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Religiosity and Health-Related Quality of Life in HIV Positive Young Adults Seeking Health Care in Alebtong District, Northern Uganda: A Cross-Sectional Study

Amir Kabunga*, Sarah Nabuwufu, Augustine Bulitya, Binepe Bwambale Lhwanzo, Mariam Nakazibwe, Gloria Aleso and Fazira Namata

Department of Psychiatry, Lira University, Lira City, Uganda

*Corresponding author: Amir Kabunga, Department of Psychiatry, Lira University, Lira City, Uganda, Tel: 25677929576; E-mail: amirkabs2017@gmail.com

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Abstract

This study estimated religiosity and health related quality of life in HIV positive young adults aged 18-36 years seeking care in Alebtong District Northern Uganda. A descriptive, cross-sectional design was used in five health centers in Alebtong district, northern Uganda in April 2021. Positive religiosity is associated with better physical health ($\beta=0.52$, $P=0.01$) and psychological health ($\beta=0.3$, $P=0.02$). Negative religiosity was associated with poor health related quality of life domains of physical health ($\beta=0.43$, $P=0.02$), psychological health ($\beta=0.75$, $P=0.02$), social relationship health ($\beta=0.53$, $P=0.04$) and environmental health ($\beta=-0.66$, $P<0.01$). The findings in this study show that religiosity is significantly associated with HRQOL. This underscores the importance of religiosity in the management of HIV positive patients. Religiosity should be an integral part of the HIV treatment program to the health related quality of life of HIV patients. The findings also suggest that HIV positive patients are likely to benefit from support in the community. Thus, there is a need to strengthen the collaboration between religious organizations in the management of HIV to improve the HRQOL.

Keywords: HIV; Health facilities; Health quality of life; Religiosity; Young adults

Introduction

Global trends in HIV infection show that HIV remains a major global public health concern and has claimed 33 million lives by 2019 [1]. Sub-Saharan Africa has a disproportionate liability of HIV, accounting for 71% of the global burden of infection [2]. Out of an estimated daily 6000 new infections occurring globally, two out of three are in Sub-Saharan Africa with young adults bearing a disproportionate burden [3]. HIV prevalence is nearly three times higher in young adults compared to those aged 15-19 [4]. In Uganda, close to 1.5 million lived with HIV in 2019 [5]. While between 2000 and 2019, new HIV infections declined by 39% and HIV related deaths reduced by 51%, it continues to be a major cause of morbidity affecting the

Health Related Quality of Life (HRQOL) of persons living with HIV [1,6]. To improve the HRQOL, the World Health Organization (WHO) emphasizes that religiosity be an integral part of the treatment and management of HIV [7]. However, although several studies have examined the HRQOL in patients with HIV, only a few have examined the influence of religiosity on HRQOL among HIV positive young adults especially in developing countries [8]. Religiosity is a person's belief, spirituality, and relevance toward a divinity [9]. In this study, religiosity was operationally defined as meaning, peace, and faith [10] among HIV positive young adults. Available literature especially in developed countries indicates that individuals who have higher levels of religiosity tend to report lower CD4 counts, low sex risk behaviors, decreased viral loads, and greater odds of HIV testing [11,13] HIV patients use religiosity as a source of hope and comfort to cope with the disease and the weaknesses it causes [14]. On the contrary, low levels of religiosity can affect the development of the disease, and HRQOL [15]. The study by Szaflarsk and colleagues showed that one-third of the HIV patients in the sample reported that their HRQOL improved due to religiosity among other factors [16]. Suggested that religiosity could be a potentially fruitful target for intervention to improve HRQOL [17]. However, some studies indicate that religiosity could have negative aspects on HRQOL [18]. Some HIV patients appeared to rely more on religiosity than biomedical treatment [18]. But, how widely spread this issue could be among HIV positive patients remains unknown but could impact HRQOL especially in low-income countries. Therefore, there is a need to understand the influence of religiosity on HRQOL among HIV young adults, especially in developing countries.

HRQOL refers to how an individual functions in their life, and their perceived wellbeing in mental, physical, and social aspects of health [19]. According to the World Health Organization (WHO), HRQOL is a collection of different elements concerning an individual and their environment including how they perceive their goal, expectations, and concerns [7]. A new "beyond viral suppression" model to add a "fourth 90" to the UNAIDS 90-90-90 target is to ensure that 90% of people living with HIV with viral load suppression have a good HRQOL [20]. Earlier studies have indicated factors influencing HRQOL including socio-demographics, stigma, CD4 T lymphocytes count, poor ART

adherence, and mental health, and social support, adherence to ART, psychological status, and religiosity [20,24]. However, these factors may vary from one setting to another and from one culture to another [20].

The 2016-2017 Uganda AIDS Indicator Survey reported HIV prevalence in the northern region, Alebtong district inclusive to be at 7.2% which is higher than the national rate of 6.2% [5]. This may be attributed to the two decades of war (1986-2006) in the region involving widespread atrocities including abduction, forced marriages, mass rapes, and displacement [25]. Thus, although the war ended in 2006, it continues to impact the health and wellbeing of the post-war conflict-affected people [26]. Research has been done to assess the HRQOL in HIV patients and other people with chronic diseases concerning psychological health [27,28]. However, research on HRQOL of young adults living with HIV remains limited especially in the rural settings. Besides, a review of Ugandan literature shows that very limited research has been conducted to assess the relationship between religiosity and HRQOL in HIV positive young adults. To address this gap, this study investigated religiosity and HRQOL in HIV positive young adults seeking care in Alebtong district health facilities in northern Uganda.

Methods

Study design and settings

A cross-sectional study was conducted among HIV positive young adults in five health centers in Alebtong district, northern Uganda in April 2021. Alebtong district is located in the Lango sub region in northern Uganda. The district is bordered by Dokolo district to the south, Amuria district to the east, Otuke district to the north, and Lira district to the west. This is approximately 387 kms by road, north of Kampala, the capital city of Uganda. The HIV prevalence remains concentrated in northern, Alebtong inclusive may due to the impact of the two decades of war (1986-2006) in the region involving widespread atrocities including abduction, forced marriages, mass rapes and displacement. Although the war ended in 2006, it continues to impact the health and wellbeing of the post war conflict affected people [26].

Participants

The study population involved young adults aged 18-36 years attending Alebtong health centers. Statistics on HIV/AIDS in Uganda show that close to 1200 HIV positive young adults lived in the Alebtong district in 2019 [5].

The sample size of the participants was calculated using the formula for finite population Reid and Boore [29] where $n = \frac{N \cdot e}{N + e}$ where n = sample size, N = the population size and e = significance level, taking alpha as 0.05. Thus, the sample size was 300. However, more participants above the minimum sample size were included in the study. We used a consecutive sampling technique to select the representative sample. Given the nature and availability of the

respondents, every participant meeting the inclusion criteria was selected until the required sample size was achieved.

Measurements

We used a researchers' generated questionnaire to collect data on socio demographics of the participants including age, gender, d on a five-point Likert scale ranging from 1 (not at all to five (completely) [31].

The instrument has been validated among people living with HIV in Uganda [32]. The 24 facets of WHOQOL-BREF measure four domains of a person's perception with the last two weeks namely: psychological health, physical health, relationship with one's environment, and social relationships [31].

Two items assess the overall quality of life and satisfaction with general health. The domain scores were calculated and transformed using WHOQOL-BREF SPSS syntax file.

The transformed scores on a scale ranging from 0 to 100 with higher scores indicating a better quality of life and vice-versa [33]. In this study, the Cronbach alpha values were 0.88 for physical health, 0.75 for psychological health, 0.83 for environmental health and 0.71 for social relationships.

Procedure

The study participants were young adults of age 18-36 years attending Alebtong health centers. Five research assistants with data collection experience were recruited to collect data and they were under the supervision of the principal investigator.

One-day training was given to data collectors to help them know the purpose of the study and the rights of the respondents either to decline or participate.

Data collection was carried out for 10 days in April 2021. Each participant with HIV attending health centers and meeting the criteria was invited to participate in the study.

Those who agreed to participate were informed about the purpose of the study. The informed consent document was read to the potential participant and signed after agreeing to participate.

Data analysis

Data were summarized by descriptive statistics including frequency, means, standard deviation, ranges, and percentages. The relationships between social-demographics factors and religiosity and HRQOL were assessed.

We also performed ANOVA analysis to establish the relationship between independent groups.

We conducted a multiple linear regression test to assess the correlation of components of religiosity and HRQOL after controlling for social-demographics factors. For all

statistical tests, significant levels of $P \leq .05$ were used. SPSS for windows version 23 was used to perform statistical analyses.

Results

Results in Table 1 show that overall, 363 respondents, 53.7% were female, 74.6% were single, 46.5% had A-Level education,

34.7% were Catholics, 20.9% were Muslims, 29.7% were Protestants, 14.0% belonged to others and young (mean age, 33.3 ± 10.7). 26.9% of the participants reported that religion was attuned to treatment.

Regarding religion and treatment, 26.7% believed it was indispensable.

Table 1: Socio-demographic characteristics of 363 HIV positive young adults.

	Mean/Frequency	Std./Percentages
Age (years)	33.3	10.7
Gender		
Female	195	53.7
Male	168	46.2
Education level		
Primary education	10	2.7
O-Level	92	25.3
A-Level	169	46.5
Post-secondary	92	25.3
Marital status		
Single	271	74.6
Married	72	19.8
Widowed/Separated	20	5.5
Religious affiliation		
Catholics	126	34.7
Muslims	76	20.9
Protestants	108	29.7
Others	52	14.3
Religion and treatment		
Not needed	55	15.1
Somehow needed	59	16.2
Needed	77	21.2
Much needed	74	20.3
Indispensable	98	26.9

A-Level=Advanced secondary level of education,
O-Level=Ordinary secondary level of education

Results in Table 2 show that religiosity was 17.5 ± 6.9 for positive religiosity and 11.4 ± 4.4 for negative religiosity. Respondents reported mean scores of 3.4 ± 1.3 for ORA,

4.1 ± 1.8 for NRA, and 6.6 ± 3.5 for IR. The transformed scores for the WHOL-BREF scale indicate that respondents reported 63.2 ± 15.5 for physical health, 55.1 ± 18.1 for psychological health,

57.9 ± 21.1 for social relationships, 61.5 ± 16.6, and for environmental health. For overall HRQOL the respondents reported a mean score of 3.54 ± 0.9.

Table 2: Religiosity, religious commitment and HRQOL domains.

Variable	Mean	SD
Religiosity		
Positive	17.5	6.8
Negative	11.4	4.4
Religious commitment		
ORA	3.4	1.3
NRA	4.1	1.8
IR	6.6	3.5
HRQOL		
Physical health	64.2	15.5
Psychological health	55.1	18.1
Social relationships health	57.9	21.1
Environment health	61.5	16.6
Overall HRQOL	3.54	0.9

Table 3 shows that on DUREL, the highest mean scores were reported among the Catholics (4.3 ± 1.4) and IR (12.0 ± 2.8). The

Muslims reported the highest positive religiosity (22.4 ± 5.4).

Table 3: Religiosity, religious commitment and HRQOL domains.

Mean (SD)	Religious affiliation			P-Value
	Catholics	Protestants	Islam	
Religious commitment				
ORA	4.3 ± 1.4	3.0 ± 1.1	3.7 ± 1.2	
NRA	3.5 ± 1.8	2.3 ± 1.4	3.6 ± 1.7	<0.01
IR	12.0 ± 2.8	9.5 ± 3.0	11.6 ± 3.2	
Religiosity				
Positive	20.4 ± 5.7	15.6 ± 6.2	22.4 ± 5.4	<0.01
Negative	12.9 ± 5.2	11.2 ± 4.7	14.1 ± 6.1	
HRQOL				
Physical	64.8 ± 15.8	65.0 ± 15.5	60.6 ± 18.6	
Psychological	57.0 ± 18.1	55.2 ± 18.1	56.7 ± 21.7	<0.01
Social relationships	58.5 ± 19.9	59.4 ± 17.3	60.3 ± 23.5	
Environment	63.5 ± 18.0	62.8 ± 13.8	59.2 ± 20.6	

Relationship between religiosity and HRQOL domains

After controlling for social demographic variables, we performed a multiple linear regression model of positive and negative religiosity in HRQOL domains (Table 4). The results indicate that positive religiosity is associated with better physical

health ($\beta=0.52$, $P=0.01$) and psychological health ($\beta=0.63$, $P=0.02$).

Negative religiosity was associated with poor HRQOL domains of physical health ($\beta=-0.43$, $P=0.02$), psychological health ($\beta=-0.75$, $P=0.02$), social relationship health ($\beta=-0.53$, $P=0.04$) and environmental health ($\beta=-0.66$, $P<0.01$).

Table 4: Religiosity and HRQOL of HIV positive young adults (18-36 years).

Variables	Physical health				Psychological health				Social relationship health				Environmental health				
	β	SE	t	P	β	SE	T	P	β	SE	t	P	β	SE	T	P	
Religiosity																	
Positive	0.52	0.21	2.28	0.01	0.63	0.27	2.46	0.02	0.18	0.29	0.61	0.55	0.46	0.23	1.88	0.07	
Negative	-0.43	0.19	-2.24	0.02	-0.75	0.22	-3.29	0.02	-0.53	0.23	-2.2	0.04	-0.66	0.2	-3.12	<0.01	
Religion in treatment																	
Needed	Ref				Ref				Ref				Ref				
Not needed	1.98	2.49	0.8	0.44	7.08	2.92	2.79	0.01	4.65	3.09	1.53	0.14	4.37	2.63	1.65	0.11	
Religious commitment																	
ORA	1.05	0.76	1.34	0.17	2.46	0.93	2.71	0.01	2.65	0.96	2.75	0.01	2.1	0.81	2.54	0.01	
NRA	-0.46	0.63	-0.72	0.47	-1.09	0.74	-1.45	0.16	-1.32	0.79	-1.66	0.11	-0.44	0.67	-0.66	0.44	
IR	-43	0.38	-0.06	0.26	-0.41	0.46	-0.91	0.35	0.84	0.48	1.74	0.07	0.12	0.41	0.33	0.65	
Religious affiliation																	
Catholics	Ref				Ref				Ref				Ref				
Muslims	-2.29	2.66	-0.84	0.38	-2.24	3.13	-0.06	0.92	5.07	3.32	1.52	0.22	-3.02	2.84	-1.07	0.26	
Protestants	3.04	2.44	1.24	0.23	2.1	2.9	1.01	1.29	5.19	3.04	1.72	0.08	3.42	2.61	1.31	0.2	
Others	-0.97	2.69	-0.25	0.79	4.13	4.31	0.94	0.34	10.3	4.6	2.27	0.03	6.88	3.1	1.75	0.07	

Discussion

We estimated religiosity and HRQOL in HIV Positive young adults aged 18-36 years seeking care at health facilities in Alebtong District, Northern Uganda. Results of our study indicate that positive religiosity was related to better physical and psychological health.

Conversely, negative religiosity was related to poor HRQOL domains of physical health, psychological health, social relationship health and environmental health.

The results suggest that religiosity influences the individual's wellbeing. While 15.1% of HIV positive young adults attending Alebtong health centers reported that religiosity in treatment is not needed, it is evident from this study that the majority of HIV positive patients believed that religiosity should be an integral part of HIV management. Additionally, our results suggest that negative religiosity may explain the poor HRQOL experienced by HIV-positive patients.

This finding is important for HIV treatment programs because impaired HRQOL is believed to predict survival [34]. Consistent with this view, Mrus et al. suggested that numerous correlates including religiosity could be potentially fruitful targets for intervention to improve HRQOL [17]. It is therefore important to attend to negative religiosity to increase the odds of improving HRQOL in HIV patients.

A large body of research studies shows that positive religiosity has a positive role in people with HIV including happiness and peace, fostering inner strength, acceptance, finding purpose in life, maintaining hope, and establishing relationships [35,36]. Although the small sample size in a few health centers reduces the generalizability of the results, the finding in our study is comparable to studies [37].

These studies indicate that patients with positive religiosity had higher CD4 cells and lower viral loads compared to patients whose levels of religiosity lessened post diagnosis [37]. Our results mirror prior studies which report a positive relationship between religiosity and HRQOL [38]. Other studies have also found similar results revealing the correlation between religiosity and HRQOL [39,40].

Our findings revealed that higher scores for ORA and IR were reported among the Christian participants. The Muslim participants in the current study reported higher positive and negative religiosity compared to other religious denominations. The findings in this study also indicate that involvement in religious activity was associated with better psychological and environmental domains of HRQOL. Our findings tend to suggest that religious community activities are beneficial to individuals living with HIV/AIDS. Thus, community activities and support from a religious co

mmunity for persons living with HIV are very important. While some faith based organizations do not promote HIV prevention or transmission activities like condom use, experience in some countries shows that where religious leaders have decided not to openly oppose them, there is a significant reduction in HIV infections and management [41].

Our results are in tandem with other studies assessing religiosity and HRQOL among HIV patients in Iran [42,43].

Conclusion

The findings in this study show that religiosity is significantly associated with HRQOL. This underscores the importance of religiosity in the management of HIV positive patients. Religiosity should be an integral part of the HIV treatment program to the HRQOL of HIV patients.

The findings also suggest that HIV positive patients are likely to benefit from support in the community. Thus, there is a need to strengthen the collaboration between religious organizations in the management of HIV to improve the HRQOL.

Limitations

Our study should be interpreted against the backdrop of some limitations. Being a cross-sectional study design, the study provides correlation and not causation.

This study was conducted in health facilities with little chance of including less regular patients in the health centers and may have different features. Additionally, the study is limited geographically because it was conducted in health centers in Alebtong, Northern Uganda.

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References

1. World Health Organisation (2020) HIV/AIDS-Key facts.
2. Harikrishnan S, Jeemon P, Mini GK, Thankappan KR, Sylaja P (2018) GBD 2017 Causes of Death Collaborators. Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980-2017: a systematic analysis for the Global Burden of Disease Study 2017
3. Kimera E, Vindevogel S, Reynaert D, Justice KM, Rubaihayo J, et al. (2020) Experiences and effects of HIV-related stigma among

- youth living with HIV/AIDS in Western Uganda: A photovoice study. *PLoS One* 15:0232359
4. M of U Health (2019) Uganda Population-Based HIV Impact Assessment (UPHIA) 2016-2017
 5. Avert HIV and AIDS in Uganda (2019)
 6. Engelhard EAN, Smit C, Van Dijk PR, Kuijper TM, Wermeling PR, et al. (2018) Health-related quality of life of people with HIV: an assessment of patient related factors and comparison with other chronic diseases. *Aids* 32:103–112
 7. W Group (1995) The World Health Organization Quality of Life Assessment (WHOQOL): position paper from the World Health Organization. *Soc Sci Med* 41:1403–1409
 8. Mutabazi MD, Katamba A, Martin F, Seeley J, Wu AW (2015) Factors that affect quality of life among people living with HIV attending an urban clinic in Uganda: a cohort study. *PLoS one* 10:0126810
 9. Gallagher S, Tierney W (2013) Religiousness/religiosity. *Encycl Behav Med* 1653–1654
 10. Peterman AH, Fitchett G, Brady MJ, Hernandez L, Cella D (2002) Measuring spiritual well-being in people with cancer: the functional assessment of chronic illness therapy—Spiritual Well-being Scale (FACIT-Sp). *Ann Behav Med* 24:49–58
 11. Kagimu M, Kaye S, Yusuf W, Guwatudde D, Rwabukwali C, et al. (2012) The Role of Religiosity in HIV Prevention in Uganda: A Case-Control Study among Muslim and Christian Youth in Wakiso District'
 12. Carrico AW, Storholm ED, Flentje A, Arnold EA, Pollack LM, et al. (2017) Spirituality/religiosity, substance use, and HIV testing among young black men who have sex with men. *Drug Alcohol Depend* 174:106–112
 13. Medved KH (2017) Are religion and spirituality barriers or facilitators to treatment for HIV: a systematic review of the literature. *AIDS Care* 29: 1–13
 14. Ferreira DC, Favoreto CAO, Guimarães MBL (2012) A influência da religiosidade no conviver com o HIV. *Interface-Comunicação Saúde Educ* 16:383–394
 15. Hasanah U, Ibrahim K, Sriati A (2019) Effects of Spiritual Counseling on Spiritual Health Quality of Life in Patients with HIV/AIDS. *Nurse Media J Nurs* 9:13
 16. Szaflarski M, Ritchey PN, Leonard AC, Mrus JM, Peterman AH, et al. (2006) Modeling the effects of spirituality/religion on patients' perceptions of living with HIV/AIDS. *J Gen Intern Med* 21:28-38
 17. Mrus JM, Leonard AC, Yi MS, Sherman SN, Fultz SL, et al. (2006) Health-related quality of life in veterans and nonveterans with HIV/AIDS. *J Gen Intern Med* vol. 21:39–47
 18. Folkman S (2008) The case for positive emotions in the stress process. *Anxiety Stress Coping* 21:3-14
 19. Hays RD, Reeve BB, Kellewo J, Hegggenhougen HK, Quah SR (2010) *Epidemiology and demography in public health'* San Diego: Academic Press
 20. Ahmed A, Saqlain M, Bashir N, Dujaili J, Hashmi F, et al. (2021) Health-related quality of life and its predictors among adults living with HIV/AIDS and receiving antiretroviral therapy in Pakistan'. *Qual Life Res* 1-12
 21. Ghiasvand H, Wayne KM, Noroozi M, Harouni GG, Armoon B (2019) Clinical determinants associated with quality of life for people who live with HIV/AIDS: a meta-analysis. *BMC Health Serv Res* 19:1-11
 22. Nobre N, Pereira M, Roine RP, Sintonen H, Sutinen J (2017) Factors associated with the quality of life of people living with HIV in Finland. *AIDS Care* 29:1074-1078
 23. Anuradha S, Makkar AM, Nandi PK, Rajeshwari K (2020) Quality of life and its determinants among people living with HIV attending an antiretroviral treatment center in Delhi, India. *Indian J Public Health* 64:148
 24. Jaquet A, Garanet F, Balestre E, Ekouevi DK, Azani JC, et al. (2013) Antiretroviral treatment and quality of life in Africans living with HIV: 12-month follow-up in Burkina Faso. *J Int AIDS Soc* 16:18867
 25. Kabunga A, Apio B, Anyolitho MK (2019) Emotional Intelligence as Predictor of Compassion Fatigue among Mental Health Practitioners
 26. Katamba A, Garanet F, Balestre E, Ekouevi DK, Azani JC, et al. (2020) Congo Lyc (healing the elephant): HIV incidence in post-conflict Northern Uganda. *Eclinical Medicine* 23:100408
 27. Amoako AKN (2012) Adolescent religiosity and attitudes to HIV and AIDS in Ghana. *S AHARA-J J Soc Asp HIV/AIDS* 9:227–241
 28. Cooper LA, Beach MC, Johnson RL, Inui TS (2006) Delving below the surface. *J Gen Intern Med* 21:21-27
 29. Reid NG, Boore JRP (1991) *Research methods and statistics in health care.* Edward Arnold
 30. Young K, Clark M (2013) *Critical Synthesis Package: Duke University Religion Index (DUREL).* MedEdPORTAL: 9
 31. Meemon N, Paek SC, Yenchai D, Wan TTH (2016) Application of the WHOQOL-HIV-BREF questionnaire in HIV infected Thai patients: reliability and validity of the instrument. *J Assoc Nurses AIDS Care* 27:698–708
 32. Ndikuno C, Namutebi M, Kuteesa J, Mukunya D, Olwit C (2016) Quality of life of caregivers of patients diagnosed with severe mental illness at the national referral hospitals in Uganda. *BMC Psychiatry* 16:1-9
 33. WH Organization (1996) *WHOQOL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version, December 1996*
 34. Boer-van der Kolk IM de, Sprangers mag, Prins JM, Smit C, FWolf F, et al. (2010) Health-related quality of life and survival among HIV-infected patients receiving highly active antiretroviral therapy: a study of patients in the AIDS Therapy Evaluation in the Netherlands (ATHENA) Cohort. *Clin Infect Dis* 50:255–263
 35. Soydemir GA, Bastida E, Gonalz G (2004) The impact of religiosity on self-assessments of health and happiness: Evidence from the US Southwest. *Appl Econ* 36:665–672
 36. Greene KV, Yoon BJ (2014) Religiosity, economics and life satisfaction. *Rev Soc Econ* 62:245-261
 37. Glronson G, Kremer H, Lucette A (2016) Relationship between spiritual coping and survival in patients with HIV. *J Gen Intern Med* 31:1068–1076
 38. Desyani NLJ, Waluyo A, Yona S (2019) The relationship between stigma, religiosity, and the quality of life of HIV-positive MSM in Medan, Indonesia. *Enferm Clin* 29:510–514
 39. Abdala GA, Kimura M, Koenig HG, Reinert KG, Horton K (2015) Religiosity and quality of life in older adults: literature review. *Life Style* 2:25–51

40. Bonelli RM, Koenig HG Mental disorders, religion and spirituality 1990 to 2010: a systematic evidence-based review. *J Relig Health* 52:657–673
41. United Nations Population Fund (2007) *Engaging Organizations in HIV Prevention*. 48
42. Khademi N, Zanganeh A, Saeidi S, Teimouri R, Khezeli M, et al. (2021) Quality of life of HIV-infected individuals: insights from a study of patients in Kermanshah, Iran. *BMC Infect Dis* 21:1–12
43. Nikoo SZ, Rimaz S, Nedjat S, Motevallian SA, Saeepour N (2014) The relationship between quality of life and social capital amongst people living with HIV/AIDS attending the imam Khomeini hospital consultation center for clients with risky behaviors in Tehran–2011. *J Sch Public Heal Inst Public Heal Res* 11:17–28