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Sexual dysfunction, Depression and Quality of Life in Female Patients with HIV Infection

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ABSTRACT

Objective: In India, psychological aspect of HIV infection in women is poorly understood. The purposes of this study were to evaluate sexual dysfunction, depression rate and health-related quality of life and evaluate the association between these three major domains in a group of HIV+ subjects in Mysore, India. **Methods:** In this cross-sectional study, 85 female HIV+ patients who had referred to voluntary counseling and testing were recruited based on convenience sampling from May to December 2014. The purpose of the study was explained and interested individuals provided informed consent and completed validated questionnaires [Female sexual functional index (FSFI), Hamilton rating scale of Depression, HIV/AIDS Targeted- quality of life Instrument scale(HAT-QoL)}.**Results**: Average age of the participants was 33 ± 07 years, duration of HIV was 3.54±1.79 years, CD4 count was 524±176 cells/mm^3 and 20.0% were very severely depressed. Logistic regression indicated that Duration of HIV had effect on FSFI and depression ($p<0.0001$). FSFI was significantly correlated with Depression in all domains and HAT-QoL was significantly correlated with female sexual dysfunction. Pearson's correlation coefficients showed significant association between the Duration of HIV and the domains of FSFI and Depression (r= -0.712, r=-0.674); between FSFI and Depression (r= -0.935) and between HAT-QoL (r= 0.232). The **CD4** count was not significantly associated with any of the major domains. **Conclusion**: Sexual function and depression showed association with quality of life and duration of HIV. Effective treatment of depression and sexual function may improve the quality of life of HIV-infected person.

Keywords: Depression, HIV, Quality of life (QoL)**,** Sexual function.

Introduction

India has third largest number of people living with HIV/AIDS in the world. Sexual route of transmission of HIV is the most dominant route of transmission and is highly concentrated amongst female sex workers. In the gender stratified setting prevailing in India, HIV infected women tend to be even more disadvantaged. [1]Historically women have been neglected in HIV/AIDS research, treatment, care and prevention. This lack of attention to women's health issues, combined with biological differences in the ways HIV affects men and women, social and economic inequities, and environmental factors has led to dramatic rise in women living with HIV.

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Physiologically women are more susceptible to HIV because of greater mucous membrane exposed during sex and higher viral content in male sexual fluids, exposure is increased if she has further genital trauma. [2]

HIV is a highly stigmatized, chronic disease with a substantial co- occurrence of mental and sexual health problems [3].Sexual dysfunction in women has not been extensively studied, recent studies show that low sexual desire termed as HSDD (hypoactive sexual desire disorder), pain syndromes and sexual phobias are unsurprisingly common in HIV infected women.[4]Specific causes of sexual dysfunction in HIV infected women can be broadly categorized under medical and psycho- social headings. Medical causes include low sexual desire secondary to malaise of advanced HIV disease, endocrinopathies, autonomic and peripheral neuropathies.[5-7] Psycho- social causes

include grief reactions after developing HIV, anxiety and depression.[8]Studies have focused regarding Sexual dysfunction among HIV infected men, far less is known about such sexual changes among HIV infected women. Depression is one of the most common psychiatric disorder in HIV populations, the behavioral implications for personal and community health are significant, and depression is as treatable in HIV positive patients as in general population, with equal success rates. [9]Despite the similarity in clinical presentation of depression between HIV and NON HIV infected patients, depression is more commonly undiagnosed in the former group.

Similarity in clinical presentation of depression between HIV and NON HIV infected patients, depression is more commonly undiagnosed in the former group. An under diagnosis of depression is a problem in general, but is of particular concern in patients in medical illnesses like HIV. Diagnosing depressive disorders in HIV patients is challenging in view of multitude of somatic symptoms associated with HIV illness and its complication and treatments. Social stigmatization, loss of friends to HIV disease and isolation from social support contributes to depression. [10] Depression may affect cognitive functioning in patients with HIV. [11]Depression is associated with increased HIV transmission risk, increased morbidity, and higher risk of HIV- related death among HIV infected women. Low sexual relationship power also contributes to HIV risk, but there is limited understanding to how it relates to mental health among HIV infected women. [2] In general way world health organization defines quality of life as the individual's perception of his position in life, in the context of the culture and systems of values in which he lives regarding his objectives, expectations, standards and concerns. Women are still the most vulnerable gender to this compromising in the quality of life of individuals with HIV/AIDS. This female vulnerability refers, among other factors to the remarkable differences in the cultural, social and economic aspects, which gave them unequal opportunities of health maintenance, promotion and protection. Therefore given the feminization of AIDS, its high incidence and decrease of deaths due to various treatment modalities, it is vital to observe the quality of life of women with HIV/AIDS. [13]

Due to the increasing trend of depression and female sexual dysfunction and limited documented studies in India there is a requirement to carry out such studies through structured questionnaire and evaluate the results, on the quality of life in women with HIV.

Materials and Methods

Sample

A total of 85 HIV-seropositive female patients above 18 years of age and sexually active for a period of 1 year based on convenience sampling from May 2014 to December 2014 with a response rate of over 100 percent. Data were collected from the patients attending the Voluntary Counselling and testing Centre (VCTC) at Asha Kirana Institute attached to JSS Medical College, Mysore, India.

The purposes of the study were explained for all participants and the interested female patients who furnished informed consent and completed their respective questionnaires regarding the socio-demographic profile and HIV related variables and the formulated and validated questionnaires to assess sexual dysfunction, depression and health related quality of life.

Tools

Female Sexual Functioning Index (FSFI)

It consists of 19 questions covering 6 domains - desire (2 questions), arousal (4), lubrication (4), orgasm, satisfaction, and pain (3 each). Responses to each question relate to the previous month and are scored from 0 (no sexual activity) to 5 (suggestive of normal sexual activity). Individual domain scores are obtained by adding the scores of the individual questions that comprise the domain and total score is obtained. The minimum score possible is 2 and the maximum is 36. (FSFI score: <23 poor, 23-29 satisfactory, >30 excellent) cut off score used is 26.55 as suggested by the authors of FSFI. Cut off values for different domains are as follows: Desire (<4.28), Arousal (<5.08), Lubrication (<5.45), Orgasm (<5.05), Satisfaction (<5.04), Pain (<5.51).

The Hamilton Rating scale of Depression

The Hamilton rating scale of Depression was used to assess the prevalence and severity of depressive symptoms. The Hamilton scoring system has shown high validity and reliability in measuring depressive symptoms. The subjects under study were required to rate 21 items for a score ranging from 0 to 4 as to

assess how severely their depressive episode has been. The Hamilton rating scale of depression focusses on the various spectrums of mood, sleep disorders, somatic symptoms, weight loss and pessimism. The questionnaires described above have been validated in previous studies. The cut off scores are:Normal: 0 -7; Mild depression: 8-13; Moderate depression: 14-18; Severe depression: 19-22; Very severe depression: more than 23.

The HIV/AIDS- Targeted Quality of life Instrument scale (HAT-QoL)

To assess the quality of life in patients with HIV/AIDS a comprehensive scoring system is used. The self-administered questionnaire includes a multi item scale to assess health concepts across 9 domains. The domains are 1.Overall function (6 items), 2.Life satisfaction (4 items), 3.Health worries (4 items), 4.Financial worries (3 items), 5.Medication worries (5 items), 6.HIV mastery (2items), 7.Disclosure worries (5 items), 8.Provider trust (3 items), and 9. Sexual function (2 items).

Each domain in the HAT-QoLare scored across all the dimensions so that final dimension score is transformed to a linear 0-100 scale, where 0 is the worst score possible and 100 is the best score possible wherein the specific domains are assessed for the patient for a duration of past 4 weeks.

Data analysis

The data were analyzed using the Statistical package for the social sciences (SPSS) for Windows. Version 10.1. We carried out a simple descriptive analysis of the patient's perception of their quality of life, sexual dysfunction and depression and demographic variables. The Pearson's correlation coefficients (r) and ordinal logistic regression were used for the analysis.

Table 1: Characteristics of 85 seropositive female patients

	Patient characteristics	frequency	percentage
Age category	<20 yrs	1	1.2%
	21-30 yrs	35	41.2%
	31-40 yrs	42	49.4%
	>41 yrs	7	8.2%
Marital status	Married	81	95.3%
	Unmarried	4	4.7%
Residence	Rural	79	92.9%
	Urban	6	7.1%
Education	Illiterate	5	5.9%
	Some education but literate	14	16.5%
	Primary education	34	40.0%
	High school	20	23.5%
	Above High school but not graduate	6	7.1%
	Graduate	3	3.5%
	Postgraduate	3	3.5%
Occupation	Unskilled	25	29.4%
	Semiskilled	30	35.3%
	Skilled	6	7.1%
	Business	6	7.1%
	Unemployed	18	21.2%
Family type	Joint	19	22.4%
	Lone	3	3.5%
	Nuclear	63	74.1%
Family Size (number of members in the family)	1.00	2	2.4%
	2.00	10	11.8%
	3.00	22	25.9%
	4.00	23	27.1%
	5.00	11	12.9%
	6.00	9	10.6%
	7.00	5	5.9%
	8.00	3	3.5%
Religion	Muslim	3	3.6%
	Hindu	77	90.6%
	Christian	5	5.9%

The mean CD4 count among the female seropositive cases was 524 (SD±176)cells/mm^3; the mean age was 33(SD±7) years, the mean duration of HIV in female seropositive cases was 3.54(SD±1.79) years. (Table 2)

Table 2: CD4, Age and Duration of HIV in 85 seropositive female cases

	n	Mean	±SD	Median	Minimum	Maximum
CD 4 count (cells/mm^3)	85	524	176	508	179	957
Age(years)	85	33	7	32	19	56
Duration Of HIV (years)	85	3.54	1.79	3.00	1.00	8.00

Mean, standard deviation and score range for the six domains of FSFI are presented in table 3.

Table 3: Mean standard deviation and score range for six domains of FSFI among 85 HIV- se-ropositive female patients.

	n	Mean	±SD	Median	Minimum	Maximum
Desire	85	3.70	1.79	4.20	1.20	6.00
Arousal	85	3.77	1.78	4.50	0.80	6.00
Lubrication	85	4.05	1.80	4.80	0.90	6.00
Orgasm	85	3.87	1.84	4.40	0.80	6.00
Satisfaction	85	3.62	2.20	4.80	0.80	6.00
Pain	85	4.08	1.73	4.80	0.40	6.00
Total FSFI	85	23.09	10.99	27.50	5.80	35.70

Among the 85 HIV-seropositive subjects enrolled, 40(46.99%) patients were diagnosed to be depressed and 17(20.0%) were diagnosed to be having very severe depression. The prevalence of diagnosed depression among the population of 85 patients appears in figure 1.

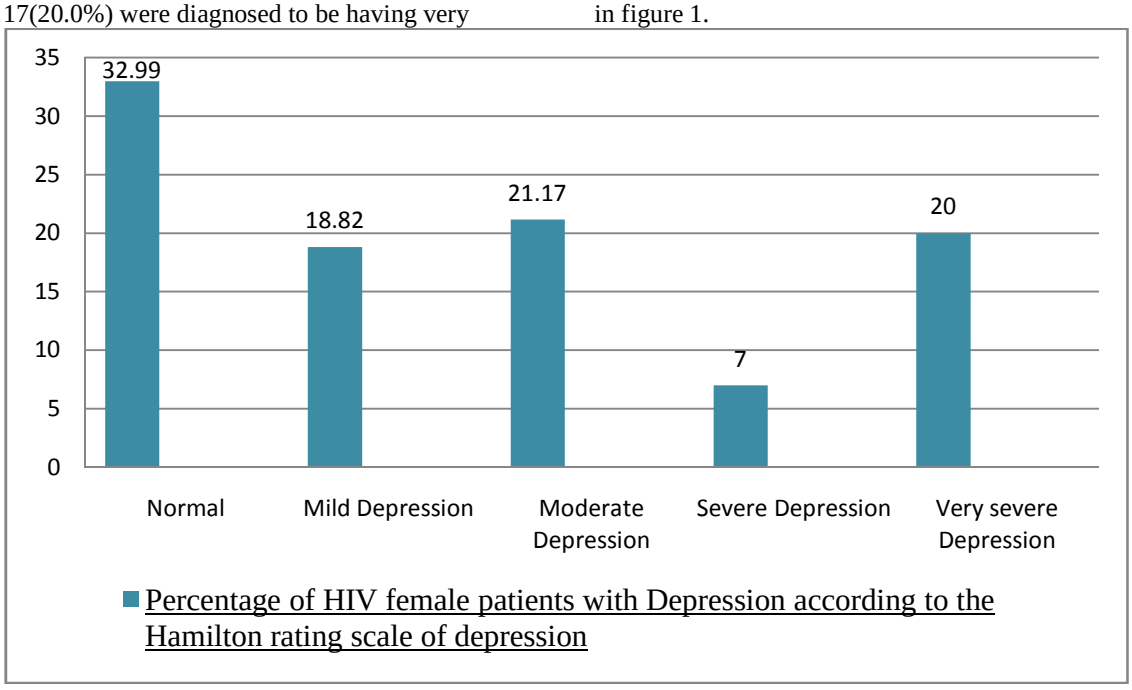

Figure 1: Severity of depression among 85 HIV-seropositive females studied

Mean standard deviation and score range among the nine domains of HAT-QoLscoring system in 85 seropositive female patients is depicted in table 4.

Table 4:Mean standard deviation and score range for nine domains of HAT-QoL among 85 HIV- seropositive female patients

	n	Mean	±SD	Median	Minimum	Maximum
Overall Function	85	61.67	17.29	62.40	29.12	95.68
Life Satisfaction	85	54.04	28.19	56.25	6.25	100.00
Health Worries	85	54.04	23.28	56.25	25.00	100.00
Financial Worries	85	68.70	36.15	91.63	.00	99.96
HIV Mastery	85	78.09	18.39	75.00	50.00	100.00
Medication Worries	85	69.53	22.66	70.00	5.00	100.00
Disclosure Worries	85	29.94	22.29	25.00	.00	90.00
Provider Worries	85	85.55	15.60	74.97	49.98	99.96
Sexual Satisfaction	85	51.62	25.06	50.00	25.00	100.00
HAT-QoL	85	61.46	16.09	64.61	35.59	87.84

Correlation of Duration of HIV in Female patients with FSFI and Depression

The Pearson's r correlation coefficients signified that duration of HIV was an important predictor of female sexual dysfunction (r= -0.712) (p<0.0001) and was also significantly associated with Depression (r=-0.674) (p<0.0001) as depicted in table 5.

Correlation of female sexual dysfunction with Depression

The Pearson's r correlation coefficients signified that female sexual dysfunction among the six domains is significantly associated with Depression (r= -0.935) among all 85 seropositive female patients with HIV as depicted in table 5.

Correlation of HAT-QoL with Female sexual functional index

The Pearson's r correlation coefficients for HAT-QoL scale for quality of life among the nine domains was significantly associated with female sexual dysfunction (r= 0.232) and vice versa indicating the important correlation between the two important physiological domains among all 85 seropositive patients as depicted in table 5.The **CD4** count was not significantly associated with duration of HIV (r= 0.098), FSFI (r= -0.148), Depression (r= 0.122) and HAT-QoL (r= -0.050) as all the 85 patients had CD4 counts above 500 cells/mm^3 signifying the absence of opportunistic infections in these group of patients among all 85 seropositive female patients with HIV as depicted in table5.

Table 5: Pearson's Correlations coefficients among CD4 count, Duration of HIV, Total FSFI, Depression, HAT-QoL

		CD4	**Duration of HIV (years)**	**Total FSFI**	**Depression**	**HAT-QoL**
CD4 count	Pearson Correlation	1	0.098	-0.148	0.122	-0.050
	Sig. (2-tailed)		0.370	0.176	0.264	0.649
	N	85	85	85	85	85
Duration Of HIV (years)	Pearson Correlation	0.098	1	**-0.712****	**0.674****	-0.087
	Sig. (2-tailed)	0.370		0.000	0.000	0.427
	N	85	85	85	85	85
Total FSFI	Pearson Correlation	-0.148	**-0.712****	1	**-0.935****	**0.232***
	Sig. (2-tailed)	0.176	0.000		0.000	0.033

	N	85	85	85	85	85
Depression	Pearson Correlation	0.122	**0.674****	**-0.935****	1	-0.193
	Sig. (2-tailed)	-0.264	0.000	0.000		0.077
	N	85	85	85	85	85
HAT-QOL	Pearson Correlation	-0.050	-0.087	**0.232***	-0.193	1
	Sig. (2-tailed)	0.649	0.427	0.033	0.077	
	N	85	85	85	85	85

**. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)

Discussion

Global burden of HIV is presently at 34 million people are living with HIV. Nearly 2.3 million people are living in India with HIV accounting for 7.2% of total global burden with 61% of women are diagnosed with HIV. [14] Twice as many women are infected as men. [15]In India the epidemiology and prevalence of sexual dysfunction in the gender stratified HIV/AIDS positive women and its relationship with depression and quality of life in this population is poorly understood. The purpose our study was to determine the spectrum of various forms of depression among HIV positive women and sexual dysfunction and to measure HAT-QoL and to evaluate the impact and disarray of sexual dysfunction on depression and quality of life in a group of HIV –positive female subjects in Mysore, India.Sexual health is defined in terms of wellbeing, but is challenged by the social, cultural and economic realities faced by women with HIV. Sexual dysfunction is a disturbance in sexual functioning involving one or multiple phases of sexual response cycle. [16]In our study 49.4% females had sexual dysfunction and poor grading in FSFI. Asimilar studyin Brazil found that 36% of females maintained that there was no sexual arousal until the end of sex act compared with the control group. [17] In 2006 UNAIDS reported that ,according to estimates, 38% of women with HIV in India are exposed to the social inequities and property violations and human rights violations and predisposes to decreased level of confidence, associated sexual dysfunction and depression secondary to the social stigma. [18]In our study majority of the patients were depressed ranging from mild depression to severe or major depressive episode (20%) on the Hamilton rating scale of depression, mean±SD(13.92±10.08). In a similar study in North America showed that among 93 female HIV subjects the rate of current major depressive disorder was four times higher in HIV-seropositive women (19.4%) than in HIV-seronegative women (4.8%). Mean depressive symptom scores on the 17- item Hamilton depression scale also were significantly higher, overall, in the HIV-infected women (mean=8.7, SD=8.0) relative to comparison subjects (mean=3.3, SD=5.8). Our study showed more significant depression compared to this study. [19]A similar study in Brazilian women living with HIV showed prevalence of major depression 25.8% (95% CI 18.2–33.4%) and concluded that major depression is highly prevalent among women living with HIV. [20]Sexual dysfunction is often implicated in depression and anxiety disorders and it is more common in depressed patients. [21]Most patients suffering from mild, moderate, or major forms of depression experience sexual dysfunction simultaneously. [22]For a long time the sexual behaviour of HIV- infected women did not receive any serious attention. Our result showed that depressed patients significantly had lower scores in most of the domains of FSFI and by increasing score of sexual drive and problem assessment the depression status become well.Depression adversely affects QoL, and that effective treatment of depression may dramatically improve the QoL of HIV-infected persons [23], and it is related to most indices of quality of life among HIV-positive adults. Our study indicated that depression was significantly correlated with all the domains of HAT-QoL.A cross-sectional studyin the State of Sao Paulo in 228 people during 2007-2008 showed individuals with depressive symptoms presented lower scores of QoL than individuals without these symptoms, with statistically significant differences between the means/ medians in most domains of the HATQoL. [24]On the other hand sexual function has been recognized as a crucial component of health, in fact experience of sexual dysfunction is generally associated with poor quality of life [25]. According to our findings about the relationships between some componentsof HAT-QoL

and some domains of FSFI, by improving sexual function HAT-QoL can be increased.Our study showed there was no significant correlation between CD4 count and depression,sexual dysfunction and quality of life since all the patients in this study had CD4 count above 500 cells/mm3 and absence of opportunistic infections in these female subjects. A similar study in North America confirmed univariate associations between several previously published correlates of sexual function among HIV positive women. CD4+ cell count was associated with FSFI scores, such that those with CD4 ≤199 cells/µL reported lower functioning as compared to those whose cell count was 200 or higher. [26]The present study is limited by its lack of conscious participants because of their poor socio-economic status such as low educational level, unemployment, and poor social status and also the content of FSFI, so data collection was so hard in this group and missing data is expected. These variables have not been taken into account though available literatures suggest that they influence quality of life significantly, sexual dysfunction and depression. Age, marital status and education that are significantly associated with quality of life, have also not been controlled in the present study. Due to the cross-sectional design, the findings point more toward an association rather than cause and effect. Various psychological symptoms are associated with HIV infection and associated with quality of life, sexual dysfunction and depression; these factors are not taking into account in the present study too.

Final considerations

To describe the intensity of symptoms of depression and their relationship with gender and with the domains of quality of life in the population infected by HIV/AIDS are important steps to develop therapeutic interventions and psychosocial support for these individuals, directed not only towards the treatment, but towards the prevention of depressive episodes.In conclusion we suggest future studies to evaluate our variables in female HIV-infected patients and comparison according to gender differences; at a community level also we should offer administration randomized clinical trial to evaluate effect of endocrine treatment on sexual dysfunction for promoting health related quality of life in people who live with HIV.

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