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No differences in quality of life between men and women undergoing HIV Antiretroviral Treatment. Impact of demographic, clinical and psychosocial factors

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Table 1. Characteristics of the Sample Group Studied and Gender Differences (n=560).

		Women N (%)	Men N (%)	p
Having children	No	45 (30.2%)	250 (60.8%)	<0.01
	Yes	104 (69.8%)	161 (39.2%)	
Marital status	Single	50 (33.8%)	245 (59.9%)	<0.01
	Married, divorced or widowed	98 (66.2%)	164 (40.1%)	
Unemployed over last month	Yes	100 (67.1%)	275 (67.4%)	0.95
	No	49 (32.9%)	133 (32.6%)	
AIDS stage	No	95 (65.1%)	227 (56.3%)	0.06
	Yes	51 (34.9%)	176 (43.7%)	
Viral load	Undetectable	97 (65.1%)	277 (68.4%)	0.46
	Detectable	52 (34.9%)	128 (31.6%)	
Psychic morbidity	No	104 (71.7%)	267 (65.8%)	0.18
	Yes	41 (28.3%)	139 (34.2%)	
Social support	Low	26 (18.1%)	70 (17.5%)	0.88
	High	118 (81.9%)	330 (82.5%)	
Coinfection with hepatitis C virus	No	99 (67.8%)	220 (53.7%)	<0.01
	Yes	47 (32.2%)	190 (46.3%)	
Methadone replacement treatment	No	139 (94.6%)	326 (79.7%)	<0.01
	Yes	8 (5.4%)	83 (20.3%)	
Intravenous drugs users	No	275 (67.4%)	194 (47.3%)	<0.01
	Yes	133 (32.6%)	216 (52.7%)	
Adherence	Yes	128 (85.9%)	347 (84.8%)	0.75
	No	21 (14.1%)	62 (15.2%)	
Confrontation (difficulty taken medicines)	No	131 (89.1%)	370 (90%)	0.75
	Yes	16 (10.9%)	41 (10%)	
Combination of antiretroviral drugs				0.19
	-3 NRTI*	8 (5.4%)	47 (11.5%)	
	-2 NRTI * + 1 or 2 PI†	50 (33.6%)	142 (34.6%)	
	-2 NRTI * + 1 NNRTI‡	74 (49.7%)	174 (42.4%)	
	-Other HAART§	10 (6.7%)	33 (8.0%)	
	-No HAART§	7 (4.7%)	14 (3.4%)	
Combination includes a protease inhibitor	Yes	89 (59.7%)	244 (59.4%)	0.94
	No	60 (40.3%)	167 (40.6%)	
		Women's Average	Men's Average	p
Age (years)		38	41	<0.01
CD4 lymphocyte count (cell/mm ³)		544.5	448.6	<0.01
Period of time as HIV carrier		52.09	48.09	0.11
Number of antiretroviral tablets taken per day (dosage)		6.93	7.18	0.47

*Nucleoside reverse transcriptase inhibitors, †Protease inhibitors, ‡ Non-nucleoside reverse transcriptase inhibitors, §HAART highly active antiretroviral therapy

Table 2. Average Quality of Life Scores (n=560).

	Women's Average	Men's Average	β raw	β adjusted*
Mental quality of life (MHS)	52.07	49.28	-2.071 [†]	-1.303
Physical quality of life (PHS)	51.61	49.54	-2.787 [†]	0.359
General perception of health	50.97	45.89	-5.081 [†]	-0.138
Pain	74.25	74.24	-0.014	2.653
Physical function	81.59	77.85	-3.739	1.520
Role function	83.45	75.68	-7.769 [†]	-0.602
Social function	85.66	84.52	-1.139	3.169
Mental health	64.25	62.72	-1.531	0.971
Energy / fatigue	65.66	58.99	-6.675 [†]	-3.788
Concern for own health	78.09	73.35	-4.739 [†]	-2.387
Cognitive function	82.79	75.59	-7.201 [†]	-3.460
Quality of life	62.67	56.85	-5.822 [†]	-2.878
Transitory health	59.72	58.15	-1.574	-0.145

[†] p<0.05

*Adjusted for the following variables: AIDS stage, coinfection with hepatitis C virus, CD4 lymphocyte count, marital status, having children, age, intravenous drug users, and methadone replacement therapy. (p>0.05).

Table 3. Relationship Between Variables and Quality of Life, and Gender Differences.

		Physical quality of life (PHS)				Mental quality of life (MHS)			
		Women	p	Men	p	Women	p	Men	p
Having children	No	52.92		49.99		51.91		49.40	
	Yes	51.08	0.302	48.82	0.306	52.14	0.888	49.09	0.754
Marital status	Single	52.52		50.03		52.63		49.22	
	Married, divorced or widowed	51.15	0.423	48.82	0.287	51.78	0.596	49.32	0.920
Unemployed over last month	Yes	52.71		50.07		52.73		50.17	
	No	49.49	0.122	48.72	0.248	50.80	0.223	47.74	0.043
AIDS stage	No	52.52		51.54		52.46		50.64	
	Yes	49.89	0.424	47.06	<0.001	51.16	0.941	47.49	0.001
Viral load	Undetectable	52.28		49.89		52.25		49.52	
	Detectable	49.42	0.661	48.14	0.391	51.49	0.669	48.06	0.256
Psychic morbidity	No	54.67		53.25		55.59		53.65	
	Yes	43.61	<0.001	42.40	<0.001	42.87	<0.001	40.86	<0.001
Social support	Low	44.24		41.26		43.92		40.21	
	High	53.22	0.001	51.34	<0.001	53.83	<0.001	51.18	<0.001
Coinfection with hepatitis C virus	No	52.22		51.13		52.52		50.19	
	Yes	50.27	0.261	47.61	0.001	50.99	0.338	48.21	0.041
Methadone replacement treatment	No	52.09		50.15		52.50		49.96	
	Yes	43.69	0.016	47.16	0.030	45.00	0.020	46.58	0.005
Intravenous drugs users	No	52.84		52.23		52.96		50.99	
	Yes	48.92	0.024	47.08	<0.001	50.12	0.001	47.71	0.001
Adherence	Yes	51.90		50.37		52.14		49.78	
	No	49.88	0.384	44.94	<0.001	51.63	0.812	46.36	0.011
Confrontation (difficulty taken medicines)	No	52.33		50.34		52.81		50.19	
	Yes	46.04	0.059	42.11	<0.001	46.31	0.006	40.84	<0.001
Combination of antiretroviral drugs	-3 NRTI*	48.77		50.50		52.05		48.78	
	-2 NRTI* + 1 or 2 PI [†]	51.15		47.83		52.15		48.52	
	-2 NRTI* + 1 NNRTI [‡]	53.59		50.69		52.38		50.14	
	-Other HAART [§]	45.35		49.92		50.80		49.05	
	-No HAART [§]	47.09	0.047	48.61	0.228	50.31	0.968	48.67	0.659
Combination includes a protease inhibitor	No	52.47		50.61		52.13		49.76	
	Yes	50.38	0.205	48.00	0.020	51.98	0.922	48.59	0.234
		β	p	β	p	β	p	β	p
Age		-0.282	0.007	-0.082	0.202	-0.003	0.974	0.008	0.882
CD4 lymphocyte count (cell/mm ³)		0.003	0.287	0.007	<0.001	-0.001	0.802	0.004	0.009
Period of time as HIV carrier		-0.067	0.011	0.011	0.530	-0.019	0.426	0.021	0.171
Number of antiretroviral tablets taken per day (dosage)		-0.430	0.096	-0.386	0.007	0.002	0.994	-0.183	0.144

*Nucleoside reverse transcriptase inhibitors, [†]Protease inhibitors, [‡] Non-nucleoside reverse transcriptase inhibitors, [§]HAART highly active antiretroviral therapy; ^{||}Mann-Whitney U-test

Table 4. Factors Linked to the Mental and Physical Components (MHS and PHS) of Quality of Life.

Women		MHS R ² 49.4%		PHS R ² 39.5%	
		β	p	β	p
Constant		53.225	0.001	63.548	<0.001
Psychic Morbidity	No				
	Yes	-10.622	<0.001	-9.693	<0.001
Social Support	Low				
	High	5.532	<0.001	4.462	0.013
Period of time as HIV carrier		-0.034	0.002	-0.036	0.006
Age (years)				-0.259	0.003
Men		MHS R ² 47.7%		PHS R ² 33.8%	
		β	p	β	p
Constant		49.697	<0.001	59.099	<0.001
Psychic Morbidity	No				
	Yes	-10.479	<0.001	-8.020	<0.001
Social Support	Low				
	High	5.374	<0.001	5.203	<0.001
Confrontation (difficulty taken medicines)	No				
	Yes	-5.410	<0.001	-4.381	0.005
Intravenous drugs users	No				
	Yes	-1.501	0.039	-4.059	<0.001
AIDS stage	No				
	Yes			-2.318	0.016
number of antiretroviral tablets taken per day (dosage)				-0.283	0.018

ABSTRACT

Introduction: The HRQL is therefore a highly important tool for the evaluation of the health status of HIV positive patients. However, very little information is available about the differences between HRQL in men and women. The aim of this study is to analyse gender differences in HRQL in HIV positive patients.

Methodology: A sample group of 540 patients infected with HIV and undergoing antiretroviral treatment was studied. All of these patients attended outpatient appointments in the infectious disease units of four hospitals in the southern Spanish region of Andalusia. HRQL was measured using the MOS-HIV health survey, which had been validated for use in this setting.

Results: 149 women (26.6%) and 411 men (73.4%) took part in the study. On the whole, the women were younger, more likely to be married and had more children. The men, on the other hand, were more likely to present with coinfection with hepatitis C, have a history of intravenous drug use, be undergoing methadone treatment or have lower levels of CD4. Both the overall average scores and the scores for specific dimensions were higher in women than in men. When these scores were adjusted using different clinical variables, these differences were not statistically significant. Amongst the women, psychic morbidity, longer periods of time as HIV carriers and low levels of social support were linked to lower MHS and PHS scores. An independent link was established between older age and a lower PHS score. Amongst the men, psychic morbidity, difficulty taking tablets, intravenous drug use and low levels of social support were linked to lower PHS and MHS scores. AIDS and a higher number of antiretroviral medicines were linked to a lower PHS score.

Conclusions: By carrying out an analysis according to gender it is possible to see different factors associated with a poorer quality of physical and mental health. This makes it possible to identify areas which could be developed and to optimise results in terms of patients' health.

Keywords: HIV, quality of life, gender, high activity antiretroviral therapy

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INTRODUCTION

Over the last few years, it has become apparent that a system which gives a global evaluation of a person's state of health is required. This measurement must include both objective and subjective aspects of relevance for the patients, and must also be sensitive to the impact of any treatment that the patient is undergoing (Schumaker & Naughton, 1995). The most frequently used index for chronic illnesses is probably the health-related quality of life (HRQL) index.

In terms of HIV infection, the emergence of highly active antiretroviral therapy (HAART) has meant that the illness is now considered chronic rather than terminal. The HRQL is therefore a highly important tool for the evaluation of the health status of HIV positive patients.

HIV infection amongst women has important connotations which set these patients apart from their male counterparts (Farmer & Connors, 1996). These include factors affecting fertility (Kurt, 1993), as well as gynaecological problems (Deneberg, 1993) and sexual or domestic violence (Young, 1993). In turn, these factors can lead to further repercussions which affect how these patients live with the illness and, consequently, their quality of life.

Women have been the subject of very few studies relating to HRQL and HIV, perhaps because they are the minority group amongst HIV positive patients (Mrus, Williams, Tsevat, Cohn & Wu, 2005; Cederfjäll, Langius-Eklof, Lidman & Wredling, 2001; Holzemer, Gyax, Skodol, Kempainen & Coleman, 1998; McDonnell, Gielen, Wu, O'Campo & Faden, 2000; Regan, 2002). However, ONUSIDA (2007) estimated 15.4 million women were living with HIV, 1.6 million more than the 13.8 million who were recorded to be infected with the disease in 2001.

Studies of possible differences between men and women in the course of HIV infection give conflicting results. After initiation of HAART, most authors do not report any viroimmunological difference, although a few clinical studies showed a significantly better virological response in women compared with men. Nevertheless, discordant opinions with regard to clinical benefits during HAART exist, but recent clinical and observational trials suggest a better clinical outcome for women (Moore et al., 2003; Nicastrì et al., 2007; Collazos, Asensi & Cartón, 2007). Gender refers to the widely shared expectations and norms within a

society about appropriate male and female behavior, characteristics, and roles. It is a social and cultural construct that differentiates women from men and defines the ways in which women and men interact with each other (Gupta, 2000). In addition, it has been noted that gender has an influence on how a person uses the healthcare services available, and there are differences in the diagnostic and therapeutic efforts made because women do not have the same access to antiretroviral medication as men (Smith & Kirking, 1999; Penniman et al., 2007).

These differences in HIV infection as a result of gender can also be seen in the HRQL, as the index is a construct which, despite the lack of consensus regarding its definition, includes, in addition to a person's health status, other aspects such as the carrying out of normal roles, the quality of social interactions and life satisfaction (Nussbaum & Sen, 1993).

The literature states that women generally have a lower HRQL score than men. In the context of HIV infection, few studies have been published which analyse gender-related differences in quality of life by comparing men and women (McDonnell, 2000; Cederfjäll, 2001; Mrus, 2005). In the majority of these studies, women have lower levels of quality of life than men. However, some of these studies have methodological limitations which lead us to question their results (very low numbers of women studied, or use of measuring instruments which are not usually used) (Cederfjäll, 2001). In all of these cases, the gender variable is seen as a dichotomic variable and an analysis disaggregated by gender is not carried out (Hays et al., 2000; Worthington & Krentz, 2005). Finally, some other studies only include women without using a group of men which can be used to make comparisons (McDonnell, 2000).

The aim of this study is to examine gender differences in health-related quality of life in HIV positive men and women undergoing antiretroviral treatment in four hospitals throughout Andalusia, as well as the factors related to this quality of life.

MATERIAL AND METHODS

A cross-sectional study of HIV positive patients undergoing antiretroviral treatment was carried out using a sample group of patients in antiretroviral treatment who, during 2004, attended infectious disease units in four government hospitals throughout the Autonomous Region of Andalusia: Virgen de las Nieves Hospital (Granada), Virgen Macarena Hospital (Seville), Costa del Sol Hospital (Marbella) and Malaga's General Hospital.

For an estimated prevalence of 50% in the non-exposed group, with a confidence level of 95% and an estimated error of 4.3%, a minimum of 519 subjects was required. It was therefore proposed that 140 patients would be recruited per hospital to give a sample group of a total of 560 patients. Patients under 18 years of age and those whose physical or mental state made it impossible for them to take part in interviews or surveys were excluded from the study.

Quality of life was considered to be a dependent variable. The following independent variables were also taken into account: 1. Sociodemographic variables: sex, age, intravenous drug use, methadone replacement treatment, marital status, having children and unemployment over the last month. 2. Variables related to the antiretroviral treatment: period of time undergoing antiretroviral treatment, combination of antiretroviral drugs, if the combination of drugs includes a protease inhibitor, difficulty taken medicines (confrontation), number of antiretroviral tablets taken per day (dosage) and adherence [percentage over the last week: number of tablets taken/number of tablets prescribed expressed as a percentage (subjects with losses greater than 10% are considered to be non-adherers)]. 3. Psychosocial variables: social support and psychic morbidity. 4. Clinical variables: coinfection with hepatitis C virus, CD4 lymphocyte count (cell/mm³), viral load (no. copies of RNA/ml, AIDS stage (using the definitions for HIV infection stages provided by the CDC and adapted for Europe).

Measurement tools: 1. Health-related quality of life: the Spanish version of the MOS-HIV health survey, which had been validated for use in this setting, was used. This survey has proved to be reliable and valid enough to be used in clinical research (Badia, Podzamczar & López-Lavid, 1999). This questionnaire was developed from the Medical Outcomes Study (MOS), and contains 35 items grouped into 11 health dimensions, allowing for two global summaries to be obtained: physical health (PHS) and mental health (MHS) (Revicki, Sorensen & Wu, 1998). The scores obtained range from 0 to 100, and a higher score indicates a better quality of life. 2. Duke-UNC-11 Social Support Questionnaire (Broadhead, Gehlbach, De Gruy & Kaplan, 1998): which has been validated and adapted for the setting being studied here (Bellón, Delgado, de Dios & Lardelli, 1996). It is made up of 11 items and uses the Likert scale so that participants can select one of 5 possible answers rated between 1 ("much less than I would like") to 5 ("as much as I would like") (α -Cronbach 0.80). 3. Psychic morbidity: Goldberg's questionnaire (Goldberg, 1972), which has been adapted and validated for the

setting in question. The questionnaire is made up of 28 items, with a cutting score of 6/7 (sensitivity 76.9%, specificity 90.2%), which refer to subjective symptoms of psychological distress, physical symptoms associated with anxiety and depression, difficulties forming relationships and fulfilling social, family and professional roles. (Lobo A, Pérez-Echeverría MJ & Artal J, 1986).

Procedure: In each hospital consecutively, contact was made with all the patients that attended an appointment once the study had begun. They were each spoken to privately to explain the aims of the study. Those who agreed to take part in the study signed an informed consent form. To gather the information, a questionnaire was administered by health staff members. The complementary information (clinical or antiretroviral treatment prescribed) required was taken from the patients' clinical histories. With regard to the analytical tests, flow cytometry techniques were used to measure CD4 lymphocytes count and NASBA or PCR techniques were used, depending on the hospital, to measure viral load.

Statistical analysis: Firstly, the sample profile and quality of life were described using frequencies, percentages and averages. The average scores for the global indices and the eleven dimensions for men and women were compared using linear regression analysis. A level of statistical significance of $p < 0.05$ was established. Then an analysis was carried out at the bivariate level to ascertain whether or not there were differences between quality of life relating to the independent variables. The Student's t-test and ANOVA table were used to examine the qualitative variables with variance homogeneity and normal behaviour, and the other variables were analysed using the Mann-Whitney U-test. The continuous independent variables were examined using linear regression analysis. Finally, four linear regression models were built, using the successive steps procedure, independently for men and women. Included in the model were all the variables that were found to be significant in the bivariate analysis and all those considered to be of interest for the study. The variables were found to be normal and non-collinear with variance homogeneity, and the model was homoscedastic. All analyses were carried out using the programme SPSS v11.5.

RESULTS

149 women (26.6%) and 411 men (73.4%) took part in this study. In terms of socio-demographic and clinical variables, the women were more likely to have children (69.8% vs. 39.2%) and to be younger (38 vs. 41 years), and these differences were statistically significant ($p < 0.01$). The men, on the other hand, were older (41 vs. 38 years), and were more likely to present with coinfection with the hepatitis C virus (46.3% vs. 32.2%). More men were single (59.9% vs. 33.8%), undergoing methadone replacement treatment (20.3% vs. 5.4%), intravenous drug users (47.3% vs. 67.4%), and all of these differences were statistically significant ($p < 0.05$). The average CD4 lymphocyte count was 448.6 for the men and 544.5 for the women, and this difference was statistically significant ($p < 0.01$). In terms of antiretroviral treatment, 84.8% of the men were classified as adherent compared with 85.9% of the women ($p = 0.75$). (Table 1).

The average physical quality of life score for women and men was 51.61 and 49.54 respectively. The average mental quality of life score for women and men was 52.07 and 49.28 respectively. Both of these differences were statistically significant ($p < 0.05$). In terms of the average scores for the eleven dimensions, the highest scores were for *social function* (85.66 and 84.52), and the lowest scores were for *general perception of health* (50.97 and 45.89), for women and men respectively. All of the average scores were higher amongst the women, and in six of the dimensions these differences were statistically significant. When the scores were adjusted according to AIDS stage, coinfection with hepatitis C virus, CD4 lymphocyte count, marital status, having children, use of intravenous drug users and methadone replacement treatment, these differences were no longer statistically significant (Table 2).

When the bivariate analysis was carried out, it was found that psychic morbidity ($p < 0.001$), low levels of social support ($p < 0.001$), methadone replacement treatment ($p < 0.05$) and intravenous drug users ($p < 0.05$) were all associated with a lower PHS and MHS in both sexes. This link was statistically significant. (Table 3)

The women reference to having difficulty taken medicines ($p = 0.006$) had a lower quality of mental health. In terms of physical quality of life, the older women in the sample group ($p = 0.007$), and those who had been undergoing treatment for a longer period of time ($p = 0.011$) all had lower levels of physical quality of life.

Amongst the men, lower physical and mental quality of life scores were linked with AIDS stage ($p = 0.001$), coinfection with the hepatitis C virus ($p = 0.001$ & $p = 0.041$ respectively), reference to having difficulty taken medicines ($p < 0.001$) and lower CD4 lymphocyte counts ($p < 0.001$ & $p = 0.009$).

In addition, amongst the men, unemployed over the last month ($p = 0.043$) were associated with lower mental quality of life scores. Likewise, having progressed to a stage of

AIDS ($p=0.016$) and have a combination includes protease inhibitor ($p=0.020$) and higher number of antiretroviral tablets taken per day (dosage) were both associated with a lower level of physical quality of life. (Table 3).

Amongst the women, psychic morbidity ($p<0.001$), low levels of social support ($p<0.001$ & $p=0.013$) and longer period of time as HIV carrier ($p<0.002$ & $p<0.006$) were linked to lower levels of mental and physical quality of life. Older age was independently linked to lower levels of physical quality of life ($p=0.003$). Amongst the men, psychic morbidity ($p<0.001$), low levels of social support ($p<0.001$), reference to having difficulty taking tablets ($p<0.001$ & $p=0.005$), having used intravenous drugs ($p=0.039$ & $p<0.001$) and were associated with lower levels of mental and physical quality of life. Likewise, having progressed to a stage of AIDS ($p=0.016$) and prescriptions for higher numbers of antiretroviral tablets ($p=0.018$) were both associated with a lower level of physical quality of life. (Table 4).

DISCUSSION

This study shows the differences between men and women infected with HIV who attend outpatient hospital appointments in the region of Andalusia. The gender-disaggregated analysis carried out on the sample group showed that the women were younger, more likely to be married and had more children. The men, on the other hand, were more likely to present with coinfection with hepatitis C, have a history of intravenous drug use, be undergoing methadone replacement treatment or have lower levels of CD4 lymphocyte count.

In terms of the HRQL, the average scores for the men for the eleven dimensions were between 9.87 and 2.21 points lower than the women's scores. Likewise, the men's scores in the two overall indices were lower than the women's scores. However, when the scores were adjusted according to clinical and demographic variables, the differences between the men and women disappeared. This result is the opposite of what has been found in previous studies where women had lower quality of life scores than men (Mrus, 2005; Rao, Hahn, Cella & Hernandez, 2007).

There are several factors which could explain the differences between this study and previous studies. First of all, the groups studied were different. The study carried out by Holmes only analysed asymptomatic patients (Holmes & Shea, 1997), and in the study carried out by Mrus more than half of the patients were not undergoing HAART (Mrus, 2005). In this study, all of the patients in the sample group were undergoing treatment, and 95% of them were undergoing HAART. In addition, in other studies, gender differences were the result of differences between one or several of the dimensions analysed (Worthington & Krentz, 2005; Mrus, 2005).

Recently, it has been proven that a patient's gender is not linked to a certain physical or mental quality of life. In the study carried out by Preau (2007), amongst the patients in the sample group who lived with a partner, the women without children stated that they had a more acceptable physical quality of life than women with children and the men in the sample group. In addition, women living with a partner had a better mental quality of life than other patient groups. These results highlight the importance of psycho-social factors in HRQL (Ruiz-Pérez et al., 2005). These psycho-social variables include social support, which has been identified in previous studies carried out in different countries as an important factor which protects people from poor HRQL (Liu, Johnson, Ostrow, Silvestre, Visscher & Jacobson, 2006; Ma et al., 2007; Belak, Vurusić, Duvancić & Macek, 2006). In this study, low levels of social support are linked to lower physical and mental HRQL scores amongst both the men and the women surveyed.

Mental illnesses, especially depression, occur very frequently amongst HIV positive patients. The impact that mental illnesses have on HRQL in HIV positive patients is well-

documented (Préau et al., 2007; Ruiz-Pérez et al., 2005; Douaihy & Singh, 2001). In this study, psychic morbidity is also related to a lower HRQL in both men and women.

Amongst the women, the period of time that they have been HIV carriers and their age are both associated with a lower level of quality of life, both physical and mental. Previous studies have shown that older patients with HIV are less satisfied with their sources of social support and are not as good at coping with stress. Older HIV positive patients may therefore be at a higher risk of social isolation, have less access to community support resources and may make less use of the resources which are available to them (Douaihy & Singh, 2001).

Amongst the men surveyed in this study, difficulty confrontation (difficulty taken medicines), having full-blown AIDS and the use of intravenous drugs were associated with lower levels of quality of life. Previous studies have shown that physical quality of life is worse in patients with AIDS stage than in patients in other, less-advanced stages of the disease (Liu et al., 2006; Douaihy & Singh, 2001). The lower HRQL amongst patients who have used intravenous drugs may be due to poor physical and mental health associated with drug abuse.

The limitations of the study are, as it was a cross-sectional study, it is not possible to establish whether psychic morbidity or low levels of social support were the cause of lower levels of quality of life or if they were consequences of it. Lastly, it is impossible to exclude the possibility that patients with poorer health and, therefore, lower levels of quality of life might have been in hospital as inpatients at the time the study was carried out. This could affect how useful the results are for making generalisations, but not their internal validity.

In summary, in this study, after adjusting the results for demographic clinical factors, no differences were detected between the HRQL amongst HIV positive men and women. By carrying out an analysis according to gender it is possible to see different factors associated with a poorer quality of physical and mental health. This leads us to draw two recommendations. Firstly, further efforts should be made to maximise quality of life amongst HIV positive patients. And secondly, we recommend that, for gender-focused research, problems should be analysed separately for men and women, as different results can be linked to social, family and work roles and different healthcare habits.

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