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Jorge Lufiande , [Susana Silva](#) ^{*} , [Ana Catarina Reis](#) , [Marina Prista Guerra](#)

Posted Date: 23 May 2023

doi: 10.20944/preprints202305.1594.v1

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Article

Predictors of Quality of Life in HIV-Infected Persons from Mozambique: The Dual Role of Schooling

Jorge Lufiande ¹, Susana Silva ^{1,*}, Ana Reis ^{1,2} and Marina Guerra ¹

¹ Center for Psychology at University of Porto, Faculty of Psychology and Educational Sciences at University of Porto, Rua Alfredo Allen s/n, 4200-135 Porto, Portugal

² São João University Hospital Center, Alameda Prof. Hernâni Monteiro, 4200-319 Porto, Portugal

* Correspondence: susanamsilva@fpce.up.pt

Abstract: Increasing quality of life (QoL) is both an end in itself and a means to optimize the impact of treatment in HIV-infected persons. Possibly due to cultural and social influences, the predictors of QoL vary across studies, which highlights the importance of studying specific populations. In the present study, we wanted to determine the sociodemographic (age, sex, schooling) and psychosocial correlates (meaning in life, social support, positive and negative affect) of QoL in HIV-infected patients living in Mozambique, a country with high prevalence of HIV, but also with well-structured strategies to fight the disease. To that end, we made correlational analyses followed by regression models, and we examined potential mediation processes among predictors. All correlates were relevant except sex. Meaning in life was the strongest predictor, while social support was the weakest. Schooling was both directly and indirectly related with QoL - in the latter case, it was mediated by meaning in life, social support and positive affect. Our findings suggest that investments in education may be highly rewarding to Mozambicans, and that satisfying needs of self-actualization and purpose may be more urgent than improving social connections.

Keywords: HIV/AIDS; Mozambique; quality of life; schooling; meaning in life; social support; affect balance

1. Introduction

Available records indicate that 38.4 million people (0.7% of world's population) were infected with HIV (Human Immunodeficiency Virus) in 2021 [1]. Sub-Saharan Africa is responsible for two thirds of new infections, and Mozambique ranks high in the list of burden HIV countries [2]. In 2021, the prevalence of HIV infections reached 12.5% (one in eight citizens older than 15 years; 15% in women and 9.5% in men). The most affected provinces were Gaza (prevalence of 20.9%) and Zambezia (17.1%). Although many challenges remain unaddressed, there has been great progress regarding treatment, and therapeutic adherence in Mozambique is currently around 95% [3]. Antiretroviral drugs increased the life expectancy of HIV-infected persons and transformed the disease into a chronic condition that can be managed [4]. These drugs may reduce viral load down to undetectable levels, promoting a sharp decrease in mortality rates. Antiretrovirals enhance the quality of life of HIV-infected persons (Oliveira & Andrade, 2022; Goulart et al., 2018), but they may also cause damage – to their physical condition (secondary effects of treatment) as well as to other domains of quality of life (Grilo & Pedro, 2005).

Quality of life (QoL) is a subjective and relative measure [8] that the World Health Organization describes as “individuals' perceptions of their position in life in relation to their goals, expectations, standards and concerns, in the context of the culture and value system in which they live” ([9], p.16). QoL levels have been used to monitor HIV-infected persons. They provide a comprehensive understanding of the damages caused both by the disease and the treatment, thus allowing for personalized multidisciplinary intervention [10].

The relation of QoL with sociodemographic and/or psychosocial variables has been investigated in several studies [11–14] as a way to identify potential influences on the QoL of HIV-infected persons. Within sociodemographic correlates, some studies indicate that QoL may increase with *schooling* and decrease with *age* [11,15]. Findings related to age are nevertheless mixed: null results [14] as well as positive associations (increased QoL in older patients, e.g., [16]) have also been reported. Findings related to *sex* are not consensual either. While some studies reported increased QoL in women [13], others observed an advantage for men [11,15], the latter highlighting the role of cultural influences. Reports of selective sex-related differences, i.e., restricted to some domains [14,15] are also available.

Along with sociodemographic variables, psychosocial correlates such as social support, meaning in life or affects balance have also been reported as potentially relevant influences on the QoL of patients in general [16] as well as in HIV infection in specific [17]. *Social support* describes the extent to which social connections help mitigating the negative consequences of disease [18] and is essential to stress management in health-related crises [19]. Social support seems important to HIV management [20–22], this including prevention, adherence to treatment and recovery [19]. Several studies highlighted the association between social support and QoL in disease (e.g., [23]). As for meaning in life, it quantifies the strength of the individual's sense of purpose, her/his drive towards goal attainment, and it may include a dimension of altruism [24]. Meaning in life is related to QoL in healthy (e.g. [25]) as well as in HIV-infected individuals [14,17,26,27]. Finally, available instruments to evaluate the balance of affects measure how often participants experience negative vs. positive affect [28]. Research shows that affect balance is associated with QoL in various contexts [29].

Although some findings replicate across studies on the correlates of QoL, the fact that these are permeable to cultural influences (e.g., in countries with low population density, social support may be more important) highlight the need to investigate this topic in specific contexts. In addition, the majority of studies does not take into account possible mediation processes, wherein two different predictors seem to be independent but, when gathered in a single model, one of these loses relevance because the other explains its association with the dependent variable [30] In the present study, we examined the correlates of QoL in HIV-infected persons living in Mozambique – a poor country with very high prevalence of HIV, but also highly committed to tackle the problem. To that end, we considered a set of potentially relevant sociodemographic and psychosocial variables and analyzed their associations with QoL. Based on this, we built regression models and verified whether the associations predictor-dependent variable remained significant. When this did not happen, we examined whether mediation was present.

2. Materials and Methods

2.1. Participants

A total of 352 HIV-infected persons living in Zambezia (one of the most affected provinces in Mozambique) agreed to take part in this study. To be included, participants should (1) be receiving retroviral treatment for at least six months, (2) have gone to school, (3) be older than 17 years and (4) be free of severe mental health pathologies.

Table 1. Sociodemographic characteristics of participants.

	<i>Mín</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Age (years)	18	59	35.17	9.851
Schooling (years)	1	25	9.93	2.76
Sex			N	%
		Men	135	38.4
		Women	217	61.6

Participants' age range was wide (18-59 years), and the majority were women (62%). Mean schooling was clearly below university level. In addition, most participants were unemployed (71.5%;

25.4% employed, and 3.1% students) and lived with a partner (71.3%). The vast majority came from two specific districts (Quelimane and Mocuba) from the province of Zambezia (94%). Some (11.7% had no permanent address).

Regarding clinical variables, the sample was relatively homogeneous. All patients were carriers of HIV 1, and most of them (88.3%) were unaware of the source of contagion. In the vast majority, the infection was controlled (86.4% with < 50 copies of the virus; highest count would be > 30000). Most participants (96.3%) had never interrupted treatment, and 88.4% had kept the same medication since they began therapy. Nearly 85% of participants reported feeling no secondary effects from antiretroviral drugs.

2.2. Instruments

To characterize QoL, we used the WHOQOL-Bref, a short version of the self-report questionnaire WHOQOL-100 [31], validated for the Portuguese population by [32]. The instrument comprises 26 items, organized into four domains: physical, psychological, social and environmental. Responses are provided on Likert scales referring to intensity, capacity, frequency and evaluation. In the current study, the Cronbach's alpha for all items was .90. Reliability values for physical and psychological domains were higher (.80) than for social (.57) and environmental (.67) domains.

Psychosocial variables were self-reported in three different instruments: the Social Support Scale (Escala de Suporte Social, ESS [33]), the Meaning of Life Scale [17] and the Positive and Negative Affect Schedule [34], adapted to Portuguese by [28]. The Social Support Scale comprises 20 items organized into five dimensions: socio-affective, financial, familiar and romantic support, and also freedom from external control. Participants respond on a 5-point Likert scale ranging from 'quite dissatisfied' to 'quite satisfied'. The Cronbach's alpha in our sample was .73. The Meaning in Life scale is made up of seven items, some of these presented in an inverted form to avoid social desirability effects [24]. Participants respond on a 5-point scale, with scores ranging from 7 to 35. Reliability as measured by Cronbach's alpha was .58 in our study – lower than the value obtained by Reis et al. (2020) in a sample of Portuguese HIV-infected persons. Finally, PANAS is composed of 20 items, 10 expressing positive and 10 expressing negative affect. Cronbach's alpha was .78 for the positive-affect dimensions and .73 for negative affect.

2.3. Procedure

First, we requested ethical clearance for this project to the Ethical committee of University of Porto (FPCE-UP), which was given in May, 2020 (Ref. 2020/04-1b). The decision was later ratified by the Bioethics Committee from Mozambique (Ref. 114/CIBS-Z/21, 13 August 2021). A request for data collection was then submitted to the district services of health, women and social action, and consent was obtained.

We collected data at six local health units from Quelimane and Mocuba between September and December 2021. We approached participants while they waited for their appointments or prescriptions. Those who agreed to take part in the study provided informed consent according to the Declaration of Helsinki.

The questionnaires were administered inside the premises of health units, mainly with help from health technicians as requested by participants, and with the main researcher present in the room. The COVID-19 sanitary protocol was kept. Clinical data were collected afterwards, from the patients' files and electronic databases.

2.4. Data analysis

We started with descriptive statistics for QoL and the three psychosocial variables in order to examine differences across domains of QoL and compare the obtained values with those from other samples. To achieve our main goal, we began by analyzing the associations of QoL with sociodemographic and psychosocial variables using Pearson correlations for continuous correlates and independent samples t-tests for sex. Based on these values, we defined regression models for

each QoL domain (four models) using the Enter method. The number of predictors in each model was dictated by sample size as well as by the magnitude of the associations seen before [35].

Results from regression models suggested the presence of mediation effects regarding the sociodemographic variable 'schooling' (associations with QoL that were first observed vanished when other predictors were added). Therefore, we tested whether schooling effects were mediated by other variables.

Alpha values were kept below .05. Analyses were made with SPSS and JASP, the latter used in mediation analyses. Assumptions for each test were previously checked.

3. Results

3.1. Descriptives for psychosocial correlates and QoL

Values for Psychosocial correlates (Table 2) were similar to the ones obtained from Portuguese HIV-infected persons [12,17,36], this including the increased weight of positive compared to negative affect. As for QoL, values were also generally similar or even higher than the ones obtained from Portuguese [17,36] or Nigerian HIV-infected persons [15], with a single exception for the environmental domain, showing lower values than [36].

Table 2. Descriptives for psychosocial correlates and QoL domains (possible range of scores in parenthesis).

	<i>Min</i>	<i>Max</i>	<i>Med</i>	<i>M</i>	<i>SD</i>
Psychosocial correlates					
Social support (20-100)	46	89	70	69.06	9.22
Meaning in life (7-35)	17	34	25.00	25.17	3.50
Positive affects (10-50)	12	49	22.00	24.25	6.80
Negative affects (10-50)	10	35	20.00	19.96	5.49
QoL domains					
Physical (0-100)	35.71	100	64.28	67.86	15.45
Psychological (0-100)	16.67	100	70.83	67.88	17.48
Social (0-100)	16.67	100	66.66	64.48	14.84
Environmental (0-100)	25	90.63	56.25	58.44	11.46

3.2. Associations between QoL and potential correlates

As shown in Table 3, schooling correlated positively with all four QoL domains. Age showed negative correlations with the physical and psychological domains, and sex was not significantly associated with any QoL domain ($ps > .11$). All significant correlations were weak ($< .30$).

Table 3. Correlations between QoL domains and sociodemographic variables.

QoL domains	Schooling	Age	Sex
Physical	.248**	-.166**	n.s
Psychological	.189**	-.249**	n.s
Social	.266**	n.s	n.s
Environmental	.270**	n.s	n.s

* $p < .05$ ** $p < .01$ *** $p < .001$ n.s. non-significant.

As we expected (Table 4), negative affects correlated negatively with QoL, while the other three variables showed positive correlations. All correlations were significant except the one between psychological QoL and social support. Associations of QoL with meaning in life and with positive affect were moderate to strong, they were weak to moderate with negative affect, and weak for social support.

Table 4. Correlations between QoL domains and psychosocial variables.

QoL domains	Meaning in life	Social support	Positive affects	Negative affects
Physical	.661**	.186***	.515**	-.307**
Psychological	.651**	n.s	.397**	-.364**
Social	.459**	.326***	.463**	-.109*
Environmental	.550**	.232***	.418**	-.270**

* $p < .05$ ** $p < .01$ *** $p < .001$ n.s. non-significant.

3.3. Predictors of QoL per domain

As presented in Table 5, the regression models for physical and psychological QoL explained more variance (R^2_{Aj}) than those created for social and environmental QoL, but all four models were significant. The strongest predictor in all was meaning in life, followed by negative and positive affect, though it should be noted that negative affect did not predict social QoL values.

Table 5. Regression models for QoL domains ($R^2_{Aj} = R^2_{\text{adjusted}}$; df = degrees of freedom; Part r = partial correlation).

Model	β	t	p	R^2_{Aj}	df	F	p	Part r
Physical QoL				.531	6	65.56	<.001	
Age	-.129	-3.404	<.001					-.125
Schooling	.044	1.134	.258					.042
Meaning in life	.430	8.715	<.001					.320
Social support	.095	2.382	.018					.087
Positive affect	.252	4.980	<.001					.183
Negative affect	-.242	-6.146	<.001					-.226
Psychological QoL				.515	5	74.11	<.001	
Age	-.182	-4.821	<.001					-.180
Schooling	.005	.121	.904					.005
Meaning in life	.492	9.850	<.001					.368
Positive affect	.141	2.856	.005					.107
Negative affect	-.273	-6.816	<.001					-.255
Social QoL				.324	5	34.43	<.001	
Schooling	.112	2.419	.016					.107
Meaning in life	.266	4.518	<.001					.199
Social support	.220	4.693	<.001					.207
Positive affect	.221	3.653	<.001					.161
Negative affect	-.076	-1.614	.107					-.071
Environmental QoL				.380	5	43.58	<.001	
Schooling	.101	2.293	.022					.097
Meaning in life	.383	6.858	<.001					.290
Social support	.142	3.173	.002					.134
Positive affect	.145	2.503	.013					.106
Negative affect	-.203	-4.484	<.001					-.189

Schooling – which was significantly correlated with all QoL domains (see Table 3) - predicted social and environmental QoL, but associations with the physical and psychological domains vanished when schooling was inserted in the models together with other predictors. This pointed to the possibility of mediation effects [30], wherein any of these other predictors in the physical and psychological QoL models could be mediating the apparent effect of schooling.

3.4. Mediation effects

In order to determine the potential mediators, we tested the correlations between schooling (independent variable) and the other correlates (potential mediators) – since significant values would be required for mediation to be considered. The association with age was non-significant ($p > .67$) and so was the one with negative affect ($p > .05$). In contrast, meaning in life ($r = .242, p < .001$), positive affect ($r = .234, p < .001$) and social support ($r = .138, p = .010$) showed significant positive correlations. Therefore, we examined the potential mediator role of meaning in life, social support and positive affect in the schooling-physical QoL association, and the role of meaning in life and positive affect in the association with psychological QoL (Table 6).

Table 6. Estimates for direct vs indirect relations of schooling with physical and psychological QoL as mediated by meaning in life, social support and positive affect.

Schooling and Physical QoL				
Mediators	Direct	Indirect	Total	Mediation
Meaning in life	0.390 *	0.640***	1.020***	partial
Social support	0.933***	0.088*	1.021***	partial
Positive affect	0.035**	0.030***	0.067***	partial
Schooling and Psychological QoL				
Mediators	Direct	Indirect	Total	Mediation
Meaning in life	0.160	0.720***	0.880***	full
Positive affect	0.026*	0.024***	0.050***	partial

* $p < .05$ ** $p < .01$ *** $p < .001$ n.s. non-significant.

For the physical domain, all three mediators showed significant values for both indirect (mediated) and direct effects, indicating partial mediation by meaning in life, positive affect (both $p < .001$) and, with less significance, by social support ($p = .049$). For the psychological domain, positive affect mediated the schooling-QoL association partly (significant indirect and direct effects), while meaning in life conveyed full mediation (null direct with significant indirect effects).

4. Discussion

In the present study, our goal was to determine the sociodemographic (age, sex, schooling) and psychosocial correlates (meaning in life, social support, positive and negative affect) of QoL in Mozambican HIV-infected persons. To that end, we made correlational analyses followed by regression models, and we examined potential mediation processes among predictors. We found that all correlates were relevant except sex, that meaning in life was the strongest predictor, and that schooling was both directly and indirectly related with QoL – in the latter case, it was mediated by meaning in life and positive affect.

Regarding sociodemographic correlates, age correlated negatively with physical and psychological QoL, and it remained a significant predictor in the regression models for these two domains. This finding is in line with some studies on HIV [11,15], but contrasts with the null results [14] and the positive associations [16] that have also been found. One explanation for the negative correlations we found may lie in the loss of independence that comes with age, which would be particularly important to the psychological domain of QoL. Decreased physical QoL in older ages is likely connected to biological aging. Also in contrast to some studies (e.g., [15]), sex was not associated with QoL.

Contrary to some studies [14,16,36], associations between schooling and QoL were observed for all QoL domains. Further analyses showed that these associations were direct (i.e., non-mediated) for social and environmental domains, but indirect associations were also present in physical and psychological domains. For these, meaning in life, social support and positive affect mediated the association between schooling and QoL. In the psychological domain, indirect effects were striking, in that meaning in life explained fully the association. Direct effects – which were seen for physical,

social and environmental QoL – may be accounted by the healthier habits, increased social outreach and more favorable economic perspectives of those with higher schooling levels. As for the indirect relations between schooling and QoL, these may relate to the increased sense of purpose and the joy of learning that may accompany the privilege of having an education, in a country where it is not as generalized as it is, for instance, in Western countries.

Concerning psychosocial correlates, positive and negative affect correlated positively and negatively with all QoL domains according to the expected direction, with the exception of negative affect and social QoL, which showed no correlation. A similar scenario was seen in regression models. The significant associations we saw are in line with the literature [17,36], even though the domains where these associations exist vary across studies. Affect balance – the relation between positive and negative affect – favored positive affect, also in line with the literature.

Regarding social support, results were somehow surprising, in that associations with psychological QoL were null, and the significant relations with the other three domains were weak, both in correlational and regression-based analyses. Social support not only optimizes perceptions and expectations regarding treatment, as it also tends to have a positive emotional impact [37]. So, why was there such a weak link? One possibility is that basic social needs are already satisfied in Mozambique, due whether to cultural traditions of collective ways of living, or to social networks generated by current HIV policies. For instance, health units have implemented a “family file” system [38], where each patient has access to the information and prescriptions of any other family member living also with HIV. The high adherence to treatment may also act to strengthen a community of HIV-infected persons where the sharing of experiences is facilitated. Therefore, in face of a highly structured social network, patients may not be too sensitive to their particular social circumstances.

Finally, meaning in life showed moderate to strong positive correlations with all QoL domains, and the associations prevailed in the context of regression models. These findings replicate those from studies with healthy populations [25,39] and HIV-infected persons [15–17,36], even though [17] only saw significant associations with psychological and environmental QoL. These findings are in line with the idea that health crises tend to challenge the sense of purpose of an individual [40] and those who can overcome this challenge are equipped with the best tools to achieve psychological adjustment and harmony in life.

Our study has limitations, and we would highlight three of these. First, even though the instruments we used were validated for the Portuguese population, none was for the Mozambican people. Mozambicans speak Portuguese, but there are some differences in dialects, just like there are differences between European and Brazilian Portuguese. More critically, the instruments were not designed to take into account the specifics of the Mozambican culture. This may explain why we had low reliability values in some measurements, and suggests that it may be useful to promote proper validation in future research. Second, we did not use a control group of healthy citizens from Mozambique. This prevents us from drawing solid inferences from our results, since comparisons between Mozambique and other countries may be mistaking HIV-infected persons’ specificities with cultural specificities. Adding a control group should, thus, be a priority in future research. Finally, the fact that we saw relatively high values for QoL in these HIV-infected persons – all undergoing treatment and with very low viral charge - is consistent with the literature [41,42], but it still raises one question: to which extent would these values replicate in patients with increased viral loads and little or no therapeutic adherence? In other words, it is likely that, beyond sociodemographic and psychosocial variables, the quality of health care plays an important role and, in this sense, this variable is likely a strong predictor of QoL in HIV. Future studies could, thus, add correlates such as viral charge and adherence to treatment to potential predictors of QoL in HIV.

Despite its limitations, our study contributed to a better understanding of QoL in Mozambican HIV-infected persons at least in two ways. First, schooling seems to have a dual role: it enhances both QoL and psychosocial aspects like meaning in life, social support and positive affect - which, in turn, also increases QoL. From the viewpoint of practical applications, this suggests that investments in education may be highly rewarding. This would be valid for HIV-infected persons who might see greater impact of treatment or even increased mobilization for diagnosis, but also for all

Mozambicans who long to enhance their sense of purpose, social support and positive affect. Second, the weak contribution of social support to QoL, compared to the importance of education and meaning in life, suggests that self-actualization and purpose may be areas in Mozambican people's lives that need more attention than social connection.

Author Contributions: Conceptualization, J.L., A.R. and M.G.; methodology, J.L., A.R. and M.G.; formal analysis, J.L., S.S., A.R., and M.G.; investigation, J.L., A.R. and M.G.; data curation, J.L., S.S., A.R. and M.G.; writing—original draft preparation, J.L., S.S.; writing—review and editing, J.L., S.S., A.R. and M.G.; visualization, J.L., S.S., A.R. and M.G.; supervision, A.R. and M.G.; project administration, M.G.; funding acquisition, J.L. and M.G.

Funding: This research was funded by the Portuguese Foundation for Science and Technology, grant number UIDB/00050/2020 and by the Government of Mozambique via University of Licungo-Quelimane, grant (143.402). The APC was funded by the Portuguese Foundation for Science and Technology, grant number UIDB/00050/2020 and by the Government of Mozambique via University of Licungo-Quelimane, grant (143.402).

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of FPCEUP (2020/04-1b, May 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The database used in this study is available at the osf link https://osf.io/32mtg/?view_only=ccb85d4e976d4edaa2dad0a3779741f.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. UNAIDS Global HIV Statistics 2022, Consulted June 2022 at https://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf
2. Babatunde, A.O.; Akin-Ajani, O.D.; Abdullateef, R.O.; Togunwa, T.O.; Isah, H.O. Review of Antiretroviral Therapy Coverage in 10 Highest Burden HIV Countries in Africa: 2015–2020. *Journal of Medical Virology* **2023**, *95*, e28320, doi:10.1002/jmv.28320.
3. Moçambique. Inquérito Nacional sobre o Impacto do HIV e SIDA em Moçambique - INSIDA 2021, Moçambique, 2022.
4. Paschoal, E.P.; Santo, C.C.E.; Gomes, A.M.T.; Santos, E.I.; Oliveira, D.C.; Pontes, A.P.M. Adherence to antiretroviral therapy and its representations for people living with HIV/AIDS. *Esc Anna Nery*. **2014**, *18*(1), 32-40. DOI: 10.5935/1414-8145.20140005.
5. Oliveira, A. A. L.V.; Andrade, L.G. Assistência farmacêutica e qualidade de vida em pacientes que vivem com HIV. *Revista Ibero-Americana de Humanidades, Ciências e Educação-REASE* **2022**, *8*(4). doi.org/10.51891/rease.v8i4.4863.
6. Goulart, S.; Meirelle, B. H. S.; Costa, V. T.; Pfluge, G; Silva, L. M. Adesão à terapia antirretroviral em adultos com HIV/Aids atendidos em um serviço de referência. *REME • Rev. Min. Enferm.* **2018**, *22*, e-1127, DOI: <https://doi.org/10.5935/1415-2762.20180050>
7. Grilo, A.M.; Pedro, H. (2005). Contributos da Psicologia para as profissões da saúde. In *Psicologia, Saúde e Doenças*, VI (1), Sociedade Portuguesa de Psicologia da Saúde: Portugal 2005, pp. 69-89.
8. Minayo, M.C.S.; Hartz, Z. M. A.; Buss, P. M. Qualidade de vida e saúde: um debate necessário. *Ciência & Saúde Coletiva*, **2000**, *5*(1), 7-18. <https://doi.org/10.1590/S1413-81232000000100002>
9. Canavarro, C. Qualidade de vida: Significados e Níveis de Análise. In *Qualidade de vida e saúde: Uma Abordagem na perspectiva da Organização Mundial de Saúde*. (Coord) M.C. Canavarro & A. Vaz Serra. Fundação Calouste Gulbenkian: Lisboa, Portugal, 2010, pp. 3-21.
10. Cabral, J.R.; Ramos, Y.T. M.; Cabral, L.C.; Moraes, D.C.A.; Bushatsky, M.; Celia de, O.R.; Qualidade de vida e fatores associados em Pessoas vivendo com HIV/AIDS. *Cogitare Enfermagem*, **2018**, *23*(2), e54742 <https://doi.org/10.5380/ce.v23i2.54742>
11. Abrefa-Gyan, T.; Cornelius, L.J.; Okundaye, J. Socio-Demographic Factors, Social Support, Quality of Life, and HIV/AIDS in Ghana. *Journal of Evidence-Informed Social Work* **2016**, *13*, 206–216, doi:10.1080/23761407.2015.1018033.
12. Nobre, N.; Pereira, M.; Roine, R.P.; Sintonen, H.; Sutinen, J. Factors Associated with the Quality of Life of People Living with HIV in Finland. *AIDS Care* **2017**, *29*, 1074–1078, doi:10.1080/09540121.2017.1281879.

13. Yang, Y.; Thai, S. & Choi, J. An evaluation of quality of life among Cambodian adults living with HIV/AIDS and using antiretroviral therapy: a short report. *AIDS Care*, **2016**, volume 28 (12), pp.1546-1550. DOI: <https://doi.org/10.1080/09540121.2016.1192100>
14. Ribeiro, I., Ramos, I.; Lencastre, L.; Guerra, M.P. Meaning in Life and Therapeutic Adherence as Determinants of Quality of Life in HIV-infected persons. [Abstract] In The 33th Conference of the European Health Psychology Society Dubrovnick, Croatia: September, 3-7, **2019**, (p.72).
15. Ak, N.; In, O.; Cn, S. Correlation of Socio-Demographic and Clinical Factors with Quality of Life (QOL) Among Subjects Living with HIV in Port Harcourt, Nigeria. *Archives of Infectious Diseases & Therapy* **2019**, *3*, 1-7.
16. Birore, C.M.S.; Wu, L.; Abrefa-Gyan, T.; Lewis, M.W. Social Support and Quality of Life Among People Living With HIV/AIDS (PLWHA) in Ghana. *Journal of Family Issues* **2022**, *43*, 2159-2180, doi:10.1177/0192513X211030046.
17. Reis, A.; Lencastre, L.; Jonsson, C.; Guerra, M.P. Treatment Adherence, Meaning in Life and Affects in Quality of Life of HIV/AIDS Patients. *J Happiness Stud* **2020**, *21*, 2405-2417, doi:10.1007/s10902-019-00182-y.
18. Oliveira, R. da S.; Primeira, M.R.; Santos, W.M. dos; Paula, C.C. de; Padoin, S.M. de M. Association between Social Support and Adherence to Anti-Retroviral Treatment in People Living with HIV. *Rev. Gaúcha Enferm.* **2020**, *41*, e20190290, doi:10.1590/1983-1447.2020.20190290.
19. Pedrosa, S.C.; Fiuza, M.L.T.; Cunha, G.H. da; Reis, R.K.; Gir, E.; Galvão, M.T.G.; Carvalho, A.F. Social Support for People Living with Acquired Immunodeficiency Syndrome. *Texto contexto - enferm.* **2016**, *25*, e2030015, doi:10.1590/0104-07072016002030015.
20. Blandón, J.A.P.; Bocanegra, A.G.; Júnior, J.N.M.; Viana, D. da R.; Campos, M. de las M.L. Os Determinantes Da Qualidade de Vida Em Pessoas Com HIV: Uma Revisão Integrativa [Determinants of Quality of Life in People with HIV: An Integrative Review] [Los Determinantes de La Calidad de Vida En Personas Con VIH: Una Revisión Integrativa]. *Revista Enfermagem UERJ* **2019**, *27*, 40537, doi:10.12957/reuerj.2019.40537.
21. da Cunha GH e Galvão MTG. Effect of social support in the lives of adults with HIV/AIDS. *Care Online*. 2016 jul/set; 8(3):4833-4840. DOI: <http://dx.doi.org/10.9789/2175-5361.2016.v8i3.4833-4840>
22. Polo-Payares, E.P.; Ardila-Hernández, A.A.; Ibáñez-Polo, D.D.; Polo-Payares, E.P.; Ardila-Hernández, A.A.; Ibáñez-Polo, D.D. Apoyo social y tipología familiar en mujeres diagnosticadas con vih. *Revista Facultad Nacional de Salud Pública* **2021**, *39*, doi:10.17533/udea.rfnsp.e340517.
23. Tornu, E.; Quarcoopome, L. Correlates of Quality of Life among Persons Living with Tuberculosis: A Cross-Sectional Study. *PLOS ONE* **2022**, *17*, e0277192, doi:10.1371/journal.pone.0277192.
24. Guerra, M.P.; Lencastre, L.; Silva, E.; Teixeira, P.M. Meaning in Life in Medical Settings: A New Measure Correlating with Psychological Variables in Disease. *Cogent Psychology* **2017**, *4*, 1286747, doi:10.1080/23311908.2017.1286747.
25. Czekierda, K., Banik, A., Park, C.L. & Luszczynska, A. Meaning in life and physical health: systematic review and meta-analysis, *Health Psychology Review*, **2017**, *11*(4), 387-418, <https://doi.org/10.1080/17437199.2017.1327325>
26. Audet, C.M.; Wagner, L.J.; Wallston, K.A. Finding Meaning in Life While Living with HIV: Validation of a Novel HIV Meaningfulness Scale among HIV-Infected Participants Living in Tennessee. *BMC Psychology* **2015**, *3*(15), doi:10.1186/s40359-015-0070-7.
27. Duque, S.; Reis, A.; Lencastre, L. & Guerra, M. Satisfação com a Vida em pessoas seropositivas ao vírus da SIDA. *Análise Psicológica*, **2017**, *3* (35), 297-308 doi: 10.14417/ap.1183
28. Galinha, I.C.; Pais-Ribeiro, J. Contribuição para o estudo da versão portuguesa da Positive and Negative Affect Schedule (PANAS): II – Estudo 12 psicométrico. *Análise Psicológica* **2005**, volume 23(2), 219-227.
29. Saheer P, A.; Mariette, T.M.; Majid, S.A. Positive and Negative Affect on Quality of Life: A Review. *International Healthcare Research Journal* **2017**, *1*, 7-9, doi:10.26440/ihrij/01_05/101.
30. Igartua, J.-J.; Hayes, A.F. Mediation, Moderation, and Conditional Process Analysis: Concepts, Computations, and Some Common Confusions. *The Spanish Journal of Psychology* **2021**, *24*, e49, doi:10.1017/SJP.2021.46.
31. The World Health Organization Quality of Life Assessment (WHOQOL): development and general psychometric properties. *Soc Sci Med.* **1998**, *46*(12):1569-85. doi: 10.1016/s0277-9536(98)00009-4. PMID: 9672396

32. Vaz-Serra, A.; Canavarro, M.C.; Simões, M.R.; Pereira, M.; Gameiro, S.; Quartilho, M.J.; Rijo, D.; Carona, C.; Paredes, T. Estudos Psicométricos do Instrumento de Avaliação da Qualidade de Vida da Organização Mundial de Saúde (WHOOQOL-Bref) para Português de Portugal. *Psiquiatria Clínica*, **2006**, *27*, (1), 41-49
33. Guerra, M. Uma escala de avaliação suporte social: sua aplicação numa população seropositiva ao vírus HIV. In *Avaliação Psicológica: Formas e Contextos* (ORG) Leandro S. Almeida & Iolanda S. Ribeiro. APPORT, Braga, Portugal 1995; volume 3, pp. 25-34.
34. Watson, D.; Clark, L.A.; Tellegen, A. Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology* **1988**, *54*, 1063–1070, doi:[10.1037/0022-3514.54.6.1063](https://doi.org/10.1037/0022-3514.54.6.1063).
35. Tabachnick, B.G.; Fidell, L.S. *Using multivariate statistics* 4ed. **2001**, Allyn and Bacon.
36. Figueiredo, R. Fatores Psicológicos Associados à Qualidade de Vida em Pacientes com VIH/SIDA. Master Thesis. Faculty of Psychology and Educational Science of University of Porto, Portugal, 2020.
37. Remor, E.A. Aspectos psicossociais na era dos novos tratamentos da AIDS. *Psic.: Teor. e Pesq.* **2002**, *18*, 283–287, doi:[10.1590/S0102-37722002000300007](https://doi.org/10.1590/S0102-37722002000300007).
38. MISAU. Guião orientador sobre Modelos Diferenciados de Serviços em Moçambique: Maputo, Moçambique, 2018
39. Bernard, M.; Braunschweig, G.; Fegg, M.J.; Borasio, G.D. Meaning in Life and Perceived Quality of Life in Switzerland: Results of a Representative Survey in the German, French and Italian Regions. *Health Qual Life Outcomes* **2015**, *13*, 160, doi:[10.1186/s12955-015-0353-y](https://doi.org/10.1186/s12955-015-0353-y).
40. Guerra, M. P. *SIDA. Implicações Psicológicas*. Fim de século: Lisboa, Portugal, 1998; pp.93-116
41. Payares, E.P.P.; Hernández, A.A.A.; & Polo, D.D.I. Apoyo social y tipología familiar en mujeres diagnosticadas con VIH. *Rev. Fac. Nac. Salud Pública*, **2021**, volume 39(1):e340517. DOI: <https://doi.org/10.17533/udea.rfnsp.e340517>
42. Cecilio, H.P.M.; Oliveira, D.S.; Marques, S.C.; Apostolidis, T.; Oliveira, D.C. de Quality of life of people living with HIV treated in public health services/Qualidade de vida de pessoas vivendo com HIV atendidas em servicios publicos de saude/Calidad de vida de personas viviendo con VIH atendidas en servicios publicos de salud. *Enfermagem Uerj* **2019**, *27*, NA-NA.

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