034].

No association was found with other factors like age, marital status, occupation, domicile, family type, HIV infection and behavioral history.

Discussion

Ease of administration, non-requirement of a specialist and good internal consistency of the scale and the subscales while assessing anxiety and depression may allow the use of HADS for quick and easy screening for anxiety, depression and distress at the VCTCs in India. The likelihood of identifying symptoms of CMDs viz. anxiety, depression and distress using HADS in the VCTC is being reported for the first time in India.

To find out one’s HIV status can be highly stressful for anyone but more so if there is perceived risk [25, 26]. Individuals attending VCT centers may experience stress that may result in CMDs like anxiety and depression. This study reports high levels of likelihood of anxiety, depression and distress in people attending VCT facility irrespective of whether they turned out to be HIV positive or negative. Some studies have reported that as many as one-half of the HIV-infected persons had significant levels of depression [15–16]. On the basis of this observation,

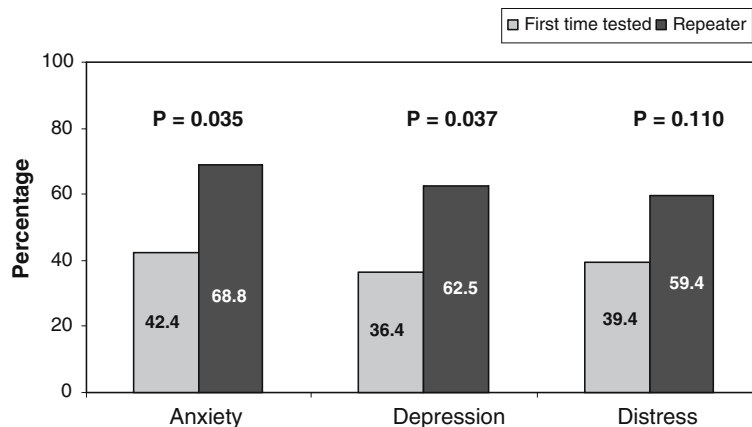


Figure 2. Assessment of anxiety, depression and distress among HIV positive repeat test-seekers and first time test-seekers using HADS at a VCT facility in Pune, India. This figure shows that among HIV positive individuals, as compared to first time HIV test-seekers, individuals who come repeatedly for HIV testing might be suffering from anxiety/depression.

assessment of emotional and mental health of HIV test-seekers and HIV infected individuals gain significance. Our study indicates the existence of anxiety/depression/distress among the study participants. The data also helps in understanding the extent and dimensions of psychological stress that highlights the need to provide appropriate psychosocial support commensurate with the needs of the VCTC attendees. This might add another dimension to care and treatment of HIV infected individuals by employing predetermined measures to improve the quality of life, and assist in coping with the disease more effectively.

Anxiety (62%) and depression (45%) were commonly observed among the VCT facility attendees in this study as compared to 20–40% depression among the general adult population attending the Primary Health Centers in India [9, 27, 28]. This signifies that the HIV test-seekers do face emotional distress and it is important to provide appropriate facilities for counseling, psycho-social support and specialized psychological care either through in-house facilities at VCTCs or by creating suitable referral mechanisms. The mean anxiety and depression scores for the VCTC attendees were twice more than what has been reported for cancer patients in India using same scale [29].

The present study indicated that some groups had higher likelihood of having anxiety/depression/distress. Women attendees at this VCT facility showed higher levels of anxiety, depression and distress indicative of their vulnerability though not

significant statistically. Almost half of the women being infected (52%) with HIV and higher proportion of self-referrals by women (similar to the men) in developing nation setting, might be considered indicative of much better perception of risk and vulnerability among women. Higher levels of anxiety among women could also be due to fear of husbands'/partners' reactions and their attitudes towards HIV testing [30] or stress of not knowing their status. In Indian setting, family may contribute to anxiety among women in this scenario of HIV testing.

On the other hand, these women with higher anxiety level, might be the group 'driven' by their anxiety to seek knowledge of their status rather than the issues linked to seeking HIV test. Possibly, this might be the reason leading to their higher anxiety level. The fact that educated women had higher anxiety level might indicate 'worry' due to better awareness and understanding of the consequences of positive HIV test report.

Additionally, mean anxiety, depression and distress scores among women increased with the level of education while among men the relationship was found to be reverse as seen in other studies [31]. Perhaps, higher education in women meant better risk perception either of her own or perception of somewhat more common risk arising from their sexual partner [3] where they might not have much control.

Significant association was observed between test seeking and depression and distress. The

repeat test-seekers were more likely to be emotionally distressed and this might be one of the reasons why these individuals repeatedly came for HIV test. It was interesting to note that those who subsequently tested negative for HIV were 1.5 times more likely to be anxious, although we did not observe statistically significant difference ($p = 0.221$). Some of these individuals might be possibly 'AIDS anxious' individuals reporting to VCTC for HIV testing, some of those repeatedly. There might be others with high risk behavior of their own at that stage and some of them could be in window period. 'AIDS anxiety' may become a debilitating factor for an individual to sustain safe behavior. Possibly, in the states of anxiety and depression they might have been practicing risk behavior that explains their repeat test seeking behavior. This could also be a contributory factor for depression as we did observe correlation between anxiety and depression. There are reports that have shown that psychologically abnormal states and emotions can influence risk-taking behavior among various sub-populations including heterosexuals, intravenous drug users, men having sex with men and psychiatric patients [30, 32–36]. However, other situational factors need to be examined in the present context.

Screening for 'AIDS anxiety' at VCTC and providing appropriate intervention might help the attendees in improving their quality of life and empower them to practice safer behavior. Studies need to be planned to explore the course of risk taking behavior amongst AIDS anxious individuals. It is important to educate them adequately and repeatedly about prevention of HIV transmission through risk reduction behavior.

The respondents who were referred from out patient departments (OPD) were more depressed. Whether this could be attributed to some degree of information exchange by the staff of the referring clinics or the presence of co-morbidities or central nervous system involvement needs to be confirmed through specially designed studies. Gender focus for identifying, reducing or managing anxiety and depression must become an essential and integral component of VCT care. Such set-ups need to provide support for CMDs [37].

Married individuals were less likely to have emotional distress (AOR: 0.4; 95% CI: 0.2–0.9; $p = 0.034$). We feel that family counseling should

focus on adequate physical, psycho-social and economic support by the family and home-based care to enable the HIV infected person cope with the situation in a less stressful way. The VCTC staff has to realize that counseling needs of persons without family support are much higher.

Repeat test-seekers who were found to be HIV positive were more likely to be anxious and depressed as compared to first time test-seekers. It reinforces the need to screen all VCT attendees for pre existing mental health condition for future counseling, coping strategies & perhaps prognosis of HIV associated depression. This also highlights the use of subscales over uniscale as a number of individuals with likelihood of anxiety or depression get ruled out if uniscale scores are used (Table 1; Figure 2). We recommend use of subscales to discern between anxiety and depression so that 'cases' might not get missed wherever practically feasible.

Depression may indirectly influence other harmful behaviors like smoking and alcohol abuse, adversely affect health and health seeking behavior [34, 36, 38] and thus may contribute to the hastening of HIV disease progression [39].

As individuals become symptomatic they experience greater depressive symptoms and engage in unhealthy self-care behavior [40] further affecting their health. The existence of anxiety and depression among the VCTC attendees pose a major challenge to effective counseling for risk reduction behavior. HADS can be a useful tool to detect anxiety and depression among HIV infected individuals.

The findings might indicate 'pre HIV test' mental/emotional health condition that can occur because of many competing factors; one of them could be 'seeking the HIV test' itself. The current study design does not allow commenting on the cause and effect type of relationship between HIV testing and emotional distress. A longitudinal study with follow-up of individuals who underwent HIV testing would have allowed assessing whether mental health conditions sustained over a period of time. The findings from the sampled study population may not be generalizable to all VCTCs in India. Assessment of quality of life in this study would have provided additional insights on coping among those who had emotional distress compared to those who did not have such distress. Fear of

stigma among VCTC attendees may pose a challenge for its success [41, 42]. South African experience suggests that for the success of VCT program, effort is needed to reduce stigma against HIV/AIDS [43] and Indian program should also be responsive to addressing stigma in VCTC set-up [8, 17, 20, 41]. It is important to determine whether fear of stigma is likely to lead to additional emotional distress among VCTC attendees.

The study emphasizes the need to have a differential approach of counseling and mental and emotional health assessment among persons visiting VCTC with lower level of education. They may require special attention and focus to develop the ability to cope with the situation better. Emic based approach using case-vignettes might prove to be culturally more appropriate and therefore more effective. We feel that we have provided a preliminary evidence of likelihood of anxiety and depression among HIV test-seekers at VCTCs. Much larger studies in diverse geographic locations, catering to different classes of the society and using a battery of sophisticated instruments to effectively predict anxiety and depression and their severity are recommended. At this stage, we would like to recommend screening of all the attendees of VCTCs for anxiety and depression and not necessarily restricting to women or first time HIV test-seekers only.

Conclusion

Higher levels of anxiety, depression and distress were commonly observed in HIV test-seekers, more so among repeat test-seekers and HIV negative, possibly 'AIDS anxious' individuals. A larger study carried out in the VCTC settings utilizing all types of scales in different sub-populations of HIV infected individuals might be able to make specific recommendations about effectiveness of various appropriate interventions. Understanding the socio-demographic and HIV risk correlates of distress in HIV test recipients may be useful in VCT facilities because this knowledge would be useful to understand additional counseling needs and determine appropriate management strategies to enhance the quality of life of the patients. In addition to counseling and HIV testing, the VCTC visitors should be able to get advice in a gender-

sensitive manner and the VCTC should be equipped with well-trained staff capable of identifying and managing emotional and mental health needs of the beneficiaries. VCT staff can be provided specialized training to use simple and effective screening instruments like HADS for assessment of either distress using uniscale scores or anxiety and depression using subscales among HIV test-seekers. This might help improve the performance of VCTC specifically by introducing gender and education sensitive interventions. Special counseling skills are required to manage unique populations of 'AIDS anxious' or the 'worried well'. The program managers have to carefully consider adequate training of the VCTC staff as an important step towards their capacity building in managing the psychological health of the beneficiaries.

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