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Quality of life of people living with HIV/AIDS: a cross-country comparison study of Finland and Portugal

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ABSTRACT

The premises underlying the development of the World Health Organization Quality of Life (WHOQOL) instruments provide a convincing rationale for comparing quality of life (QoL) across countries. The aim of the present study was to compare the QoL of patients living with HIV infection in Finland and in Portugal, and to examine the contribution of the QoL domains to the overall QoL in these two countries. The sample comprised 453 patients from Finland (76.3% male; mean age = 46.50) and 975 from Portugal (69.2% male; mean age = 40.98), all living with HIV. QoL data were collected by use of the WHOQOL-HIV-Bref questionnaire. Significant country differences were found in QoL domains and specific facets. Patients from Finland reported markedly higher scores on all six QoL domains and general facet, than did their Portuguese counterparts. Regarding the specific facets of the WHOQOL-HIV-Bref, patients from Finland also reported significantly higher scores on 24 out of 29. The exceptions were dependence on medications and treatment, positive feelings, personal relationships, sexual activity, and on spirituality, religion and personal beliefs. Regression analyses showed that physical, psychological, and independence domains contributed to overall QoL among the Finnish patients ($R^2 = 0.63$), whereas among the Portuguese, the domains significantly associated with overall QoL were physical, psychological, independence, and environment ($R^2 = 0.48$). Country differences in QoL domains and specific facets may reflect sociocultural differences between southern and northern Europe.

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HIV; quality of life; WHOQOL-
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Introduction

In Europe, Finland and Portugal represent two differing countries regarding the prevalence and incidence of HIV infection (European Centre for Disease Prevention and Control/WHO Regional Office for Europe, 2013) and epidemiological patterns (Directorate-General of Health [DGH], 2015; National Institute for Health and Welfare [THL], 2015). By the end of December 2015, 3516 cases of HIV infection were reported in Finland (THL, 2015), of which 172 were diagnosed in 2015. In contrast, Portugal has one of the highest rates in Europe. By the end of 2014, there were 53,072 officially notified cases, of which 1220 were newly diagnosed cases (DGH, 2015).

Since mid-1990s, the mortality associated with HIV infection has decreased dramatically. However, the quality of life (QoL) of people living with HIV/AIDS (PLWHA) is an important topic across multiple cultures and societies (Drewes, Gusy, & Ruden, 2013). Finding a reliable and valid questionnaire to assess the QoL of PLWHA cross-culturally is therefore essential for

assessing the global impact of the disease (Skevington & O'Connell, 2003). Recognising the significant impact of HIV on QoL, the World Health Organization Quality of Life in HIV Infection Group (WHOQOL-HIV Group) has developed a multi-dimensional instrument, the WHOQOL-HIV (WHOQOL-HIV Group, 2003) and later an abbreviated version, the WHOQOL-HIV-Bref (O'Connell & Skevington, 2012). Both questionnaires were validated in various cultural settings and proved to have acceptable psychometric properties (e.g., Hsiung et al., 2011; Pereira, Martins, Alves, & Canavarro, 2014; Reyhler, Caty, Vincent, Billo, & Yombi, 2013; Zimpel & Fleck, 2007). According to Skevington and O'Connell (2003), the WHOQOL-HIV-Bref, compared to other HIV-specific instruments, is culturally more sensitive particularly regarding the methodology underlying its development, therefore enabling cross-cultural comparisons.

The aim of this study was to conduct a comparison of the QoL of PLWHA between two European countries with different socio-economic-cultural backgrounds,

Portugal and Finland, and to identify the QoL domains contributing to overall QoL.

Methods

Participants and procedure

In Finland, 550 patients were asked to participate. Fourteen participants refused and 83 who agreed to participate never returned the questionnaires. The final sample comprised 453 HIV-infected patients, who were followed up at the Infectious Disease Clinic of Helsinki University Hospital. Data collection occurred between June 2013 and October 2014. Participants were consecutively recruited either during their outpatient visits or during their visits to HIV/AIDS support groups (HIV Finland and The Finnish AIDS Council) or the Helsinki Deaconess Institute.

The sample from Portugal comprised 975 patients, recruited within a wider research project about the QoL and mental health of Portuguese HIV-infected patients. Participants were recruited by convenience in the departments of infectious diseases of 10 hospitals across the country between September 2007 and July 2008. The recruitment procedures are presented in more detail elsewhere (Canavarró & Pereira, 2012). Briefly, 1251 participants were initially recruited. Fifty-four participants who did not complete the entire set of questionnaires and one participant who self-identified as transgender were considered ineligible for the analysis. For this study, 221 patients were further excluded because of missing information in relevant HIV-related data (HIV stage, CD4 T-cell count, and anti-retroviral treatment).

In both countries, ethical approval was obtained from all institutions involved. All participants who agreed to participate provided informed consent.

Measures

The WHOQOL-HIV-Bref is a 31-item self-reported questionnaire that yields a multi-dimensional profile of scores across domains and facets (O'Connell & Skevington, 2012). The WHOQOL-HIV-Bref comprises six domains: physical, psychological, level of independence, social relationships, environment, and spirituality. These domains cover 29 specific facets of one question each. One additional facet (two questions) pertains to global QoL and general health. Individual items were rated on a 5-point scale, with higher scores indicating better QoL. All domain scores were transformed to reflect a 0-to-100 scale. Sociodemographic and HIV-related data were obtained by self-report and confirmed by medical records.

Data analysis

Data were analysed with the Statistical Package for Social Sciences (IBM SPSS, version 20.0). Multivariate analysis of covariance was used to test for country differences on the primary study variables. Because these countries differed on demographic and HIV-related variables, analyses were carried out controlling for these. The contribution of QoL domains to overall QoL was evaluated by hierarchical multiple regression analyses, separately for each country, and adjusting for background variables. All predictors were examined for multicollinearity.

Results

Most participants from Finland were male (76.3%), single (36.3%) or married/registered partnership (30.3%), employed (63.4%), and asymptomatic (72.1%). Men who have sex with men (MSM) was the most common mode of HIV transmission (54.8%). Participants from Portugal were mostly male (69.2%), unemployed/not currently working (50.4%), single (44.0%), and asymptomatic (66.9%). Most participants (60.9%) were infected through sexual contact (of these, 9.6% reported MSM as mode of transmission) and 33.9% reported HIV acquisition through intravenous drug use (Table 1).

As regards QoL domains, and adjusting for sociodemographic and HIV-related variables, patients from Finland reported significantly higher scores on the six QoL domains and overall QoL than did their Portuguese counterparts, Wilks' $\lambda = .83$; $F(7, 1349) = 39.73$, $p < .001$, $\eta_p^2 = .17$ (Table 2).

Regarding the 29 specific facets, participants from Finland reported significantly higher scores on 24. The exceptions were the following facets: dependence on medications and treatment, positive feelings, personal relationships, sexual activity, and spirituality (Table 3).

Adjusting for background variables, the QoL domains that significantly contributed to overall QoL in Finland were physical, psychological, and independence domains, explaining 48% of the variance. For Portugal, the domains significantly associated with overall QoL were physical, psychological, independence, and environment. These domains explained 34% of the total variance. The models for Finland and Portugal are displayed in Table 4.

Discussion

In this study, HIV-infected patients from Finland reported significantly higher scores in all QoL domains and in most of the specific facets of the WHOQOL-

Table 1. Sociodemographic and HIV-related characteristics of study participants.

	Finland (N = 453)	Portugal (N = 975)	χ^2	Cramer's V
	n (%)	n (%)		
Gender ^a			7.61**	.07
Male	342 (76.3)	675 (69.2)		
Female	106 (23.7)	300 (30.8)		
Employment status ^a			23.37***	.12
Employed	284 (63.4)	484 (49.6)		
Unemployed or not currently working	164 (36.6)	491 (50.4)		
Education ^a			496.71***	.41
No education	6 (1.3)	31 (3.2)		
≤9 years	67 (15)	735 (75.6)		
>9 years	375 (83.7)	206 (21.2)		
Marital status ^a			26.63***	.14
Single	163 (36.3)	428 (44.0)		
Married/registered partnership	136 (30.3)	192 (19.8)		
Co-habiting	73 (16.3)	131 (13.5)		
Separated/divorced	69 (15.4)	186 (19.1)		
Widowed	8 (1.8)	35 (3.6)		
Mode of transmission ^a			390.82***	.53
Men who have sex with men	245 (54.8)	92 (9.6)		
Heterosexual transmission	142 (31.8)	492 (51.3)		
Intravenous drug use	29 (6.5)	325 (33.9)		
Blood products	6 (1.3)	28 (2.9)		
Others/unknown	25 (5.6)	22 (2.3)		
HIV stage ^{a,b}			6.16*	.07
Asymptomatic (CDC A)	323 (72.1)	642 (66.9)		
Symptomatic (CDC B)	54 (12.1)	111 (11.6)		
AIDS (CDC C)	71 (15.8)	206 (21.5)		
Last CD4+ T-cell count ^a			133.60***	.31
<200 cells/mm ³	19 (4.3)	235 (24.1)		
201–499 cells/mm ³	147 (32.9)	409 (41.9)		
>500 cells/mm ³	281 (62.9)	331 (33.9)		
On cART ^a			75.91***	.23
Yes	424 (94.9)	737 (75.6)		
No	23 (5.1)	238 (24.4)		
	Mean (SD)	Mean (SD)	T	Cohen's d
Age, years ^a	46.5 (11.28)	41.0 (9.71)	8.95***	0.52
Last CD4+ T-cell count ^a	606 (262.4)	416 (278.7)	12.10***	0.70
Time since diagnosis, years ^a	10.6 (7.08)	7.8 (5.13)	7.46***	0.45

^aNumbers of patients for different variables do not add up to 453 or 975 due to missing values.

^bCentres for Disease Control (CDC) and Prevention HIV classification.

* $p < .05$.

** $p < .01$.

*** $p < .001$

HIV-Bref, than did patients from Portugal, even with adjustment for sociodemographic and HIV-related characteristics. Since these countries are mostly similar regarding treatment and care offered to PLWHA (e.g., free medications and outpatient care, social workers, psychological support), these results may reflect socio-economic and cultural differences between these countries, well defined in the recent Human Development Report (United Nations Development Programme, 2013) and World Happiness Report 2015 (Helliwell, Layard, & Sachs, 2015). In these reports, Finland outranks Portugal. Although both countries are considered very high in human development, Finland ranked on

the Human Development Index in 2012 at 21, and Portugal at 43. In the most recent World Happiness Report, Finland ranked as the world's sixth happiest country, while Portugal's rank was 88 (out of 158 countries). In the European Quality of Life Survey 2012 (Eurofound, 2013), Finland also outscored Portugal in subjective well-being. It is plausible therefore that the differences observed in the general population may parallel the pattern among PLWHA.

Regarding the specific facets, the strongest differences were found on the facets of the environment domain. This seems to reflect the socio-economic differences between these countries, as shown by the high number of unemployed/not working participants and lower educational level of the Portuguese sample. Results in facets such as dependence on medications and treatment, personal relationships, sexual activity, and spirituality were comparable between Finland and Portugal, possibly because these dimensions may be less affected by socio-economic variables, and may reflect some similarities in relational (e.g., marital status) and disease-related characteristics. Because of the widespread use of anti-retroviral treatments, it is also likely that patients from both countries are satisfied with their health and social care services and/or interventions, and may feel healthier, and therefore less dependent on medical attention (hospital treatment, medical appointments) to function in daily life.

For both countries, the physical, psychological, and independence domains of QoL contributed significantly to the explanation of overall QoL. Theoretically, these results are consistent with the notion that physical and psychological dimensions impact QoL (Arnold et al., 2004) and suggest that these dimensions are consistent across cultures. Among participants from Portugal, the environment domain also contributed significantly to overall QoL, reinforcing prior findings from the long version of the WHOQOL-HIV-Bref (Canavarro, Pereira, Simões, & Pintassilgo, 2011) as well as findings from the Portuguese general population (Canavarro et al., 2007).

This study is not without limitations. The convenience sample and the cross-sectional design limit the generalisation of these findings to the entire HIV populations in Finland and Portugal. However, it is worth mentioning that our participants did represent the national epidemiological patterns of HIV in both countries fairly well (DGS, 2015; THL, 2015). It is also noteworthy that the sample from Portugal was collected during 2008, a period that coincided with the beginning of the Portuguese economic crisis, perhaps inflating the socio-economic impact on QoL ratings; since this crisis is still a concern, these results

Table 2. Comparison of WHOQOL-HIV-Bref domains between Finland and Portugal.

Domains ^a	Unadjusted				Adjusted for covariates ^b			
	Finland Mean (SE)	Portugal Mean (SE)	<i>F</i>	η_p^2	Finland Mean (SE)	Portugal Mean (SE)	<i>F</i>	η_p^2
Physical	75.88 (0.95)	63.71 (0.64)	112.35***	.07	73.78 (1.19)	64.96 (0.72)	31.86***	.02
Psychological	71.21 (0.87)	58.90 (0.59)	136.87***	.09	68.38 (1.09)	60.30 (0.66)	31.83***	.02
Level of independence	75.86 (1.01)	64.14 (0.68)	93.23***	.06	71.01 (1.22)	66.50 (0.74)	7.96**	.01
Social relationships	68.52 (0.92)	60.61 (0.62)	50.76***	.04	66.41 (1.15)	61.83 (0.69)	9.33**	.01
Environment	77.96 (0.72)	56.06 (0.48)	641.56***	.31	73.27 (0.87)	58.27 (0.53)	172.82***	.11
Spirituality	73.74 (0.97)	60.45 (0.66)	127.99***	.08	73.28 (1.23)	60.92 (0.74)	58.69***	.04
Overall QoL	70.54 (0.96)	52.94 (0.65)	232.62***	.14	65.50 (1.18)	55.32 (0.71)	43.66***	.03

^aA higher score corresponds to a better QoL.

^bMultivariate analysis of variance adjusted for age, gender, employment status, education, marital status, mode of HIV transmission, time since HIV diagnosis, HIV stage, CD4+ T-cell count, and cART.

***p* < .01.

****p* < .001.

may not be compromised. Furthermore, although health care is similar in both countries, we also cannot exclude the possibility that more recent treatment

Table 3. Comparison of WHOQOL-HIV-Bref-specific facets between Finland and Portugal (adjusted for covariates).^a

Facets ^b	Finland Mean (SE)	Portugal Mean (SE)	<i>F</i>	η_p^2
Domain 1 – Physical				
Pain and discomfort	4.27 (0.07)	3.99 (0.04)	9.56**	.01
Energy and fatigue	3.76 (0.06)	3.38 (0.04)	24.19***	.02
Sleep and rest	3.44 (0.07)	3.21 (0.04)	6.05*	.00
Symptoms of PLWHAs ^{c,d}	4.40 (0.07)	3.77 (0.04)	46.40***	.03
Domain 2 – Psychological				
Positive feelings	3.64 (0.06)	3.79 (0.04)	3.77	.00
Cognition	3.86 (0.06)	3.32 (0.03)	54.30***	.04
Body image and appearance	3.95 (0.06)	3.52 (0.04)	26.13***	.02
Self-esteem	3.67 (0.06)	3.46 (0.04)	6.39*	.01
Negative feelings	3.60 (0.06)	2.94 (0.04)	65.03***	.05
Domain 3 – Level of independence				
Mobility	4.24 (0.06)	3.84 (0.04)	27.45***	.02
Activities of daily living	3.82 (0.06)	3.53 (0.04)	13.94***	.01
Dependence on medication or treatment	3.77 (0.07)	3.82 (0.05)	0.29	.00
Work capacity	3.59 (0.06)	3.41 (0.04)	5.04*	.00
Domain 4 – Social relationships				
Personal relationships	3.70 (0.06)	3.59 (0.04)	2.11	.00
Social support	3.83 (0.06)	3.52 (0.04)	15.71***	.01
Sexual activity	3.07 (0.07)	3.08 (0.04)	0.01	.00
Social inclusion ^c	4.05 (0.06)	3.69 (0.03)	25.74***	.02
Domain 5 – Environment				
Physical safety and security	4.11 (0.06)	3.29 (0.03)	126.56***	.09
Home environment	3.94 (0.06)	3.62 (0.04)	16.85***	.01
Health and social care	4.22 (0.05)	3.70 (0.03)	52.73***	.04
Financial resources	3.20 (0.06)	2.61 (0.04)	52.34***	.04
New information or skills	4.02 (0.05)	3.40 (0.03)	73.37***	.05
Recreation and leisure	3.62 (0.06)	2.96 (0.04)	60.64***	.04
Physical environments	4.14 (0.05)	3.41 (0.03)	112.26***	.08
Transport	4.26 (0.05)	3.65 (0.03)	74.73***	.05
Domain 6 – Spirituality				
Spirituality, religion, personal beliefs	3.57 (0.06)	3.60 (0.04)	0.22	.00
Forgiveness ^c	4.01 (0.08)	3.66 (0.05)	11.38***	.01
Fear of the future ^c	3.96 (0.07)	3.04 (0.05)	89.11***	.06
Death and dying ^c	4.25 (0.08)	3.42 (0.05)	67.14***	.05

^aMultivariate analysis of variance adjusted for age, gender, employment status, education, marital status, mode of HIV transmission, time since HIV diagnosis, HIV stage, CD4+ T-cell count, and cART.

^bA higher score corresponds to a better QoL.

^cItems from the HIV module.

^dPeople living with HIV/AIDS.

**p* < .05.

***p* < .01.

****p* < .001.

options may have contributed to the higher scores in Finland.

Despite these limitations, this study contributes to the gap in the HIV literature, particularly regarding cross-cultural research, being the first carrying out a comparison of QoL of PLWHA across two countries. Given the scarce literature, additional comparison studies across countries are warranted. These will be particularly important, as they may provide valuable information in examining the gap between treatments and services available to PLWHA in different countries and therefore underline their differing unmet healthcare needs.

Table 4. Standardised regression coefficients (β) for HIV-infected patients from Finland and Portugal of overall QoL on WHOQOL-HIV-Bref domains, controlled for background variables.

	Finland			Portugal		
	<i>t</i>	β	ΔR^2	<i>t</i>	β	ΔR^2
Background variables			.15			.14
Age	-1.99	-0.10*		-1.49	-0.05	
Gender	0.74	0.03		-0.58	-0.02	
Education	-0.28	-0.01		3.51	0.12***	
Employment status	5.76	0.28***		4.19	0.14***	
Marital status	3.20	0.15**		0.39	0.01	
Mode of transmission	-0.55	-0.03		-2.72	-0.09**	
Time since HIV diagnosis	0.72	0.04		-1.18	-0.04	
CD4+ T-cell count	-2.41	-0.12*		3.23	0.12**	
HIV stage	-2.06	-0.10*		-4.60	-0.16***	
cART	1.77	0.08		4.00	0.13***	
QoL domains			.48			.34
Physical	4.51	0.25***		4.22	0.16***	
Psychological	4.53	0.25***		6.46	0.26***	
Level of independence	3.26	0.19***		3.47	0.14**	
Social relationships	1.96	0.08		0.72	0.03	
Environment	1.92	0.10		4.19	0.15***	
Spirituality	0.58	0.02		-0.45	-0.01	
Total R^2			.63			.48

Note: Gender [0 = Female; 1 = Male]; Education [0 = ≤ 9 years; 1 = > 9 years]; Employment status [0 = unemployed or not currently working; 1 = employed]; Marital status [0 = living alone; 1 = living with partner]; Mode of HIV transmission [0 = Sexual; 1 = Other]; HIV stage [0 = Asymptomatic; 1 = Symptomatic/AIDS]; cART [0 = No; 1 = Yes].

**p* < .05.

***p* < .01.

****p* < .001.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

- Arnold, R., Ranchor, A. V., Sanderman, R., Kempen, G. I., Ormel, J., & Suurmeijer, T. P. (2004). The relative contribution of domains of quality of life to overall quality of life for different chronic diseases. *Quality of Life Research*, 13, 883–896. doi:10.1023/B:QURE.0000025599.74923.f2
- Canavarro, M. C., & Pereira, M. (2012). Factor structure and psychometric properties of the European Portuguese version of a questionnaire to assess quality of life in HIV-infected adults: The WHOQOL-HIV-Bref. *AIDS Care*, 24, 799–807. doi:10.1080/09540121.2011.630362
- Canavarro, M. C., Pereira, M., Simões, M. R., & Pintassilgo, A. L. (2011). Quality of life assessment in HIV-infection: Validation of the European Portuguese version of WHOQOL-HIV. *AIDS Care*, 23, 187–194. doi:10.1080/09540121.2010.498870
- Canavarro, M. C., Simões, M. R., Vaz Serra, A., Pereira, M., Rijo, D., Quartilho, M. J., ... Carona, C. (2007). WHOQOL-BREF: Instrumento de avaliação da qualidade de vida da Organização Mundial de Saúde. In M. Simões, C. Machado, M. Gonçalves, & L. Almeida (Eds.), *Avaliação psicológica. Instrumentos validados para a população Portuguesa* (Vol. III, pp. 77–100). Coimbra: Quarteto Editora.
- Directorate-General of Health. (2015). *Portugal – Infeção VIH, SIDA e tuberculose em números – 2015* [Portugal – HIV infection, AIDS and tuberculosis in numbers – 2015]. Lisbon: Author. Retrieved from <http://pnvihsida.dgs.pt>
- Drewes, J., Gusy, B., & Ruden, U. (2013). More than 20 years of research into the quality of life of people with HIV and AIDS – a descriptive review of study characteristics and methodological approaches of published empirical studies. *Journal of the International Association of Providers of AIDS Care*, 12, 18–22. doi:10.1177/1545109712456429
- Eurofound. (2013). *Third European quality of life survey – quality of life in Europe: Subjective well-being*. Luxembourg: Publications Office of the European Union. Retrieved from <https://eurofound.europa.eu/publications/report/2013/quality-of-life-social-policies/quality-of-life-in-europe-subjective-well-being>
- European Centre for Disease Prevention and Control/WHO Regional Office for Europe. (2013). *HIV/AIDS surveillance in Europe 2012*. Stockholm: European Centre for Disease Prevention and Control. Retrieved from: <http://www.euro.who.int/en/health-topics/communicable-diseases/hiv/aids/publications/2013/hiv-aids-surveillance-in-europe-2012>
- Helliwell, J. F., Layard, R., & Sachs, J. (Eds.). (2015) *World happiness report 2015*. New York, NY: Sustainable Development Solutions Network.
- Hsiung, P.-C., Fang, C.-T., Wu, C.-H., Sheng, W.-H., Chen, S.-C., Wang, J.-D., & Yao, G. (2011). Validation of the WHOQOL-HIV-BREF among HIV-infected patients in Taiwan. *AIDS Care*, 23, 1035–1042. doi:10.1080/09540121.2010.543881
- National Institute for Health and Welfare. (2015). *HIV Suomessa* [HIV in Finland]. Retrieved from <http://www.thl.fi/ttr/gen/rpt/hivsuo.pdf>
- O'Connell, K. A., & Skevington, S. M. (2012). An international quality of life instrument to assess wellbeing in adults who are HIV-positive: A short form of the WHOQOL-HIV (31 items). *AIDS and Behavior*, 16, 452–460. doi:10.1007/s10461-010-9863-0
- Pereira, M., Martins, A., Alves, S., & Canavarro, M. C. (2014). Assessing quality of life in middle-aged and older adults with HIV: Psychometric testing of the WHOQOL-HIV-Bref. *Quality of Life Research*, 23, 2473–2479. doi:10.1007/s11136-014-0707-7
- Reychler, G., Caty, G., Vincent, A., Billo, S., & Yombi, J.-C. (2013). Validation of the French version of the World Health Organization quality of life HIV instrument. *PLoS ONE*, 8(9), e73180. doi:10.1371/journal.pone.0073180
- Skevington, S. M., & O'Connell, K. A. (2003). Measuring quality of life in HIV and AIDS: A review of the recent literature. *Psychology & Health*, 18, 331–350. doi:10.1080/0887044031000084030
- United Nations Development Programme. (2013). *Human development report 2013*. New York, NY: UNDP. Retrieved from <http://hdr.undp.org/en/2013-report>
- WHOQOL-HIV Group. (2003). Initial steps to developing the World Health Organization's quality of life instrument (WHOQOL) module for international assessment in HIV/AIDS. *AIDS Care*, 15, 347–357. doi:10.1080/0954012031000105405
- Zimpel, R. R., & Fleck, M. P. (2007). Quality of life in HIV-positive Brazilians: Application and validation of the WHOQOL-HIV, Brazilian version. *AIDS Care*, 19, 923–930. doi:10.1080/09540120701213765