Original Research Article

DETERMINE THE IMPACT OF SOCIODEMOGRAPHIC AND CLINICAL FACTORS ON QUALITY OF LIFE OF PLWHA ATTENDING TERTIARY CARE HOSPITAL IN PUNJAB

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Abstract

Background: With the recent advances in clinical tests and treatments those suffering from human immunodeficiency virus (HIV)/ Acquired Immunodeficiency Syndrome (AIDS), the survival of these patients has been increased and their quality of life (QOL) has become an important focus for researchers and healthcare providers. The objective is to assess the effect of sociodemographic and clinical factors on quality of life of people living with HIV/AIDS (PLWHA) attending Anti-retroviral therapy center at (ART center) Rajindra Hospital Patiala, Punjab. **Materials and Methods:** A cross sectional hospital based study was carried with a total sample size of 211. The interview was conducted using WHOHIV-BREF questionnaire. The association between QOL with sociodemographic and clinical parameters of the participants was tested using ANOVA and Student t-test, and p value < .05 was considered statistically significant. **Result:** Our study identified age, gender, place of living, education, job status, family support, opportunistic infections, CD4 count, self perceived clinical status and general health perception as factors influencing the QOL of PLWHA. **Conclusion:** Being male, having family support, living in urban area, educated, employed, with no opportunistic infection, higher CD4 Counts, considering themselves as not ill and good health perception were the factors associated with better quality of life scores.

INTRODUCTION

Quality of life (QOL) is a term that is popularly used to convey an overall sense of well-being and includes aspects such as happiness and satisfaction with life as a whole. World Health Organization has defined QOL as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, standards, expectations and concerns."[1] With the recent advances in clinical tests and treatments for those suffering from human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), the survival of these patients has been increased and their QOL has become an important focus for researchers and healthcare providers.[2]

HIV is increasingly considered a chronic disease. For a person living with HIV, this means having to cope with a range of HIV-related symptoms for extended periods. Symptoms may be related to the infection itself, co-morbid illnesses, or iatrogenic effects from HIV-related medications.[3,4] Many of the HIV patients struggle with numerous social problems such as stigma, poverty, depression, substance abuse, and cultural beliefs which can affect their QOL not only from the physical health aspect, but also from mental and social health point of view and cause numerous problems in useful activities and interests of the patients.[5]

Assessing quality of life (QOL) is useful for documenting the patient's perceived burden of chronic disease, tracking changes in health over time, assessing the effects of treatment and quantifying the return on health care investment.[6] ARV drugs have revolutionized the treatment for HIV by increasing the average lifespan of HIV-positive individual. QOL of life has become a salient issue after the increase availability of ARV drugs and increase in average lifespan.[7]

It has a broad horizon embedded in a multidimensional cultural, social and environmental context the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationships to salient features of the environment.[8]

Physical Domain - physical health domain measures pain and discomfort, energy and fatigue, and sleep and rest.[8]

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International Journal of Academic Medicine and Pharmacy (www.academicmed.org)
ISSN (O): 2687-5365; ISSN (P): 2753-6556

Psychological Domain - psychological health domain measures positive feelings, thinking, learning, memory and concentration, self- esteem, bodily image and appearance, and negative feelings.[8]

Level of the independence Domain - level of independence domain measures mobility, daily life activities, dependence on medications or treatments, and work capacity.[8]

Social Relationships Domain - social relationships domain includes personal relationships, social support, and sexual activity.[8]

Environment Domain - environment domain measures physical safety and security, home environment, financial resources, health and social care, accessibility and quality, opportunities for acquiring new information and skills, participation in and opportunities for recreation and leisure activities, and physical environment (pollution, noise, traffic, climate, and transport).[8]

Spirituality, Religion and Personal Beliefs Domain (SRBP) - Spirituality/religion/ personal beliefs domain measures forgiveness and blame, concerns about the future, and death and dying.[8] There are very limited number of studies available for quality of life of PLWHA in study area. Considering the relevance and current knowledge gap, this study was an attempt to assess the quality of life of people living with HIV/AIDS (PLWHA) attending ART center, Rajindra Hospital Patiala, Punjab and determine the impact of socio-demographic and clinical variables on quality of life of PLWHA.

MATERIALS AND METHODS

Study setting and design: The present study was conducted among people living with HIV/AIDS (PLWHA) attending ART center Rajindra Hospital, Government Medical College Patiala, Punjab. The nature of study is cross sectional and hospital based study.

Study duration: The study was conducted over a period of nine months from January 2014 to September 2014.

Sample size calculation: The sample size was calculated using the formula

$$n = \left[\frac{Z_{\alpha/2} \, \sigma}{d} \right]^2$$

n = Sample Size, Z = 95% Level of confidence, d = allowable error, σ = Standard deviation. Taking the estimate to be with in 0.5 of the true mean and the level of significance as 0.05, standard deviation for the quality of life mean domain score was taken to be 3.7 from the preliminary study of WHOQOL-HIV.[3] A sample size of present study is determined to be 211.

Ethics Approval: The protocol was approved by the Institutional Ethics Committee (IEC) at Government Medical College, Patiala, Punjab prior to the commencement of the study.

Study Population: Patient attending ART centre at Rajindra Hospital were interviewed after obtaining written consent using convenient sampling method. The inclusion criteria being, patients diagnosed of HIV, above the age of 18 years, attending ART centre at Rajindra hospital for clinical care and follow up. Exclusion criteria being, patients below the age of 18 years, mentally unstable patients. Physically unstable patients due to ill health and those not agreeing to participate in the study.

Study instrument: The interview was conducted using WHOHIV-BREF questionnaire, which has two parts.[4]

Part 1: the first part is a pre designed, pretested and semi structured questionnaire including the registration number of ART center, date of interview, personal data and relevant clinical and treatment history. Part 2: the second part consists of WHOQOL-HIV BREF questionnaire. The WHOQOL-HIV BREF questionnaire is self administered if the respondents have sufficient ability: otherwise, interviewer assisted or interview-administered for those participants who were illiterate or otherwise cannot read and write. However a face to face interview was conducted with all the respondents in the present study irrespective of the educational status.[4]

Data Collection, Data Compilation, Data Cleaning and Quality Checks: Data was collected after administering the WHOQOL-HIV BREF instrument. Each individual item was rated on a 5 point likert scale where 1 indicates low, negative perceptions and 5 indicates high, positive perceptions. For example, an item in the positive feeling facet asks "How much do you enjoy life?" and the available responses are 1 (not at all), 2 (a little) 3 (a moderate amount), 4 (very much) and 5 (an extreme amount). As such, domain and facet scores are scaled in a positive direction where higher scores denote higher quality of life and therefore, the data was first recorded and then cleaned for missing entries. The items representing each facet had scores in the positive direction where a higher score meant a higher quality of life. But some facets, for example pain and discomfort, symptoms of PLWHA were not scaled in positive direction. The negatively framed items were reverse coded so that the scores could be reversed into positive direction, so higher score would mean a better QOL as per the instructions of the WHOQOL-HIV instrument users' manual (WHO, 2002).[5] The data was manually entered into an excel sheet and rechecked. The data was examined for missing values and frequency distribution was used for finding outliers. The data was exposed to software for analysis. The domain scores were computed by calculating the mean score of the item and then multiplying by 4 to make them comparable to the scores used in WHOQOL-100, so that the scores ranged between 4-20. Then data was analyzed statistically using Epi info version7. Appropriate statistical tests were applied to see the significance of association between domain scores and socio-demographic variables and clinical parameters as and when required.

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International Journal of Academic Medicine and Pharmacy (www.academicmed.org)
ISSN (O): 2687-5365; ISSN (P): 2753-6556

RESULTS

Out of the 211 participants 106 (50.2%) were males and 105 (49.8%) were females. Majority of participants were in the age group 31 to 40 years (42.7%) with a mean age of 38.40 (SD=9.43) years. 178 (84.4 %) of the respondents belong to rural area and 33 (15.6 %) of the respondents were from urban area. 88 participants (41.7%) were unemployed and 123 (58.3%) were employed. Of 105 female participants only 23 (21.9%) were employed and 82 (78.1%) were unemployed. Of 106 male participants 100 (94.3%) were employed and 6 (5.7%) were unemployed. 78 participants (37%) were illiterate, 93 (44%) had studied up to Primary and High School level and 40 (18.9%) had studied up to Secondary, Graduate and Post Graduate level. 145 participants (68.7%) had family support and 66 (31.3%) had no family support. 69 (32.7%) had CD4 count A (> 500cells/mm3), 108 (51.2%) had CD4 count B (200-500 cells/mm3) and 34 (16.1%) had CD4 count C (< 200 cells/mm3). 46 (21.8%) had opportunistic infection and 165 (78.2%) had no opportunistic infection. 52 (24.6%) perceived themselves as ill and 159 (75.4%) did not. More than half of the participants 109 (51.7%) perceived their health as good, 71 (33.6%) of participants perceived their health as neither good nor poor, 24 (11.4%) of participants perceived as poor, 4 (1.9%) perceived their health as very good and 3 (1.4%) perceived their

health as very bad. The sociodemographic and clinical characteristics of the participants are shown in [Table 1].

The mean (standard deviation) of transformed scores ranging from 4 to 20 across the 6 domains of QOL is shown in [Table 2]. Minimum scores were in the level of independence domain with mean score being 12.93 (SD=2.08), and maximum in SRBP (spirituality/ religion/ personal beliefs) domain with the mean score being 15.25 (SD=2.96).

Association between QOL Scores with Sociodemographic Characteristics: Association between QOL domain scores with sociodemographic characteristics of the participants is shown in [Table 3]. We observed that males had better quality of life scores as compared to females in all the domains and its was statistically significant too except spiritual domain. No statistically significant association was found between age of participants and domain scores. Urban residents had better QOL scores in all domains and it was statistically significant too in psychological and environmental domain. Employed participants had better QOL scores in all domains and it was significant too except spiritual domain. Scores improved in all domains with educational status of participants and it was statistically significant too in psychological, level of independence and environmental domain. Individuals with family support had better scores in all domains except SRBP domain and it was statistically significant too except level of independence and SRBP domain.

Table 1: Sociodemographic characteristics of the participants.

S.No	Variable	Categories	Number %
1.	Age (years)	<30	48 (22.7%)
		31-40	90 (42.7%)
		41-50	49 (23.2%)
		51-60	20 (9.5%)
		61-70	4 (1.9%)
2.	Gender	Male	106 (50.2%)
		Female	105 (49.8%)
3.	Residence	Rural	178 (84.4%)
		Urban	33 (15.6%)
4.	Job status	Unemployed	88 (40.3%)
		Employed	123 (59.7%)
5.	Level of Education	Illiterate	78 (37%)
		Primary School + High School	93 (44%)
		Secondary+ Graduate+ Post Graduate	40 (18.9%)
6.	Family support	Yes	145 (68.7%)
		No	66 (31.3%)
7.	CD4 Count	A (> 500cells/mm3)	69 (32.7%)
		B (200-500 cells/mm3)	108 (51.2%)
		C (< 200 cells/mm3)	34 (16.1%)
8.	Opportunistic infection	Yes	46 (21.8%)
		No	165 (78.2%)
9.	Self-perceived clinical status (currently ill)	Yes	52 (24.6%)
		No	159 (75.4%)
10.	Based on general health perception	Very poor	3 (1.4%)
		Poor	24 (11.4%)
		Not good nor poor	71 (33.6%)
		Good	109 (51.7%)
		Very good	4 (1.9%)

Table 2: quality of life domain scores

Domains	No. of Patients	Minimum	Maximum	Mean± SD
Physical	211	5	20	14.90±3.15
Psychological	211	6.40	19.20	13.70±2.36

Level of independence		211	7	18	12.93±2.07
Social relationship		211	8.00	20.00	14.98±1.96
Environment		211	8.5	19.0	13.71±1.76
Spirituality/religion/personal beliefs		211	7	20	15.25±2.96

Table 3: Association between quality of life and sociodemographic parameters of participants.

Characters		Physical domain	Psychological	Level of independence	Social	Environmental	Spiritual
1.Gender	Male	15.63±3.08	14.32±2.39	13.39±2.03	15.36±1.97	14.18±1.76	15.50±3.06
	Female	14.16±3.07	13.07±2.18	12.47±2.03	14.61±1.89	13.25±1.64	15.00±2.85
	*p-value	0.001	0.000	0.001	0.005	0.000	0.221
2.Age	<30 yrs (48)	15.06±3.26	13.85 ± 2.28	13.70 ± 2.04	14.98 ±2.02	13.99 ± 1.60	14.96±2.94
	31- 40 yrs(90)	14.86±3.15	13.60 ± 2.40	12.82± 1.78	15.05 ±1.92	13.69± 1.83	15.01±2.99
	41-50 yrs (49)	14.65±3.11	13.40 ± 2.44	12.39 ± 2.17	14.76 ±1.79	13.43 ± 1.94	15.84±3.06
	51-60 yrs (20)	15.65±3.23	14.44 ± 2.22	13.20 ±2.44	15.22±2.45	13.82 ± 1.43	15.75±2.69
	>60 yrs (4)	13.25±2.63	14.20 ± 2.64	11.25 ± 3.20	15.07±2.33	14.00 ± 1.35	14.50±2.38
	#Sig	0.618	0.520	0.009	0.906	0.621	0.436
3. Residence	Rural (n=178)	14.82±3.17	13.56±2.39	12.81±2.14	14.96±1.91	13.61±1.75	15.24±2.93
	Urban	15.34±3.11	14.45±2.13	13.54±1.56	15.12±2.23	14.27±1.72	15.30±3.12
	*p-value	0.392	0.048	0.064	0.673	0.049	0.913
4. Job	Unemployed (88)	13.98±3.08	12.89±2.26	12.27±2.14	14.52±1.97	13.26±1.74	14.81±2.83
	Employed(123)	15.55±3.05	14.28±2.27	13.39±1.90	15.32±1.89	14.04±1.71	15.56±3.02
	# Sig.	0.000	0.000	0.000	0.003	0.001	0.072
5.Education	Illiterate(78)	14.55±3.22	13.32±2.47	12.43±2.41	14.81±1.80	13.15±1.76	15.37±2.83
	Primary +high school (93)	14.96±2.96	13.66±2.33	12.98±1.87	14.93±2.16	13.69±1.65	14.96±3.10
	Secondary +grad +postgrad(40)	15.42±3.43	14.54±2.06	13.75±1.53	15.45±1.74	14.88±1.44	15.70±2.85
	#Sig	0.351	0.029	0.004	0.230	0.000	0.376
6. Family support	Yes (145)	15.21±3.22	13.97±2.48	13.00±2.12	15.26±2.01	14.01±1.80	15.14±3.03
	No (66)	14.23±2.92	13.10±1.97	12.77±1.98	14.39±1.72	13.08±1.50	15.48±2.79
	#Sig.	0.036	0.013	0.463	0.003	0.000	0.440

* Students's t-test (independent sample) p<0.05
# One way ANOVA p<0.05

Table 4: Association between quality of life and Clinical parameters of participants.

Character		Physical	Psychological	Level of independence	Social	Environmental	Spiritual
1. CD4 count	A (n=69)	15.54±3.13	14.18±2.37	12.84±2.10	15.25±1.87	14.00±1.56	15.54±2.94
	B (n=108)	14.62±2.83	13.56±2.22	13.01±2.01	14.86±1.92	13.66±1.81	15.20±3.10
	C (n=34)	14.50±3.98	13.17±2.69	12.85±2.29	14.85±2.27	13.56±1.97	14.82±2.51
	#Sig.	0.122	0.088	0.849	0.405*	0.258*	0.504
2.Opportunistic infection	Yes (46)	14.22±3.23	13.39±1.98	12.56±1.24	15.07±1.42	13.63±1.31	15.04±2.64
	No (165)	15.09±3.12	13.79±2.46	13.03±2.25	14.96±2.09	13.74±1.87	15.30±3.04
	# Sig.	0.097*	0.315*	0.180*	0.751	0.704*	0.592
3. Self perceived clinical status (currently ill)	Yes (n=52)	13.33±3.38	12.85±2.57	12.28±2.18	14.94±1.89	13.21±1.89	14.98±3.49
	No (n=159)	15.41±2.91	13.98±2.23	13.14±2.01	15.00±1.99	13.88±1.69	15.34±2.77
	*p-value	0.000	0.002	0.010	0.828	0.017	0.449
4. Based on general health perception	Very poor (n=3) Mean± SD	11.33±2.52	9.33 ±1.66	8.33±1.54	12.43±1.25	10.33±0.28	12.33±3.51
	Poor (n=24) Mean± SD	11.66±2.61	11.93±2.58	11.08±2.10	14.03±2.22	12.60±1.64	14.58±3.27
	Not good nor poor (n=71) Mean± SD	13.88±3.07	13.05±1.91	12.55±1.95	14.73±1.69	13.12±1.47	15.04±3.04
	Good (n=109) Mean± SD	16.25±2.46	14.56±2.01	13.63±1.67	15.37±1.94	15.38±1.94	15.57±2.68
	Very good (n=4) Mean ± SD	18.00±1.41	15.80±4.54	15.00±1.83	16.65±2.21	15.50±3.02	15.59±5.43
	#Sig.	0.000	0.000	0.000	0.001	0.000	0.193

*Student's t-test (independent sample) p<0.05
One way ANOVA p<0.05

Association between QOL Scores with clinical Characteristics: Association between QOL domain scores with clinical characteristics of the participants is shown in Table 4. QOL scores decrease with

decrease in CD4 count in all the domains except level of independence domain and it was not statistically significant. People living with HIV having opportunistic infections had lower domain scores in all domains except social domain and it was not statistically significant. Those who perceived themselves as not ill had better QOL scores in all domains and it was statistically significant too except social and SRBP domain. QOL scores improved across all domains with improvement in self perceived health status and it was statistically significant too except SRBP domain.

DISCUSSION

In the present study males had better scores as compare to females in all six domains of quality of life which was comparable to studies by Akinboro et al,[18] and Anusuya et al.[17] Negative impacts on quality of life of people living with HIV/AIDS seem to be more profound in women because they have lower earnings and schooling; they are financially dependent on their partners; they are overwhelmed with home chores and caring for their children and other relatives; their socioeconomic condition deteriorates as disease progresses; and because the majority were infected by their partners, which could arouse feelings of great sorrow, anger, and disappointment. In the present study better quality of life scores were obtained in all six domains for urban residents as compare to rural which was similar to results obtained by Imam et al.[13]This finding may be due to availability of less support for HIV patients in rural area. Participants who were employed had higher scores in all six domains as compare to those who were not employed and similar results were seen in another studies by Imam et al,[17] Rajeev et al,[15] and Tran et al.[16] It is because employment not only makes an individual financially independent but also serves as a means of social support, role identity, and personal meaning. Significantly higher scores were seen in psychological, level of independence and environment domain for those with higher level of education in present study. Similar results were seen in studies by Belak Kovacevic et al,[10] Santos et al,[11] Nirmal et al,[12] and Tran et al.[16] A possible explanation for this finding is that educated people may be more enlightened about the disease, its complications and the alterations in lifestyle needed to prevent the transmission of the disease to others. Participants with family support had better quality of life domain scores when compared with participants with no family support. Results of present study were comparable with studies done by Nirmal et al,[12] Rajeev et al,[15] Anusuya et al,[17] and Akinboro et al.[18] It is well known that the family setting provides safety, security, financial support, social support, closer interpersonal relationship and satisfactory sexual activity which in turn impact positively on the QOL. In the present study participants who considered themselves to be ill had significantly lower scores in physical, psychological, level of independence and environment domains. Findings of present study were found similar to studies done by Belak Kovacevic et al,[10] and Akinboro et al.[18] This shows that preoccupation of patients with this disease and the physical symptoms they experienced can impact negatively on QOL.

Participants with general health perception as very good and good had significantly higher scores in all domains of quality of life as compare to those whose perception was neither good nor poor, poor and very poor. Findings of present study were similar to studies done by Belak Kovacevic et al,[10] and Akinboro et al.[18]

On comparing CD4 counts with mean domain scores of quality of life it was found that participants with higher CD4 counts had better scores in all domains. Findings of present study were similar to studies done by Chandra et al,[9] Imam et al,[13] Anand et al,[14] (2012) and Anusuya et al.[17] Reason might be as CD4 count increases possibility of getting opportunistic infection decreases, when free of opportunistic infection person will have good health, will be confident and better level of independence and better quality of life.

CONCLUSION

Our study identified gender, place of living, education, job status, opportunistic infections, CD4 count, self perceived health status and general health perception as factors influencing the QOL of PLWHA. The worst affected domain in present study was level of independence domain. Being male having family support, living in urban area, educated, employed, with no opportunistic infection, asymptomatic with higher CD4 counts and good health perception were the factors associated with better quality of life.

Recommendations
- QOL life is not constant throughout the life of PLHAs and cannot be established by a cross-sectional study further longitudinal studies should be done considering all possible predictors of QOL.
- Emphasis is also required by giving health education to reduce stigma and discrimination regarding PLWHAs so that focus of communication should be shifted from awareness to behaviour change communication.

Limitations
- The present study was a cross-sectional study which doesn't allow drawing conclusion about the direction of relationship or causal relationship between outcome variables and independent variables.
- WHOQOL-BREF instrument measures QOL within two weeks prior to the interview, the information provided may be influenced by recall bias.

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International Journal of Academic Medicine and Pharmacy (www.academicmed.org)
ISSN (O): 2687-5365; ISSN (P): 2753-6556

- The respondents were the ones who were actively seeking routine medical care. Those who don't keep regular clinic or peer organization visit could not be included therefore the result of study may not generalized to all of the HIV positive people.

Declaration of Conflicting Interests
- The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

1. Development of the World Health Organization WHOQOL-BREF quality of life assessment. The WHOQOL Group. Psychol Med. 1998;28(3):551–8.
2. Clayson DJ, Wild DJ, Quarterman P, Duprat-Lomon I, Kubin M, Coons SJ. A comparative review of health related quality of life measures for use in HIV/AIDS clinical trials. Pharmacoeconomics. 2006;24(8):751–65. Halloran J. Increasing survival with HIV: Impact on nursing care. AACN Clin Issues. 2006;17(1):8–17.
3. Halloran J. Increasing survival with HIV: Impact on nursing care. AACN Clin Issues. 2006;17(1):8–17.
4. Kassutto S, Maghsoudi K, Johnston MN, Robbins GK, Burgett NC, Sax PE, et al. Longitudinal analysis of clinical markers following antiretroviral therapy initiated during acute or early HIV Type I infection. Clin Infect Dis. 2006;42(7):1024–31.
5. Aranda-Naranjo B. Quality of life in HIV-positive patient. J Assoc Nurses AIDS Care. 2004;15(5 Suppl):20S–27S.
6. Hays RD, Cunningham WE, Sherbourne CD, Wilson IB, Wu AW, Cleary PD et al. Health-related quality of life in patients with human immunodeficiency virus infection in the United States: Results from the HIV Cost and Services Utilization Study. Am J Med. 2000;108(9):714–22.
7. WHO. WHOQOL-HIV Instrument, users manual, scoring and coding for the WHOQOL-HIV Instruments. Mental health Evidence and Research Department of Mental Health and Substance Dependence, World Health Organization, Genevea; 2002.
8. Fleck MPA, Fachel O, Louzada S, Xavier M, Chachamovich E, Vieira G et al. Desenvolvimento da versão em português do instrumento de avaliação de qualidade de vida da Organização Mundial da Saúde (WHOQOL-100). Rev ABPAPAL. 1999;21:19-28.
9. 9. Chandra PS, Gandhi C, Satishchandra P, Kamat A, Desai A, Ravi V et al. Quality of life in HIV subtype C infection among asymptomatic subjects and its association with CD4 counts and viral loads – a study from South India. Qual Life Res. 2006;15(10):1597-605.
10. Belak Kovacević S, Vurusić T, Duvancić K, Macek M. Quality of Life of HIV Infected Persons in Croatia. Coll Antropol. 2006;30 Suppl 2:79-84.
11. Santos EC, França I Jr, Lopes F. Quality of life of people living with HIV/AIDS in São Paulo, Brazil. Rev Saude Publica. 2007;41 Suppl 2:64-71.
12. Nirmal B, Divya KR, Dorairaj VS, Venkateswaran K. Quality of life in HIV/AIDS patients: A cross-sectional study in south India. Indian J Sex Transm Dis 2008;29:15-7.
13. Imam MH, Karim MR, Ferdous C, Akhter S. Health related quality of life among the people living with HIV. Bangladesh Med Res Counc Bull 2011;37:1-6.
14. Anand D, Puri S, Mathew M. Assessment of Quality of Life of HIV-Positive People Receiving ART: An Indian Perspective. Indian J Community Med. 2012;37(3):165–69.
15. Rajeev KH, Yuvaraj BY, Nagendra Gowda MR, Ravikumar SM. Impact of HIV/AIDS on quality of life of people living with HIV/AIDS in Chitradurga district, Karnataka. Indian J Public Health 2012;56:116-21
16. Tran BX, Ohinmaa A, Nguyen LT, Oosterhoff P, Vu PX, Vu TV. Gender differences in quality of life outcomes of HIV/AIDS treatment in the latent feminization of HIV epidemics in Vietnam AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV 2012;24(10):1187-96.
17. Anusuya GS, Appavoo NC, Mahalakshmy T, Valan AS, Parameaswari PJ, Udayshankar PM et al. Factors affecting quality of life of people living with HIV/AIDS attending a community care center in Chennai, India. BMC Infectious Diseases 2014;14(Suppl 2):P43
18. Akinboro AO, Akinyemi SO, Olaitan PB, Raji AA, Popoola AA, Awoyemi OR. Quality of life of Nigerians living with human immunodeficiency virus. The Pan African Medical Journal. 2014;18:234

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International Journal of Academic Medicine and Pharmacy (www.academicmed.org)
ISSN (O): 2687-5365; ISSN (P): 2753-6556