



Health related quality of life and antiretroviral treatment in patients over a period of 20 months in KwaZulu-Natal, South Africa

Karl Peltzer, HIV/AIDS/SIT & TB (HAST Research programmes)

Social science that makes a difference



Background

- African and Asian cohort studies have demonstrated the clinical efficacy of antiretroviral treatment (ART) in resource-limited settings. However, studies on the longer-term changes in Health Related Quality of Life (HRQoL) of patients on ART in these settings are still scarce

- Existing evidence suggests that factors influencing HRQoL can be grouped into three categories: clinical, psychosocial and socio-demographic (Stangl et al., 2007)
- The study had two objectives, 1) to explore if treatment-naïve patients initiating ART in a resource poor setting in South Africa experienced improvements in self-reported HRQoL during the first 20 months of therapy and 2) to identify socio-demographic, clinical and social factors associated with HRQoL in the study population

Sampling & procedure

- This is a prospective study of all treatment-naïve patients (N = 735) recruited from the three public hospitals
- Patients were then interviewed again at the 6, 12 and 20 months clinic visits post initiation of ARV

Measures

- socio-demographic characteristics, clinical history and health-related characteristics and health beliefs.
Clinical data relating to date of HIV diagnosis, HIV acquisition and transmission risk factors, current CD4 cell count
- *The Revised Sign and Symptom Checklist for Persons with HIV Disease*
- *Health-Related Quality of Life (HRQoL)*
- *Depression, Social support, Internalized AIDS stigma*
- *Adherence assessment.*
- The 30-day visual analogue scale (VAS)

Data analysis

- Analysis of variance (ANOVA) repeated measure was used to measure difference in HRQoL variables within the whole group of patients over time, with correction of Bonferroni post hoc test. To identify the pattern of factors characterizing high levels of HRQoL (all items together) at any assessment, linear regression models based on Generalized Estimating Equations (GEE) were used

Sample & attrition

Variable	Baseline (Time 1)		Stayed (Time 4)		χ^2 or t test	P
	N=735 or M	% or SD	N=499	% or SD		
Sex						
Male	217	29.5	137	63.1	3.20	0.07
Female	518	70.5	362	69.9		
Age, range 18-67	35.9	(9.7)	36.1	(9.5)	-0.82	0.42
Education						
Grade 7 or less	279	38.1	199	71.3	4.39	0.04
Grade 8-11	314	42.9	214	68.2	0.02	0.90
Grade 12 or more	139	19.0	84	60.4	4.39	0.04
Religion^a						
Traditional African religion or none	187	25.4	121	64.7	1.17	0.28
Main stream Christian	154	21.0	99	64.3	1.16	0.28
Charismatic	271	36.9	194	71.6	2.69	0.10
Residence						
Rural (village)	338	46.2	215	63.6	5.19	0.02
Rural (farm)	125	17.1	95	76.0	4.59	0.03
Urban (informal settlements)	41	5.6	32	78.0	2.07	0.15
Urban (formal settlements)	227	31.1	154	67.8	0.00	1.00
Employment status						
Housewife/houseman	99	13.5	74	74.7	2.37	0.12
Unemployed	448	61.2	290	64.7	5.78	0.02
Employed	148	20.2	110	74.3	3.38	0.07
Pensioner/disabled/student	24	3.4	14	56.0	1.72	0.19
Household income^b						
Formal salary	215	29.9	157	73.0	2.94	0.09
Family member contributions	133	18.5	89	66.9	0.18	0.67
Social grants	264	36.7	182	68.9	0.04	0.84
No income	57	7.9	38	63.2	0.81	0.37
Time since HIV diagnosis						
≤1 year (2007/8)	540	73.5	367	68.0	0.01	0.95
1-2 years (2006)	73	9.9	55	75.3	2.06	0.15
>2 years (2005-1995)	122	16.6	77	63.1	1.53	0.22
CD4 count (cells/μL)						
1-99	106	19.7	91	85.8	0.20	0.66
100-349	345	64.2	300	87.0	0.03	0.86
≥350	86	16.0	77	89.5	0.52	0.47
Number of HIV symptoms	7.2	9.5	6.8	9.3	2.64	0.008
Depression symptoms (range 0-40)	15.9	4.7	15.7	7.7	2.23	0.26
General quality of life (range 1-5)	3.6	0.9	3.6	0.9	0.32	0.75
Internalized stigma (range 0-6)	3.8	2.4	4.2	2.7	-0.99	0.32

Table 2 The WHOQOL-HIV BREF descriptive statistics (mean values \pm SD) (N=499)

	T1: Pre ART	T2: 6 months on ART	T3=12 months on ART	T4=20 months on ART	F	P
HIV related quality of life	M (SD)	M (SD)	M (SD)	M (SD)		
General quality of life ^a (range 1-5)	3.6 (0.9)	4.3 (0.7)	4.5 (0.6)	4.4 (0.8)	182.71	0.000
General health ^a (range 1-5)	3.7 (0.9)	4.4 (0.7)	4.6 (0.6)	4.5 (0.8)	154.12	0.000
Quality of Life total scale (range 4-20)	13.5 (2.1)	14.6 (2.0)	14.5 (1.7)	13.9 (1.9)	14.53	0.000
Physical domain^b	14.5 (2.8)	15.6 (2.7)	15.3 (2.4)	14.5 (2.3)	3.81	0.052
Psychological domain^b	13.4 (3.1)	14.6 (3.2)	14.2 (3.1)	13.5 (2.9)	0.242	0.623
Independence domain^b	13.2 (2.6)	14.5 (1.9)	14.9 (1.5)	14.5 (2.1)	90.20	0.000
Social relationships domain^b	12.2 (2.9)	13.4 (2.6)	13.8 (2.3)	14.0 (2.5)	101.32	0.000
Environment domain^b	12.7 (2.9)	13.9 (2.6)	14.0 (2.2)	13.2 (2.7)	5.96	0.015
Spirituality/religion/personal beliefs domain^b	14.7 (2.0)	15.3 (2.9)	14.8 (2.7)	14.3 (2.6)	2.87	0.091
Number of HIV symptoms	7.2 (9.5)	1.2 (2.6)	0.2 (1.1)	0.2 (0.9)	221.70	0.000
CD4 count (cells/μL)	110.3 (69.7)	147.9 (122.7)	219.9 (154.8)	462.7 (212.6)	1006.99	0.000
Adherence to ART (\geq95%)		83.1%	89.6%	91.6%	T 2 v. 3/4	0.001
Depression symptoms (range 10-40)	15.9 (4.7)	15.7 (3.6)	16.5 (3.9)	13.5 (3.6)	23.22	0.000
Social support (range 3-12)	Not assessed	6.7 (2.4)	6.8 (2.4)	7.3 (1.1)	55.70	0.000
Internalized stigma score (range 0-6)	3.8 (2.4)	2.4 (1.5)	2.4 (1.4)	3.7 (1.8)	10.73	0.001

^aMean scores range from 1 to 5, with 5 indicating the highest, most positive perceptions of quality of life or general health perceptions

^bOverall domain scores range from 4 to 20, with 20 indicating the highest, most positive perceptions

Table 3: Factors associated with health related quality of life during the first 20 months following initiation of ART; simple and multiple linear regression based on generalized estimating equations

Variables	B coefficient (95% CI)	P	Adjusted B coefficient (95% CI) ^a	P
Socio-demographics				
Males (vs. females)	-0.04 (-0.32-0.24)	0.781	---	
Age	0.009 (-0.005-0.02)	0.218	---	
<i>Education</i>				
Grade 7 or less	1.00			
Grade 8-11	-0.23 (-0.50-0.05)	0.105	---	
Grade 12 or more	0.33 (-0.05 -0.71)	0.092	---	
Not employed (vs. employed)	-0.41 (-0.67- -0.16)	0.001	-1.37 (-1.71- -1.02)	0.000
Formal salary (vs. other)	0.78 (0.51-1.06)	0.000	1.43 (1.12-1.73)	0.000
Urban (vs. rural)	0.28 (0.02-0.54)	0.035	0.13 (-0.10-0.36)	0.275
Clinical factors				
<i>Time since HIV diagnosis</i>				
≤1 year (2007/8)	1.00			
1-2 years (2006)	0.17 (-0.34-0.67)	0.519	---	
>2 years (2005-1995)	-0.08 (-0.41-0.25)	0.628	---	
CD4 count (cells/μL)	0.001 (0.000-0.001)	0.001	0.001 (0.000-0.001)	0.000
HIV symptoms	-0.02 (0.002-0.29)	0.028	-0.03 (0.02-0.05)	0.000
Psychosocial factors				
Depression symptoms	-0.07 (-0.09- -0.05)	0.000	-0.06 (-0.8- -0.5)	0.000
Internalized stigma	-0.08 (-0.12-0.05)	0.000	-0.6 (-0.10- -0.02)	0.001

All variables with $P < 0.05$ in the baseline HRQOL adjusted model were eligible for the multivariate model; ^aGoodness of Fit QIC value=7046.46

Discussion 1

- The study found at 20 months follow-up that health related quality of life increased in most areas (general quality of life, general health, independence, social relationships, environment) over time
- the bulk of the improved in HRQoL was found within the first 6 months on ART
- the HRQoL domains of physical, psychological and spiritual/religion/personal beliefs did not change or were sustained over time

Discussion 2

- The total HRQoL, the physical and psychological HRQoL domains and internalized stigma first improved (6 and 12 months) and then at 20 months deteriorated to (almost) baseline levels in spite of the most profound immunologic restoration occurring during the final phase. The significant improvements in HRQoL and psychosocial variables that continued up to month 12 were not maintained or reduced at longer follow-up (20 months).

Discussion 3

- the initial gains may have been seen in an euphoric light and reduced longer term. In addition, most of the sample was not formally employed relying on social grants. In fact clinical improvement meant for many that the disability grant was stopped over time couple with continued medication dependence and regularly occurring transport expenses for clinic visits may have contributed to the longer term drop in HRQoL. The sustained independence and social relationships were attributed to particularly increases in activities of daily living and working capacity, and improvement in social relationships, better sexual life and better social inclusion

Discussion 4

- As found in some other studies, the study found that HIV symptoms (Préau et al., 2004), depression scores on a rating scale (Beard et al., 2009; Judd et al., 2000 Jelsma et al., 2005; Stangl et al., 2007) as well as internalized stigma reduced over time, while CD4cell counts (Langius-Eklöf et al., 2009; Burgeone, Rourke, Behrens, & Salit, 2004; Bhargava & Booysen, 2010), adherence to ART (Maqutu, Zewotir, North, Naidoo, & Grobler, 2010) and social support increased over 20 months

Conclusion

- The results of this study show significant HRQoL over a 20 months period in the context of ART, as measured with the WHOQOL-HIV BREF. This finding is consistent with most other ART longitudinal studies. Ongoing CD4 reconstitution and reduction of HIV symptoms appeared to contribute to quality of life increase. Significant independent predictors of HRQoL were low internalized stigma, being employed and having a formal salary. Interventions are needed to address and reduce stigmatization and to enhance economic and employment opportunities of patients on ART in South Africa to maximise gains in HRQoL.

Thank you



Social science that makes a difference

