

QUALITY OF LIFE OF HIV/AIDS INFECTED PERSONS – AN OVERVIEW



S. SATHIA

Post Doctoral Fellow, Dept. of Social Work, Bharathidasan University, Tiruchirappalli

ABSTRACT

This paper aims at reviewing the studies conducted on quality of life of the victims of HIV/AIDS. It also emphasizes the major factors that affect the victim's quality of life. The assessment of quality of life makes us understand how people's lives are affected by HIV infection. Improving the quality of life (QOL) is a central issue to the care and support of people living with HIV/AIDS (WHO and UNAIDS. 2000). A good number of research studies, literatures and reports were explored and reviewed to ascertain and conceptualize the quality of life of the HIV/AIDS patients. It was inferred that the stigma, unemployment, depression, anxiety, stress, substance abuse, cultural beliefs, feeling of shyness and shame, lack of support from family, friends and community, poor social exclusion, parental neglect, death of a spouse, elevated levels of loneliness, daytime sleepiness, social bicot, greater fear of the future, physical abuse, physical pain, fatigue, viral load, Taking ART, CD4 count etc. leads to poor quality of life among the HIV/AIDS infected persons. Thus, the pathological interventions and psychosocial interventions are also required along with the medical in treating people living with HIV/AIDS.

Key words:

HIV/AIDS, Quality of life, Depression, Coping pattern.

Introduction

Quality of life has gained prominence in social research studies since 1970s. It is a broad concept concerned with overall well-being within society. Its aim is to enable people, as far as possible, to achieve their goals and choose their ideal lifestyle. In that sense, the quality of life concept goes beyond the living conditions approach, which tends to focus on the material resources available to individuals (European Foundation for the Improvement of Living and Working Conditions, 2004). Though the quality of life is intensively under research over the last four decades but “good life” concept can be found in Plato or his student Aristotle works (McLeish, 1999). Quality of life has been increasingly used as a scientific concept in literature embracing a wide range of target groups and populations as a whole (Felce, 1997). In sociology quality of life is understood as subjective understanding of well-being taking into account individual needs and understanding. In economics it is the standard of living, in medicine it is ratio of health and illness with the factors influencing health lifestyle. Health factor is often given a priority in quality of life though the quality of life concept must be understood more widely. Quality of life encompasses the fulfillment of all human needs such as a satisfactory standard of material life, health, education, security, the satisfaction of living in a clean environment as well as the enjoyment of the aesthetic and the spiritual. (Alanbari, and Aladhami, 2013).

There is no universally accepted definition of quality of life. Some definitions are general, like Dalkey and Rourke (1973) who offered this broad definition: “a person’s sense of well-being, his satisfaction or dissatisfaction or dissatisfaction with life, or his happiness or unhappiness”. Emerson (1985) defines quality of life “as the satisfaction of an individual’s values, goals and needs through the actualization of his/her abilities or lifestyle”. A multifaceted construct that encompasses the individual’s behavioural and cognitive capacities, emotional well-being, and abilities requiring the performance of domestic, vocational, and social roles (Tartar, et al. 1988). Quality of life is defined as an overall general well-being that comprises objective descriptors and subjective evaluations of physical, material, social and emotional well-being together with the extent of personal development and purposeful activity, all weighted by a personal set of values (Felce and Perry, 1995). Ferrell, defined quality of life as well-being covering four areas as: physical, mental, social and spiritual well-being (Ferrell, 1995). Quality of life is a concept that reflects a person’s desired conditions of living related to eight core dimensions of one’s life: emotional well-being, interpersonal relationships, material well-being, personal development, physical well-being, self-determination, social inclusion, and rights (Schallock, 2000). Quality of life is a term that implies the quality of a person’s whole life, not just some component part. It therefore follows that if QOL is to be segmented into its component domains, those domains, aggregate must represent the total construct (Hagerty et al., 2001). According to the World Health Organization (2002) “Quality of life” is an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, values and concerns incorporating physical health, psychological state, level of independence, social relations, personal beliefs and their relationship to salient features of the environment quality of life refers to a subjective

evaluation which is embedded in a cultural, social and environmental context (WHO group, 2002). Quality of life is a broad concept that incorporates all aspects of life and has been used in a variety of disciplines such as: geography, philosophy, medical sciences, social sciences, health promotion, and advertising (Oort et al., 2005). Quality of life refers to an overall sense of well-being with a strong relation to a person's health perceptions and ability to function. On a larger scale, quality of life can be viewed as including all aspects of community life that have a direct and quantifiable influence on the physical and mental health of its members (Centers for Disease Control and Prevention, 2009).

Characteristics associated with the quality of life

1. Quality of life refers to individuals' life situations. The concept requires a micro perspective, where the conditions and perceptions of individuals play a key role. Macroscopic features relating to the economic and social situation of a society are important for putting the findings at individual level into their proper context, but they do not take centre stage. (Fahey et al., 2003)
2. Quality of life is a multi-dimensional concept. As noted above, the notion of quality and the consideration of several areas of life broaden the narrower focus on income and material conditions which prevails in other approaches. Multi-dimensionality not only requires the description of several life domains, but emphasizes the interplay between domains as this contributes to quality of life (Fahey et al., 2003)
3. Quality of life is measured by objective as well as subjective indicators. Subjective and attitudinal perceptions are of particular relevance in identifying individual goals and orientations. Individual perceptions and evaluations are most valuable when these subjective evaluations are linked to objective living conditions. Applying both ways of measuring quality of life gives a more complete picture (Fahey et al., 2003).

Indicators of Quality of life

Many factors influence quality of life, i.e. physical, spiritual and health state, independence level, social relationship with the environment and others (Shin, 1979). The WHO (1996 and 2002) used physical, psychological, social relationships, environment as indicators to measure the quality of life the people. In addition to these, level of independence and spirituality/religion/personal beliefs as indicators to measure the quality of life of HIV infected persons. The Center for Health Promotion of the University of Toronto (1997) identified physical being, psychological being, spiritual being, physical belonging, social belonging, community belonging, practical becoming, leisure becoming and growth becoming as indicators for quality of life. According to Cummin (1997) "Quality of life is both objective and subjective, each axis being the aggregate of seven domains: material well-being, health, productivity, intimacy, safety, community and emotional well-being. Objective domains comprise culturally relevant measures of objective well-being. Subjective domains comprise domain satisfaction weighted by their importance to the individual".

Objective quality of life is quality of life measured by means of objective criteria, social and economic indicators, without recourse to personal experience and individual perceptions of

environment. Subjective quality of life is the perception of well-being and evaluation of own position in life based on experience. The main object of the studies of objective quality of life is an external environment of quality of life and livability of environment. It is evaluated by means of social and economic indicators, their systems and composite indexes. On the other hand, studies of subjective quality of life focus on individually experienced quality of life, which is often measured by means of qualitative methods-various questionnaires and scales (Diener and Suh, 1997). This spectrum, from the subjective to the objective quality of life via the quality of life in the existential depths, incorporates a number of existing quality-of-life theories. Therefore this spectrum is called the integrative quality-of-life theory (Ventegodt et al., 2003). Accordingly, objective indicators exist in the society and they can be monitored and assessed by their amount and frequency rate. Whereas subjective indicators exist in the consciousness of an individual and they can be identified only from the person's answers to important subjects to her/him. Comprehensive quality of life survey must include both types of indicators (Juniper et al., 2005; European Foundation for the Improvement of Living and Working Conditions, 2007). Quality of life is assessed with the help of both objective and subjective indicators. In quality of life research, one often distinguishes between the subjective and objective quality of life. Subjective quality of life is about feeling good and being satisfied with things in general. Objective quality of life is about fulfilling the societal and cultural demands for material wealth, social status and physical well-being (The Quality-of-Life Research Center, 2005).

Quality of life is determined by a lot of factors and conditions: dwelling, employment, income and material well-being, moral attitudes, personal and family life, social support, stress and crisis, condition of health, prospects of health care, relationship with the environment, ecologic factors, etc (Phillips, 2006). The Medical Outcome Trust (2006) identified physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality (energy/fatigue), social functioning, role limitations due to emotional problems and mental health (psychological distress and psychological well-being) as indicators to measure the quality of life. According to Centers for Disease Control and Prevention (2011) the health related quality of life indicators includes physical and mental health perceptions at the individual level: health risks and conditions, functional status. According Ejim indicators of quality of life include factors like freedom of speech and movement; the right to religion, employment, dignity and privacy; peace of mind; and general contentment and wellbeing. It may be argued that quality of life can be enhanced by a good standard of living, but it is also important to note that even without all of the material items, a person's quality of life may still be maintained. (Ejim, 2014)

Quality of life and HIV/AIDS

Quality of life 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. With the recent advances in clinical tests and treatments for those suffering from Human immunodeficiency Virus/Acquired Immunodeficiency Syndrome, the survival of these patients has been increased and their QOL has become an important focus for researchers and healthcare providers. The people living with HIV have to cope with a range of HIV-related symptoms for comprehensive

periods. Based on the quality of life, we can distinguish between individual psychological disorders and symptom complexes (Bechdolf et al., 2003). A strongly negative correlation exists between depression and quality of life (Brieger et al., 2004).

This article reviews recent findings concerning the different aspects of QOL in HIV patients. In a study conducted among HIV patients and a resample from the general population in the study area. Schag et al. (1992) found that correlations of HIV overview of problems - evaluation system summary with other quality of life instruments are in the predicted directions. Cunningham (1993) illustrates that health-related quality of life subscales, worse perceived access was significantly associated with poorer health-related quality of life, even after controlling for T-4 lymphocyte count, symptoms and other factors. Based on their study among HIV infected persons living in Canada, by Friedland et al. (1996) observed that, in the multivariate models, social support explained a significant amount of variance above and beyond that explained by all demographic and disease related variables in the model on all health related quality of life domains, physical functioning and bodily pain. An analysis of data collected from 52 HIV positive women with children (between ages 18-39 years) by Rose and Clark (1996) revealed that confrontive coping correlated with physical quality of life, passive coping was significantly related to total and physical quality of life and emotive coping was significantly associated with total, psychological and physical quality of life. Lubeck and Fries (1997) reported that in all domains, except cognitive functioning, individuals who progressed to AIDS had significant decrements in health related quality of life compared with symptomatic and asymptomatic patients. A study by Sowell et al. (1997) revealed that social and particularly, psychological factors are important in their influence on quality of life in women with HIV infection and suggest the need for interventions which address such factors. While assessing the impact of sources and satisfaction with support, coping strategies, pessimism, and socio demographic characteristics on QOL in HIV infected persons, Singh (1998) concluded that higher perceived satisfaction with social support was associated with better QOL and had a buffering effect on hopelessness.

A study in Venexuela among 118 HIV infected persons living in Caracas (Bastardo, 2000) revealed that there existed a significantly positive association between social support and HIV related quality of Life. Bing et al. (2000) reported that HIV-positive men who are symptomatic or have CD4+ lymphocytes below 200/mm³ have worse perceived mental and physical health than seronegative men. Call et al. (2000) recommended that having a lower viral load positively impacts the quality of life of HIV-positive patients. Gielen et al. (2000) in their study among 287 HIV infected women found that the women who practiced more self-care behaviours (healthy diet and vitamins, adequate sleep and exercise, and stress management) reported better physical and mental health and overall quality of life. Low-Beer et al. (2000) highlighted that the significant increases in the measures of health perception, physical, role and social functioning for individuals with a low baseline quality of life. Nieuwkerk et al. (2000) conducted a study on 'Quality of life in asymptomatic and symptomatic HIV infected patients in a trial of Ritonavir / Saquinavir therapy' in a sample of 167 HIV infected persons and observed that both

treatment strategies were equally effective in maintaining and improve patient's QOL despite an increase in reported symptoms. A study by Sherbourne et al. (2000) revealed that HIV positives with a probable mood disorder diagnosis had significantly lower on health related quality of life measures than those without such symptoms.

A study by Eller (2001) investigating the effects of selected variables on quality of life among 81 HIV positive adults noticed that work status, depression and fatigue predicted 50 per cent of variance in QOL in persons with HIV. Kemppainen (2001) came to the conclusion that the strongest predictor of decreased quality of life scores was depression (accounting for 23% of the variance), with symptoms accounting for 9.75 per cent and female gender accounting for an additional 8 percent. Overman and Anderson (2001), concluded that longer period of time exists in which the treatment of depression can make a difference in the quality of life, function and course of HIV infection. A study among 200 HIV infected adults at an urban public outpatients' clinic, Blalock et al. (2002) noticed that the employed respondents reported a significantly higher level of perceived overall QOL than unemployed. In a sample of 84 infected patients who were receiving highly active anti retroviral therapy, Safren et al. (2002) found that stressful life events originally accounted for significant portion of the variance associated with depression and perceived quality of life. Schonnesson (2002) concluded that clinicians have to pursue their therapeutic efforts to guide and to support their clients in their fight for re-capturing their quality of life, autonomy, self-worth, self-esteem and human dignity.

A study conducted by Campsmith et al. (2003) found in multivariate analysis, lower CD4 count was the factor most consistently associated with lower health related quality of life. Taking antiretroviral medication was not associated with differences in health related quality of life were significantly related quality of life regardless of CD4 count. Chandra et al. (2003) reported that certain disclosure related variables were significantly related to quality of life among HIV infected person. A positive outcome related to disclosure and extent to which a subject felt the need to disclose were significantly correlated with higher scores on the total QOL measure and in the social and environmental domain of the QOL. A study among 272 PLHV in Wisconsin by Heckman (2003) revealed that barriers to health care and social services played a vital role in the chronic illness QOL model. A study by Murri et al. (2003) revealed that low CD4/ cell count, hospitalization during the three months before the enrollment and symptoms were independently related to poor physical; hospitalization during the three months before the enrollment, symptoms and poor satisfaction with information from providers were independently related to mental health. While evaluating the relationship between personality traits, quality of life and highly active anti retroviral therapy adherence among 116 HIV infected men and women, Penedo (2003) reported that personality traits such as neuroticism were significantly related to poorer QOL, while conscientiousness and extraversion was related to better QOL. An examination of the factors correlated with four dimensions of functional quality of life in a sample of 142 HIV infected persons by Vosvick et al. (2003) revealed that CD4 count was positively correlated with both social functioning and role

functioning. Scores on all four functional quality of life scales were positively associated with the pain score.

Au et al. (2004) reported that CD4 count did not have any significant association with any of the scales on the health related quality of life or psychological distress. Mast et al. (2004) found that compared to HIV-negative women, HIV positive women reported lower scores than HIV-negative women for general health perceptions, physical functioning, pain, energy, role functioning, social functioning, mental health and overall quality of life. Preau et al. (2004) suggested that Socio-behavioural interventions should also focus on improving the provider /patient relationship in order to improve HIV related quality of life. Sudha (2004) concluded that certain types of psychological responses to illness such as having fighting spirit and belief in influencing the course of disease have significant association with the quality of life of the individual. Tostes et al. (2004) concluded that the health-related quality of life of women with HIV infection was greatly associated with the presence of mental symptoms. WHOQOL HIV Group (2004) illustrates that women showed poorer QOL in terms of psycho-socio-spiritual aspects of well-being, reporting poorer social support, poorer social inclusion and greater fear of the future. Men reported poorer physical well-being and level of independence, while women reported poorer environment, social support and spirituality.

Braitstein et al. (2005) came to the conclusion that individuals co-infected with HIV and hepatitis C represent a patient population with significant physical and mental health challenges. Although these patients experience poorer quality of life, increased depression and fatigue, this experience appears to be primarily related to socio-economic issues rather than hepatitis C infection. Crothers et al. (2005) concluded that health related quality of life or psychological distress, HIV-positive patients who currently smoke have increased mortality and decreased quality of life, as well as increased respiratory symptoms, chronic obstructive pulmonary disease, and bacterial pneumonia. Jelsma et al. (2005) reported that health related quality of life can be greatly improved by highly active anti retroviral therapy, and that the possible side effects of the drugs seem to have negligible impact on the wellbeing of the subjects. The study conducted among 100 HIV infected persons in Pune (Kohli et al., 2005) revealed that women had significantly lower QOL scores than men despite having less advanced disease and also the QOL scores were significantly lower among persons with lower CD4 counts mainly in different domains of physical health. Mannheimer et al. (2005) concluded that those with at least 80% ART adherence had smaller gains in QOL at 12 months when compared to baseline, while those with < 80% adherence had worsening of QOL. While examining the quality of life of 35 ART patients, Rajeev et al. (2005) noticed that there was highly significant relationship among the other sub –dimensions of quality of life. The findings also showed that male patients have higher scores on perceived quality of life, perceived health status and quality of life-spirituality/religion/personal beliefs domain. Chandra et al. (2006), depicts that there was a significant association between low CD4 counts and the psychological and social relationships domain. Lower QOL mean scores were significant in the highest viral load subgroup than other groups in QOL domains like physical, psychological, level of independence,

and environmental. In a sample of 85 persons living with HIV/AIDS at two points of times, Gore-Felton et al. (2006) found that QOL was the single most predictor of depression. Kovacevic et al (2006) among 111 HIV infected adults showed that the ratings of QOL differed across age, marital status, level of education, health status and currently ill status. Respondents who perceived themselves as not ill and their better health status reported better QOL for all QOL domains. Liu et al. (2006) recommended that with appropriate treatment and management of HIV disease and depression, clinicians can help the patients to improve the QOL. Smith and Vosvick (2006), in their study of 143 HIV positive adults, found that agency hope was significantly associated with quality of life domains of perceptions of health, mental health, energy fatigue and cognitive functioning. Wig et al. (2006) reported that quality of life is associated with education, income, occupation, family support and clinical categories of the respondents.

Astoro et al. (2007) found that there was a poor QOL among 107 HIV infected persons. They concluded that both physical and mental components in HIV patients demonstrated poor quality of life. While evaluating QOL and depression among Senegalese patients receiving efavirenz or protease inhibitor based regimens, Poupard et al. (2007) concluded that quality of life and depression scores remained good in both study groups. A study among 243 HIV infected through IDUs by Preau et al. (2007) revealed that employment, comfortable housing, living in a stable relationship and receiving social support from one's partner were all positively correlated with high levels of mental HIV related quality of life. Uphold et al. (2007) illustrates that the health promoting behaviours were positively related with most of the health related quality of life dimensions. The stress was negatively correlated with most of the health related quality of life dimensions. The tobacco users, recreational drug users and un-safe sexual behaviours were not related to health related quality of life dimensions. Wingood et al. (2007) noticed that the women reporting HIV discrimination had higher mean score of stress, suicidal ideation, depressive symptoms, number of unprotected sexual episodes; had lower means score of self esteem and quality of life. In a study among 97 HIV infected person, Kowal et al. (2008) suggested that the targeting depressive symptoms, physical activity and coping strategies as part of comprehensive treatment protocols could help to improve the pain specific to quality of life and overall quality of life among HIV infected persons. Using the short form-36 (SF-36) to assess the quality of life from 299 HIV/AIDS patients in China, Meng et al. (2008) came to the conclusion that the QOL of respondents with HIV/AIDS was significantly lower than the average QOL of the general population. Schroecksadel et al. (2008) found that depressive mood and impaired QOL appear to be related to clinical parameters like immune activation, hemoglobin values and viral load. Anis et al. (2009) concluded that Non-AIDS serious adverse events occurring in patients with late-stage HIV/AIDS seem to have at least as important an immediate impact on patient health related quality of life as AIDS-defining events; however, the impact of AIDS-defining events seems to be more persistent. A study from south India among 109 HIV+ individuals, Chandra et al. (2009) observed that men reported significantly higher QOL in positive feeling, sexual activity, financial resources and transport, while women

significantly higher QOL on the forgiveness and blame facet. Holzemer et al. (2009), in their study among 726 HIV infected persons, observed higher scores on symptoms, depression and stigma resulted in a lower quality of life. General symptoms and depressive symptoms were significant predictors of quality of life of HIV infection. Rivero-Mendez et al. (2009) concluded that better management of symptoms may have an impact on perceived quality of life for the HIV infected persons. Soloman et al. (2009), in their study conducted among 136 individuals receiving clinical care at YRG CARE, south India, noticed that QOL scores were significantly improved in all five domains of the questionnaire between participants' baseline visit, second interview and third interview. Subramanian et al. (2009) revealed that each kind of stigma was significantly related to each domain of quality of life of the respondents. The multivariate analysis indicated that gender and marital status had significant correlation with quality of life.

Basavaraj et al. (2010) reported that the important predictors for quality of life are physical manifestations, antiretroviral therapy, psychological well-being, social support systems, coping strategies, spiritual well-being, and psychiatric co morbidities. Sathia et al. (2010) reported that respondents income, family income, CD4 count are associated with QOL of the HIV/AIDS infected persons. Sethuramalingam et al. (2010) concluded that as depression, anxiety and stress increases the quality of life decreases. Sethuramalingam et al. (2010) highlighted that as CD4 count, life satisfaction increase the QOL also increases. Skevington et al. (2010) depicts that social inclusion did not directly improve QOL, but increased positive feelings, social support and perceived improvements of access to health and social care; all three improved QOL. Sethuramalingam and Sathia (2011) illustrate that taking regular counselling normally increase the quality of life of the respondents. Xiaoyan and Sato (2011) depicts that quality of life was statistically related to gender, CD4 counts and perceived social support. Oguntibeju (2010) reported that there is a relationship between ART and quality of life of people living with HIV and AIDS. Rajeev et al. (2012) illustrates PLHAs who were literates, married, single, employed, income more than 1500 not on ART, CD4 count more than 200, earlier stages of HIV, living with spouse and students had high mean scores. A study from Brazil conducted by Reis et al. (2012) illustrates that the women's employment or retirement, income greater than the minimum wage, and higher educational level were associated with a higher standardized mean score of QOL. On the other hand, recent HIV/AIDS diagnosis and exposure to antiretroviral agents for a period shorter than two years were negatively associated with QOL. Skevington (2012) highlighted that the older HIV adults had better QOL than expected on 11 dimensions; negative feelings, social inclusion, and several environmental and spiritual facets. Trans et al. (2012) noticed that alcohol and injection drug use negatively predicted HIV related quality of life outcomes in both men and women. Employment was associated with better performance in men, and better physical but poorer environment status in women. Balderson et al. (2013) depicts that high rates of depression, overall QOL was moderately high for the sample. Physical functioning was most impacted by the addition of other chronic health problems. Social functioning, mental health functioning, stress and depression were strongly associated with chronic disease burden. Bekele et al. (2013) reported interventions that

enhance social support have the potential to contribute to better health related quality of life either directly or indirectly by decreasing the deleterious effect of depressive symptoms on health related quality of life. A cross-sectional study by Da Silva et al. (2013), among people living with HIV, found that lower education level and believing to be ill were associated with poor QOL. A cross-sectional study (Krause et al., 2013) conducted among persons living with HIV/AIDS, reported that low-income level, having experienced problems accessing care, and having been prescribed antiretroviral medications to be significantly associated with health related quality of life. Mbada et al. (2013) depicts that there was no significant gender differences in the Performance-based measure of functional capacity while physical-health component score was higher among females. There was no significant correlation between performance-based measure of functional capacity variables and each of physical-health component score and mental-health component score for PLWH and controls respectively. Tran et al. (2013) highlighted that joblessness and inaccessibility to health services were associated with lower HIV related quality of life and also, involvements in self-help groups significantly improved HIV related quality of life among HIV-positive participants. A study by Talukdar et al. (2013) revealed that presence of depression and high neuroticism score in the personality profile of HIV-infected patients are significantly associated with poorer QOL.

Conclusion

Quality of life is multidimensional in construct including physical, emotional, mental, social, and behavioural components. It is evident from literature and research studies carried out by different social scientists, and medical practitioners that many of the patients fight with numerous problems such as stigma, unemployment, depression, anxiety, stress, substance abuse, cultural beliefs, feeling of shyness and shame, lack of support from family, friends and community, poor social exclusion, parental neglect, death of a spouse, elevated levels of loneliness, daytime sleepiness, social bicot, greater fear of the future, physical abuse, physical pain, fatigue, viral load, Taking ART, CD4 count, who currently smoke, drug users, unprotected sexual episodes, lower level of satisfaction with life, more maladaptive coping strategy, hopelessness etc. were found to be common among HIV positive persons. These affect the HIV/AIDS infected persons 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. Lower viral load (Call et, 2000), who are taking ART (Nieuwkerk et al., 2000), who practiced more self care behaviors (Gielen et al., 2000), CD4 count (Vosvick et al., 2003) Perceived social support (Singh, 1998), employment, comfortable housing, living in a stable relationships (Preau et al., 2007), depression (Gore-Felton et al., 2006), education, income, occupation, family support, clinical categories (Wig et al., 2006), stress, kind of stigma, gender, marital status (Subramanian et al., 2009), earlier stages of HIV, living with spouse (Rajeev et al., 2012), being to be ill (da Silva et al., 2013) and having problems in accessing care (Krause et al., 2013) were the factors that associated with the QOL of the HIV/AIDS patients. Further probing and studies are needed on interventions aimed at improving the overall quality of life of persons infected with HIV/AIDS. More information and better dissemination of information

about what psychosocial and psychiatric treatments might be beneficial for HIV-infected persons in order to improve the quality of life.

References

1. Alanbari, M. A., & Aladhmi, W. A. M. (2013). Assessment of Perception Indicators for the Requirements of Satisfying Quality of Life in Hilla City. *Conference of the International Journal of Arts & Sciences*, 6(2), 535–539
2. Anis, A. H., Nosyk, B., Sun, H., Guh, D. P., Bansback, N., Li, X., ... & Brown, S. T. (2009). Quality of life of patients with advanced HIV/AIDS: measuring the impact of both AIDS-defining events and non-AIDS serious adverse events. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 51(5), 631-639.
3. Astoro, N. W., Djauzi, S., Djoerban, Z., & Prodjosudjadi, W. (2007). Quality of life of HIV patients and influential factors. *Acta Med Indones*, 39(1), 2-7.
4. Au, A., Chan, I., Li, P., Chung, R., Po, L. M., & Yu, P. (2004). Stress and health-related quality of life among HIV-infected persons in Hong Kong. *AIDS and Behavior*, 8(2), 119-129.
5. Balderson, B. H., Grothaus, L., Harrison, R. G., McCoy, K., Mahoney, C., & Catz, S. (2013). Chronic illness burden and quality of life in an aging HIV population. *AIDS care*, 25(4), 451-458.
6. Basavaraj, K. H., Navya, M. A., & Rashmi, R. (2010). Quality of life in HIV/AIDS. *Indian journal of sexually transmitted diseases*, 31(2), 75.
7. Bastardo, Y. M., & Kimberlin, C. L. (2000). Relationship between quality of life, social support and disease-related factors in HIV-infected persons in Venezuela. *Aids Care*, 12(5), 673-684.
8. Bechdorf, A., Klosterkotter, J., Hambrecht, M., Knost, B., Kuntermann, C., Schiller, S., & Pukrop, R. (2003). Determinants of subjective quality of life in post acute patients with schizophrenia. *European archives of psychiatry and clinical neuroscience*, 253(5), 228-235.
9. Bekele, T., Rourke, S. B., Tucker, R., Greene, S., Sobota, M., Koornstra, J., ... & Positive Spaces Healthy Places Team. (2013). Direct and indirect effects of perceived social support on health-related quality of life in persons living with HIV/AIDS. *AIDS care*, 25(3), 337-346.
10. Bing, E. G., Hays, R. D., Jacobson, L. P., Chen, B., Gange, S. J., Kass, N. E., ... & Zucconi, S. L. (2000). Health-related quality of life among people with HIV disease: results from the Multicenter AIDS Cohort Study. *Quality of Life Research*, 9(1), 55-63.
11. Blalock, A.C., Mc Daniel, J.S., & Farber, E.W. (2002). Effect of employment on quality of life (QOL) and psychological functioning in patients with HIV/AIDS, *Journal of Psychosomatics* 43, 400-404.
12. Braitstein, P., Montessori, V., Chan, K., Montaner, J. S. G., Schechter, M. T., O'shaughnessy, M. V., & Hogg, R. S. (2005). Quality of life, depression and fatigue among persons co-infected with HIV and hepatitis C: outcomes from a population-based cohort. *AIDS care*, 17(4), 505-515.
13. Brieger, P., Rottig, S., & Marneros, A. (2004). Lebensqualität bei unipolar depressiven und bipolar affektiven Patienten [Quality of life in unipolar depressive and bipolar affective patients]. *Psychiatr Prax*, 31, 304-309.
14. Call, S.A., Klapow, J.C., Stewart, K.E., Westfall, A.O., Mallinger, A.P., DeMasi, R.A., ... & Saag, M.S. (2000). Health-related quality of life and virologic outcomes in an HIV clinic. *Quality of Life Research*, 9(9), 977-985.

15. Campsmith, M.L., Nakashima, A.K., & Davidson, A.J. (2003). Self-reported health-related quality of life in persons with HIV infection: results from a multi-site interview project. *Health and Quality of Life Outcomes*, 1(1), 12.
16. Centers for Disease Control and Prevention.. (2009). Basic Information, Centers for Disease Control and Prevention, USA Retrieved from <http://www.cdc.gov/hiv/topics/basic/>.
17. Centers for Disease Control and Prevention. (2011). Health-Related Quality of Life (HRQOL). Centers for Disease Control and Prevention, USA Retrieved August 18, 2012 from <http://www.cdc.gov/hrqol/concept.htm>
18. Centre for Health Promotion of the University of Toronto. (1997). Quality of Life indicators, Retrieved August 18, 2012 from <http://www.ont-autism.uoguelph.ca/STRATEGIES4.shtml>
19. Chandra, P.S., Deepthivarma, S., Jairam, K.R., & Thomas, T. (2003). Relationship of psychological morbidity and quality of life to illness-related disclosure among HIV-infected persons. *Journal of Psychosomatic Research*,54(3), 199-203.
20. Chandra, P.S., Ravi, V., Desai, A., & Subbakrishna, D.K. (1998). Anxiety and depression among HIV-infected heterosexuals—a report from India. *Journal of Psychosomatic Research*, 45(5), 401-409.
21. Chandra, P.S., Satyanarayana, V.A., Satishchandra, P., Satish, K.S., & Kumar, M. (2009). Do men and women with HIV differ in their quality of life? A study from South India. *AIDS and Behavior*, 13(1), 110-117.
22. Crothers, K., Griffith, T.A., McGinnis, K.A., Rodriguez-Barradas, M.C., Leaf, D.A., Weissman, S., ... & Justice, A.C. (2005). The Impact of Cigarette Smoking on Mortality, Quality of Life, and Comorbid Illness Among HIV-Positive Veterans. *Journal of general internal medicine*, 20(12), 1142-1145.
23. Cummins, R.A. (1997). Assessing Quality of Life' in Brown, Roy (ed) *Quality of Life for People with Disabilities. Models, Research and Practice*, 2nd edn, Cheltenham: Stanley Thornes (Publishers) Ltd, 117.
24. Cunningham, W.E., Hays, R.D., Williams, K.W., Beck, K.C., Dixon, W.J., & Shapiro, M.F. (1995). Access to medical care and health-related quality of life for low-income persons with symptomatic human immunodeficiency virus. *Medical Care*, 739-754.
25. da Silva, J., Bunn, K., Bertoni, R.F., Neves, O.A., & Traebert, J. (2013). Quality of life of people living with HIV. *AIDS care*, 25(1), 71-76.
26. Dalkey, N.C., & Rourke, D.L. (1973). The Delphi procedure and rating quality of life factors. *The Quality of Life Concept*, 209-221.
27. Diener, E., & Suh, E. (1997). Measuring quality of life: Economic, social, and subjective indicators. *Social indicators research*, 40(1-2), 189-216.
28. Ejim. (2014). What is the difference between standard of living and quality of life. Retrieved August 18, 2012 from <http://www.wisageek.com/what-is-the-difference-between-standard-of-living-and-quality-of-life.htm>
29. Eller, L.S. (2001). Quality of life in persons living with HIV. *Clinical Nursing Research*, 10(4), 401-423.
30. Emerson, E.B. (1985). Evaluating the impact of deinstitutionalization on the lives of mentally retarded people. *American Journal of Mental Deficiency*. 90(3), 277-288

31. European Foundation for the Improvement of Living and Working Conditions. (2004). Quality of life in Europe First European Quality of Life Survey 2003,Denmark, p.1.
32. European Foundation for the Improvement of Living and Working Conditions. (2007). First European Quality of Life Survey: Key findings from a policy perspective. Retrieved August 18, 2012 from www.eurofound.europa.eu
33. Fahey, T., Nolan, B., & Whelan, C.T. (2003). Monitoring quality of life in Europe. Office for Official Publ. of the Europ. Communities. Office for Official Publications of the European Communities, Luxembourg.
34. Felce, D. (1997). Defining and applying the concept of quality of life. *Journal of Intellectual Disability Research*, 41(2), 126-135.
35. Felce, D., & Perry, J. (1995). Quality of life: Its definition and measurement. *Research in developmental disabilities*, 16(1), 51-74.
36. Ferrell, B.R. (1995). The impact of pain on quality of life. A decade of research. *The Nursing Clinics of North America*, 30(4), 609-624.
37. Friedland, J., Renwick, R., & McColl, M. (1996). Coping and social support as determinants of quality of life in HIV/AIDS. *AIDS care*, 8(1), 15-32.
38. Gielen, A.C., McDonnell, K.A., Wu, A.W., O'campo, P., & Faden, R. (2000). Quality of life among women living with HIV: the importance violence, social support, and self care behaviors. *Social science & medicine*, 52(2), 315-322.
39. Gore-Felton, C., Koopman, C., Spiegel, D., Vosvick, M., Brondino, M., & Winningham, A. (2006). Effects of quality of life and coping on depression among adults living with HIV/AIDS. *Journal of health psychology*, 11(5), 711-729.
40. Hagerty, M.R., Cummins, R.A., Ferriss, A.L., Land, K., Michalos, A.C., Peterson, M., ... & Vogel, J. (2001). Quality of life indexes for national policy: Review and agenda for research. *Social indicators research*, 55(1), 1-96.
41. Heckman, T.G. (2003). The chronic illness quality of life (CIQOL) model: Explaining life satisfaction in people living with HIV disease. *Health Psychology*, 22(2), 140-147.
42. Holzemer, W.L., Human, S., Arudo, J., Rosa, M.E., Hamilton, M.J., Corless, I., ... & Maryland, M. (2009). Exploring HIV stigma and quality of life for persons living with HIV infection. *Journal of the Association of Nurses in AIDS Care*, 20(3), 161-168.
43. Jelsma, J., Maclean, E., Hughes, J., Tinise, X., & Darder, M. (2005). An investigation into the health-related quality of life of individuals living with HIV who are receiving HAART. *AIDS care*, 17(5), 579-588.
44. Juniper, E. F., Svensson, K., Mörk, A.C., & Ståhl, E. (2005). Modification of the asthma quality of life questionnaire (standardised) for patients 12 years and older. *Health and quality of life outcomes*, 3(1), 58.
45. Kemppainen, J.K. (2001). Predictors of quality of life in AIDS patients. *Journal of the Association of Nurses in AIDS Care*, 12(1), 61-70.
46. Kohli, R.M., Sane, S., Kumar, K., Paranjape, R.S., & Mehendale, S.M. (2005). Assessment of quality of life among HIV-infected persons in Pune, India. *Quality of Life Research*, 14(6), 1641-1647.

47. Kovacevic, B.S., Vurusic, T., Duvancic, K., & Macek, M. (2006). Quality of life of HIV-infected persons in Croatia. *Collegium antropologicum*, 30(2), 79-84.
48. Kowal, J., Overduin, L.Y., Balfour, L., Tasca, G.A., Corace, K., & Cameron, D.W. (2008). The role of psychological and behavioral variables in quality of life and the experience of bodily pain among persons living with HIV. *Journal of pain and symptom management*, 36(3), 247-258.
49. Krause, D.D., Butler, K.R., & May, W.L. (2013). Associations between factors affecting access to care and health-related quality of life: Results of a statewide HIV/AIDS cross-sectional study. *AIDS care*, 25(1), 77-84.s
50. Liu, C., Johnson, L., Ostrow, D., Silvestre, A., Visscher, B., & Jacobson, L. P. (2006). Predictors for lower quality of life in the HAART era among HIV-infected men. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 42(4), 470-477.
51. Low-Beer, S., Chan, K., Wood, E., Yip, B., Montaner, J. S. G., O'Shaughnessy, M. V., & Hogg, R. S. (2000). Health related quality of life among persons with HIV after the use of protease inhibitors. *Quality of Life Research*, 9(8), 941-949.
52. Lubeck, D.P., & Fries, J.F. (1997). Assessment of quality of life in early stage HIV-infected persons: data from the AIDS Time-oriented Health Outcome Study (ATHOS). *Quality of Life Research*, 6(6), 494-506.
53. Mannheimer, S.B., Matts, J., Telzak, E., Chesney, M., Child, C., Wu, A.W., ... & Terry Beinr Community Programs for Clinical Research on AIDS. (2005). Quality of life in HIV-infected individuals receiving antiretroviral therapy is related to adherence. *AIDS care*, 17(1), 10-22.
54. Mast, T.C., Kigozi, G., Wabwire-Mangen, F., Black, R., Sewankambo, N., Serwadda, D., ... & Wu, A.W. (2004). Measuring quality of life among HIV-infected women using a culturally adapted questionnaire in Rakai district, Uganda. *AIDS care*, 16(1), 81-94.
55. Mbada, C.E., Onayemi, O., Ogunmoyole, Y., Johnson, O.E., & Akosile, C.O. (2013). Health-related quality of life and physical functioning in people living with HIV/AIDS: a case-control design. *Health and quality of life outcomes*, 11(1), 106.
56. McLeish, K (1999). *Aristotle: The Great Philosophers*. Routledge. 5.
57. Meng, Y.J., Li, N.X., Liu, C.J., Chen, J.H., Song, Y.C., & Qian, Z.S. (2008). Quality of life and hostile mentality trend of patients with HIV/AIDS in China. *Public Health*, 122(4), 404-411.
58. Murri, R., Fantoni, M., Del Borgo, C., Visona, R., Barracco, A., Zambelli, A., ... & Wu, A. W. (2003). Determinants of health-related quality of life in HIV-infected patients. *AIDS care*, 15(4), 581-590.
59. Nieuwkerk, P.T., Gisolf, E.H., Colebunders, R., Wu, A.W., Danner, S.A., Sprangers, M.A., & Prometheus Study Group. (2000). Quality of life in asymptomatic-and symptomatic HIV infected patients in a trial of ritonavir/saquinavir therapy. *Aids*, 14(2), 181-187.
60. Oguntibeju, O.O. (2012). Quality of life of people living with HIV and AIDS and antiretroviral therapy. *HIV AIDS (Auckl)*, 4, 117-24.
61. Oort, F.J., Visser, M.R., & Sprangers, M.A. (2005). An application of structural equation modeling to detect response shifts and true change in quality of life data from cancer patients undergoing invasive surgery. *Quality of Life Research*, 14(3), 599-609.
62. Overman, G.P., & Anderson, S.L. (2001). Depression among patients with HIV/AIDS: A treatment

- dilemma. *Journal of Pharmacy Practice*, 14(6), 540-550.
63. Penedo, F.J., Gonzalez, J.S., Dahn, J.R., Antoni, M., Malow, R., Costa, P., & Schneiderman, N. (2003). Personality, quality of life and HAART adherence among men and women living with HIV/AIDS. *Journal of Psychosomatic Research*, 54(3), 271-278.
64. Phillips, D. (2006). Quality of life and sustainability. *International Journal of Environmental, Cultural, Economic and Social Sustainability*, 2(2), 103-112.
65. Poupard, M., Ngom Gueye, N. F., Thiam, D., Ndiaye, B., Girard, P. M., Delaporte, E., ... & Landman, R. (2007). Quality of life and depression among HIV-infected patients receiving efavirenz-or protease inhibitor-based therapy in Senegal. *HIV medicine*, 8(2), 92-95.
66. Preau, M., Lepout, C., Salmon-Ceron, D., Carrieri, P., Portier, H., Chene, G., ... & APROCO Study Group. (2004). Health-related quality of life and patient-provider relationships in HIV-infected patients during the first three years after starting PI-containing antiretroviral treatment. *AIDS care*, 16(5), 649-661.
67. Preau, M., Protopopescu, C., Spire, B., Sobel, A., Dellamonica, P., Moatti, J. P., & Carrieri, M. P. (2007). Health related quality of life among both current and former injection drug users who are HIV-infected. *Drug and Alcohol Dependence*, 86(2), 175-182.
68. Rajeev, K. H., Yuvaraj, B. Y., Gowda, M. R., Nagendra, & Ravikumar, S. M. (2012). Impact of HIV/AIDS on quality of life of people living with HIV/AIDS in Chitradurga district, Karnataka. *Indian Journal of Public Health*. 56(2): 116-121.
69. Rajeev, Liju Sam et al. (2005). Quality of life, adherence and side effects among patients receiving Antiretroviral therapy. Fifth international conference on AIDS India, Chennai: Image Auditorium, 20-24:18.
70. Reis, R. K., Santos, C. B., & Gir, E. (2012). Quality of life among Brazilian women living with HIV/AIDS. *AIDS care*, 24(5), 626-634.
71. Rivero-Mendez, M., Portillo, C., Solis-Baez, S. S., Wantland, D., & Holzemer, W. L. (2009). Symptoms and quality of life for people living with HIV infection in Puerto Rico. *Puerto Rico health sciences journal*, 28(1), 54.
72. Rose, M. A., & Clark-Alexander, B. (1996). "Quality of life and changing styles of HIV-Positive women with children", *JANAC* 7(2):28-34
73. Safren, S. A., Radosky, A. S., Otto, M. W., & Salomon, E. (2002). Predictors of psychological well-being in a diverse sample of HIV-positive patients receiving highly active antiretroviral therapy. *Psychosomatics*, 43(6), 478-485.
74. Sathia.S. (2010). Quality of life and Hopelessness among the HIV infected Deserted Women- A study from India, *International Journal on Health Economics & management*, 1(2), 512-514.ISSN: 0974-8709
75. Schag, C. A. C., Ganz, P. A., Kahn, B., & Petersen, L. (1992). Assessing the needs and quality of life of patients with HIV infection: development of theHIVOverview ofProblems-EvaluationSystem (HOPES). *Quality of life Research*, 1(6), 397-413.
76. Schalock, R. L. (2000). Three decades of quality of life. *Focus on autism and other developmental disabilities*, 15(2), 116-127.

77. Schonnesson, L. N. (2002). Psychological and existential issues and quality of life in people living with HIV infection. *AIDS care*, 14(3), 399-404.
78. Schroecksnadel, K., Sarcletti, M., Winkler, C., Mumelter, B., Weiss, G., Fuchs, D., ... & Zangerle, R. (2008). Quality of life and immune activation in patients with HIV-infection. *Brain, behavior, and immunity*, 22(6), 881-889.
79. Sethuramalingam, V., Stanley, S., & Sathia, S. (2010). Quality of life of HIV infected women – A study from India in Sekar (eds) *Women and mental Health*, NIMHANS, Bangalore, 263-269.
80. Sethuramalingam, V. & Sathia, S. (2011) Factors Determining The Various Dimensions of Quality of Life of The People Living With HIV/AIDS – A Multiple Classification Analysis, *International Journal on Health Economics & management*, 1(3), 378-381.
81. Sethuramalingam, V., Stanley, S., & Sathia, S. (2010) Mental Health and Quality of life in HIV infected Deserted Women- A study from India, *International Journal on Health Economics & management*, 1(2), 520-523. ISSN: 0974-8709.
82. Sherbourne, C. D., Hays, R. D., Fleishman, J. A., Vitiello, B., Magruder, K. M., Bing, E. G., ... & Shapiro, M. F. (2000). Impact of psychiatric conditions on health-related quality of life in persons with HIV infection. *American Journal of Psychiatry*, 157(2), 248-254.
83. Shin, D. C. (1979). The Concept of Quality of Life and the Evaluation of Developmental Effort: Some Applications to South Korea. *Comparative politics*, 299-318.
84. Singh, N., Berman, S., Swindells, S., Justice, J. C., Mohr, J. A., Squier, C., & Wagener, M. M. (1998). Quality of life in HIV infection: Role of social support, pessimism, and coping. In *International Conference on AIDS*, Geneva Switzerland.
85. Skevington, S. M. (2012). Is quality of life poorer for older adults with HIV/AIDS? International evidence using the WHOQOL-HIV. *AIDS care*, 24(10), 1219-1225.
86. Skevington, S. M., Norweg, S., Standage, M., & WHOQOL HIV Group. (2010). Predicting quality of life for people living with HIV: international evidence from seven cultures. *AIDS care*, 22(5), 614-622.
87. Smith, S.R., and Mark Vosvick (2006). Hope, Optimism, and Quality of Life in HIV+ Adults. The American Psychological Association. New Orleans, LA.
88. Sowell, R. L., Seals, B. F., Moneyham, L., Demi, A., Cohen, L., & Brake, S. (1997). Quality of life in HIV-infected women in the south-eastern United States. *AIDS care*, 9(5), 501-512.
89. Subramanian, T., Gupte, M. D., Dorairaj, V. S., Periannan, V., & Mathai, A. K. (2009). Psycho-social impact and quality of life of people living with HIV/AIDS in South India. *AIDS care*, 21(4), 473-481.
90. Sudha M.B. and Chandra P.S (2004). Psychological adjustment to HIV and quality of life in HIV infected individuals, *Int Conf AIDS*. 15: abstract no. MoPeD3854.
91. Susniene, D., & Jurkauskas, A. (2009). The Concepts of Quality of Life and Happiness-Correlation and Differences. *Inzinerine Ekonomika-Engineering Economics* (3), 58-66.
92. Susniene, D., & Jurkauskas, A. (2009). The Concepts of Quality of Life and Happiness-Correlation and Differences. *Inzinerine Ekonomika-Engineering Economics* (3), 58-66.
93. Talukdar, A., Ghosal, M. K., Sanyal, D., Talukdar, P. S., Guha, P., Guha, S. K., & Basu, S. (2013). Determinants of quality of life in HIV-infected patients receiving highly active antiretroviral

- treatment at a medical college ART center in Kolkata, India. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*, 12(4), 284-290.
94. Tarter, R. E., Erb, S., Biller, P. A., Switala, J., & Van Thiel, D. H. (1988). The quality of life following liver transplantation: a preliminary report. *Gastroenterology Clinics of North America*, 17(1), 207-217.
 95. The Medical Outcome Trust. (2006). SF-36® Health Survey Retrieved August 18, 2012 from <http://www.outcomes-trust.org/instruments.htm>
 96. The Quality of Life Research Center 2005. Available from Internet: <http://www.livskvalitet.org/cms.ashx/> English
 97. Tostes, M. A., Chalub, M., & Botega, N. J. (2004). The quality of life of HIV-infected women is associated with psychiatric morbidity. *AIDS care*, 16(2), 177-186.
 98. Tran, B. X., Ohinmaa, A., & Nguyen, L. T. (2012). Quality of life profile and psychometric properties of the EQ-5D-5L in HIV/AIDS patients. *Health Qual Life Outcomes*, 10(1), 132.
 99. Tran, B. X., Ohinmaa, A., Nguyen, L. T., Oosterhoff, P., Vu, P. X., Vu, T. V., & Larsson, M. (2012). Gender differences in quality of life outcomes of HIV/AIDS treatment in the latent feminization of HIV epidemics in Vietnam. *AIDS care*, 24(10), 1187-1196.
 100. Uphold, C. R., Holmes, W., Reid, K., Findley, K., & Parada, J. P. (2007). Healthy lifestyles and health-related quality of life among men living with HIV infection. *Journal of the Association of Nurses in AIDS Care*, 18(6), 54-66.
 101. Ventegodt, S., Andersen, N. J., & Merrick, J. (2003). Quality of life philosophy VI. The concepts. *The Scientific World Journal*, 3, 1230-1240.
 102. Vosvick, M., Koopman, C., Gore-Felton, C., Thoresen, C., Krumboltz, J., & Spiegel, D. (2003). Relationship of functional quality of life to strategies for coping with the stress of living with HIV/AIDS. *Psychosomatics*, 44(1), 51-58.
 103. WHO group. (1996). WHOQOL-HIV INSTRUMENT. Department of Mental Health and Substance Dependence, World Health Organization, Geneva.
 104. WHO group. (2002). WHOQOL-HIV INSTRUMENT. Department of Mental Health and Substance Dependence, World Health Organization, Geneva.
 105. WHO and UNAIDS. (2000) Key Elements in HIV/AIDS Care and Support. WHO Working document, Geneva.
 106. WHOQOL HIV Group. (2004). WHOQOL-HIV for quality of life assessment among people living with HIV and AIDS: results from the field test. *AIDS care*, 16(7), 882-889.
 107. Wig, N., Lekshmi, R., Pal, H., Ahuja, V., Mittal, C. M., & Agarwal, S. K. (2006). The impact of HIV/AIDS on the quality of life: a cross sectional study in north India. *Indian journal of medical sciences*, 60(1).
 108. Wingood, G. M., DiClemente, R. J., Mikhail, I., McCree, D. H., Davies, S. L., Hardin, J. W., ... & Saag, M. (2007). HIV discrimination and the health of women living with HIV. *Women & Health*, 46(2-3), 99-112.
 109. Xiaoyan, X., & Sato, M. K. (2011). Quality of life and related factors among people living with

[HIV in China. Journal of Nursing and Healthcare of Chronic Illness, 3\(4\), 513-520.](#)