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## Quality of life of users of psychoactive substances, relatives, and non-users assessed using the WHOQOL-BREF

Qualidade de vida em usuários de substâncias psicoativas, familiares e não usuários por meio do WHOQOL-BREF

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**Abstract** *Quality of life is related to one of the basic human desires, which is to live well and feel good. The scope of this study was to evaluate the quality of life of psychoactive substance users and relatives, compared to non-users, analyzed by socioeconomic strata. A cross-sectional study with users of psychoactive substances, relatives, and other individuals who called the Information and Orientation Service regarding drug abuse. Data collection took place between November 2009 and December 2010. Data was collected from users, relatives, and non-users, including socioeconomic characteristics and data regarding substance consumption when appropriate. In addition to this the abbreviated version of the World Health Organization Quality of Life (WHOQOL-BREF) questionnaire was given to 347 individuals. Among the 138 users (70%) used alcohol, 76 (39%), marijuana, 111 (57%) tobacco, 78 (40%) cocaine and 70 (36%) crack. Control subjects had higher scores than the relatives of users and users in all areas of the questionnaire ( $p < 0.05$ ). Psychoactive substance users scored lower in almost all domains and overall score in the WHOQOL-BREF questionnaire in comparison with the sample of non-drug users. These findings reflect poor quality of life of patients and their relatives.*  
**Key words** *Quality of life, Drug users, Relatives, Addiction*

**Resumo** *Qualidade de vida está relacionada a um dos desejos humanos básicos, que é viver bem e se sentir bem. O objetivo deste estudo foi avaliar a qualidade de vida dos usuários de substâncias psicoativas e familiares, em comparação aos não-usuários, analisados por estratos socioeconômicos. Foi realizado um estudo transversal com usuários de substâncias psicoativas, parentes e outras pessoas que chamaram o Serviço de Informação e Orientação sobre o abuso de drogas (VIVAVOZ). A coleta de dados ocorreu entre novembro de 2009 e dezembro de 2010. Foram coletados dados de usuários, parentes e não-usuários, incluindo as características socioeconômicas e dados sobre consumo de substâncias, quando apropriado, além disso, foi administrado o questionário WHOQOL-BREF. Responderam ao WHOQOL-Bref 347 pessoas, 138 (70%) usuários de álcool, 76 (39%) maconha, 111 (57%) tabaco, 78 (40%) de cocaína e 70 (36%) crack. Os controles tiveram escores maiores de qualidade de vida, que os familiares de usuários e usuários em todas as áreas do questionário ( $p < 0,05$ ). Usuários de substâncias psicoativas tiveram escores mais baixos em quase todos os domínios e escore geral do WHOQOL-Bref em comparação com a amostra de não usuários de drogas. Estes resultados refletem baixa qualidade de vida dos pacientes e seus familiares.*  
**Palavras-chave** *Qualidade de vida, Usuários de drogas, Família, Dependência*

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## Introduction

Quality of life is related to one of the basic human desires, which is to live well and feel good<sup>1</sup>. Several factors may interfere with this quality, including the problems that arise from the use of substances, which can consequently affect life satisfaction<sup>2</sup>.

Despite the growing importance of evaluating quality of life in many areas of health, there is still a lack of studies on psychoactive substance users<sup>3,4</sup>. Castro et al.<sup>5</sup> argued that smokers, for example, show greater impairment in quality of life in all areas, as well as more symptoms of anxiety and depression. Silva Lima et al.<sup>6</sup> showed that males with more severe alcohol dependence perceive their own quality of life as worse. Lozano et al.<sup>7</sup> in a study of cocaine users noted that the deterioration of quality of life was mainly related to sociodemographic differences. The compromised state of the health of cocaine users has been related to the intensity of consumption of the substance, compromised quality of life, and lifestyle<sup>8</sup>.

Other factors can also interfere with the quality of life of drug users, including sociodemographic variables, such as gender, age, marital status, educational level, and economic level<sup>9,10</sup>. In general, ethnicity can interfere with the life satisfaction of individuals: the black and hispanic populations are less satisfied, in general, than the white population. There is also a strong relationship of quality of life with social bonds. These contacts are substantially more important for life satisfaction than increases in economic status<sup>11</sup>. There is a weak association between marital status and emotional support, weakening the argument that marriage provides social support. There are positive correlations among marital status, education, income, and home ownership, with greater well-being for those who are married<sup>11</sup>.

Quality of life has increasingly been understood as a prerequisite for the overall health of people, including satisfaction, happiness and well-being; therefore, all the variables that interfere with this aspect are important because they can alter or modify the treatment of any illness, including chemical dependence. The understanding that the effects of substances that interfere with the quality of life of drug users, leading to overall worsening from a biopsychosocial point of view, is relevant and using this information to educate drug users about the additional losses caused by drug use, as well as to motivate them to cease drug use and remain abstinent, justifies

the interest in the topic because attaining quality of life is also a human need<sup>1</sup>, not just the need of an addict. Therefore, the objective of this study was to assess the quality of life of psychoactive substance users and relatives, compared to non-users, analyzed by socioeconomic strata. For this purpose, this study was developed with individuals who contacted a telephone service for information and advice about drugs.

## Methods

### Ethics

Ethical approval for this study was obtained from the Ethics Committee of Universidade Federal de Ciências da Saúde de Porto Alegre (UFCS-SPA) (Porto Alegre Federal University of Health Sciences).

### Design

We performed a cross-sectional study.

### Subjects

Data collection took place between November 2009 and December 2010 through phone calls to the VIVAVOZ call center<sup>12-14</sup>. This call-center offers free and anonymous telephone counseling and is open to the general population in Brazil. It provides guidance and information on the characteristics of psychoactive drugs and their action in the body, in addition to information on preventing abuse. Moreover the service seeks promote the cessation of drug use and help relatives to better deal with the family members who are users<sup>13</sup>. Users of psychoactive substances, relatives and other individuals who called the Serviço de Orientações e Informações sobre a Prevenção do Uso Indevido de Drogas (Information and Orientation Service regarding Drug Abuse) (VIVAVOZ) looking for information about drugs are invited to participate in the study. The classification as user or relative was based on self-report of the subject and considering the reason for the called service. Drug users were included regardless the type of drug used, the frequency or amount of drugs consumed. The drug users were considered as belonging to one and only group because, independent of the drug used, because all licit and illicit drug users describe a problematic interaction with substance abuse when calling VIVAVOZ. Those individuals who

were not drug users and did not have relatives that were users formed the control group. Relatives who were also using drugs of abuse were excluded. It is important to take into account that drug user and relatives who called VIVAVOZ are seeking for help in order to aid his relatives to stop consuming drugs. Or rather, there is already a problematic relation with the drug which is different from those who use recreatively, and they have never requested the aid service for this purpose. Verbal informed consent was obtained from all participants before they answered a questionnaire covering socioeconomic characteristics and data regarding substance consumption, when appropriate. In addition, during the client return call, we administered the World Health Organization Quality of Life Instrument abbreviated version (WHOQOL-BREF) questionnaire<sup>1</sup>. The WHOQOL-BREF has been validated in Portuguese<sup>1</sup> and has been widely used in studies of the Brazilian population<sup>15</sup>.

The data on the participants was collected by 40 college students in different health areas and education, who were previously selected and trained<sup>12-14</sup>. For the application of the WHOQOL-BREF<sup>1</sup>, theoretical and practical training was conducted, including lectures and the application of the questionnaire in pairs. The data were then evaluated and discussed in order to standardize the application of the instrument by phone. Specific software was created to assist the counselors and record the date from participants.

During the determined period, VIVAVOZ received 10,212 return calls. The application of the WHOQOL-BREF was conducted randomly on certain days of each month; and 8170 individuals were invited to participate of this study (80% of all return calls). Of these, around 73% callers did not agree or declined to participate after being read the consent form.

### Inclusion and exclusion

The sample included all Brazilian users of psychoactive substances and non-users between the ages of 18 and 60 years who called the VIVAVOZ service during the collection period and who agreed to participate in the study after informed consent. The individuals who demonstrated an inability to respond adequately to the telephone protocol or the WHOQOL-BREF or who reported being or were perceived to be under the influence of drugs were excluded. In addition, we excluded the protocols of the WHOQOL-BREF that were incomplete.

### Variables

The main effect of interest in this investigation was recognize if drug users or relatives of drug users show difference in the quality of life measured by WHOQOL-bref identifying if and how the sociodemographic characteristics affect this relationship. So the sociodemographic characteristics are seen as confounders and WHOQOL-bref results as predictor of the outcome of interest.

**Sociodemographic characteristics:** The questionnaire included questions on gender, age, marital status, occupation, family income and education level. In order to stratify the data, subjects were categorized by age into young adults (18 to 24 years) and adults (25 to 60 years)<sup>16</sup>. For the income strata, the Brazilian minimum wage in 2011 (US\$ 250) was used as a base value. **WHOQOL-bref:** It is a questionnaire of 26 items distributed into four domains (physical, psychological, social relationships, and environment) and self-assessment, in which the answers are recorded in individual five-point scales<sup>1</sup>. The punctuation in each domain and overall score are calculated according to the syntax provided by the World Health Organization<sup>17</sup> with higher scores indicating better quality of life. In order to classify the individuals of the sample in lower or higher qualities of life, the mean of overall score for the control group (14.3) was used as cutoff point.

### Data Analysis

#### Statistical methods

Initially, a univariate descriptive analysis of socioeconomic characteristics was performed, in which qualitative variables were ranked by frequency and percentage and quantitative variables were ranked by mean and standard deviation.

For the assessment of WHOQOL-BREF scores between groups, we used the one-way ANOVA (*post hoc* Tukey test), comparing the scores of users with the scores of relatives and of non-users (considered as controls). The same tests were used for the assessment of the strata.

For the multivariate analysis, the participants were categorized in lower or higher qualities of life<sup>4</sup>. The variables of gender, education, income, age, and group (users, relatives and controls) were included in the logistic regression analysis for this outcome. The missing data were excluded analysis by analysis. All statistical analyses were performed with use of PASW Statistics 18 software, and p values < 0.05 were considered statistically significant.

## Results

In total, 2247 agreed to participate of this study. However, 84% of these did not fill inclusion criteria debilitating conditions or filled out the questionnaires incompletely which prevented the data analysis and therefore were excluded. Thus, a total of 347 subjects were included in the study.

The 347 subjects included in the study were classified as users (56%), relatives (23%), or non-users (21%). The general sample characteristics are summarized in Table 1. Among the users, 138 (70%) used alcohol, 76 (39%) used marijuana, 111 (57%) used tobacco, 78 (40%) used cocaine

and 70 (36%) used crack. Respondents had the opportunity to report the consumption of more than one substance and 74% of the users were poly drug users.

As for the domain scores on the WHOQOL-BREF, we observed that the control subjects had higher scores than the users and relatives of users in all areas of the questionnaire ( $p < 0.05$ ), except in the environmental domain (Table 2).

Table 3 describes the mean values and standard deviations of the WHOQOL-BREF domains, classified by groups and stratified by socioeconomic variables (gender, age, education, and income). Domain scores differed according

**Table 1.** Characteristics of the sample subjects who called VIVAVOZ and answered the WHOQOL-BREF – November 2009 to December 2010 (n = 347)

Variables	Total n (%)	Users (n = 195)	Relatives (n = 78)	Controls (n = 74)
Gender (n = 347)				
Female	162 (47%)	42 (21%)	72 (92%)	48 (66%)
Male	185 (53%)	154 (79%)	6 (8%)	25 (34%)
Marital Status (n = 335)				
Married	142 (42%)	71 (38%)	43 (56%)	28 (39%)
Separated	36 (11%)	17 (9%)	13 (17%)	6 (9%)
Single	150 (45%)	99 (53%)	15 (20%)	36 (51%)
Widowed	7 (2%)	-	6 (8%)	1 (1%)
Family income (n = 322)				
1-5 minimum wages	222 (70%)	124 (69%)	53 (71%)	45 (67%)
Over 5 minimum wages	100 (30%)	56 (31%)	22 (29%)	22 (33%)
Occupation (n = 334)				
Employed	241 (72%)	142 (75%)	44 (60%)	55 (78%)
Unemployed	93 (28%)	47 (25%)	30 (40%)	16 (22%)
Educational level (n = 329)				
Basic or lower	124 (38%)	79 (43%)	30 (39%)	15 (21%)
Medium or higher	205 (62%)	104 (57%)	46 (61%)	55 (79%)
Age (years) (n = 344)	34 ± 10	31 ± 8	42 ± 10	34 ± 12

The data are presented as numbers (percentage) and the variable age as mean ± standard deviation. Not all participants answered all questions.

**Table 2.** WHOQOL-BREF mean scores for users, their relatives, and the controls, classified by domains.

Domains	Users (n = 195) (mean ± sd)	Relatives (n = 78) (mean ± sd)	Controls (n = 74) (mean ± sd)	Significance**
Physical*	14.6 ± 2.7 <sup>b</sup>	13.3 ± 3.9 <sup>a,c</sup>	15.1 ± 2.9 <sup>b</sup>	F <sub>(2,346)</sub> 8.2; p < 0.001
Psychological*	13.6 ± 3.0 <sup>b,c</sup>	12.4 ± 3.1 <sup>a,c</sup>	15.2 ± 2.8 <sup>a,b</sup>	F <sub>(2,346)</sub> 16.2; p < 0.001
Social*	13.4 ± 3.9 <sup>c</sup>	13.5 ± 3.6 <sup>c</sup>	15.0 ± 3.6 <sup>a,b</sup>	F <sub>(2,346)</sub> 5.5; p = 0.004
Environment*	13.1 ± 2.7 <sup>b</sup>	11.9 ± 2.6 <sup>a</sup>	12.8 ± 2.9	F <sub>(2,346)</sub> 4.9; p = 0.008
Self-assessment*	13.9 ± 3.5 <sup>b</sup>	12.7 ± 3.8 <sup>a,c</sup>	14.9 ± 3.2 <sup>b</sup>	F <sub>(2,346)</sub> 7.4; p = 0.001
Overall*	13.7 ± 2.4 <sup>b</sup>	12.7 ± 2.3 <sup>a,c</sup>	14.4 ± 2.4 <sup>b</sup>	F <sub>(2,346)</sub> 10.4; p < 0.001

\*p < 0.05 \*\* One-way ANOVA. The letters are used to indicate the difference: <sup>a</sup>p < 0.05 with regard to the users group; <sup>b</sup>p < 0.05 with regard to the relatives group; <sup>c</sup>p < 0.05 with regard to the control group.

to the strata observed. While female relatives of users had lower scores for the physical, psychological and self-assessment domains and for overall quality of life when compared to the control group, the male relatives had worse scores only

for the social domain. Moreover, users only showed a worse score for some of the domains assessed when they were female. Younger and more educated individuals showed similar scores for all domains, regardless of the group to which

**Table 3.** Differences in quality of life among users of psychoactive drugs, their relatives, and control subjects, stratified by socioeconomic characteristics.

Strata	Users (n = 195)	Relatives (n = 78)	Controls (n = 74)	Significance
Gender				
Female				
Physical*	13.7 ± 3.1	13.2 ± 3.0 <sup>c</sup>	15.1 ± 2.6 <sup>b</sup>	$F_{(2,160)} = 6.4; 0.002$
Psychological*	12.9 ± 3.3 <sup>c</sup>	12.3 ± 3.1 <sup>c</sup>	14.8 ± 3.0 <sup>a,b</sup>	$F_{(2,160)} = 9.9; <0.001$
Social*	12.9 ± 4.6 <sup>c</sup>	13.7 ± 3.2	14.9 ± 3.5 <sup>a</sup>	$F_{(2,160)} = 3.3; 0.039$
Environment	12.9 ± 3.0	12.0 ± 2.5	13.0 ± 2.9	$F_{(2,160)} = 2.4; 0.097$
Self-assessment*	13.0 ± 3.9 <sup>c</sup>	12.6 ± 3.8 <sup>c</sup>	14.9 ± 3.9 <sup>a,b</sup>	$F_{(2,160)} = 6.7; 0.002$
Overall*	13.1 ± 2.8	12.6 ± 2.3 <sup>c</sup>	14.4 ± 2.4 <sup>b</sup>	$F_{(2,160)} = 7.4; 0.001$
Male				
Physical	14.9 ± 2.6	14.6 ± 2.9	15.1 ± 3.6	$F_{(2,181)} = 0.1; 0.881$
Psychological*	13.8 ± 2.9 <sup>c</sup>	14.9 ± 2.9	15.8 ± 2.2 <sup>a</sup>	$F_{(2,181)} = 5.8; 0.004$
Social*	13.5 ± 3.7	11.3 ± 6.4 <sup>c</sup>	15.4 ± 3.1 <sup>b</sup>	$F_{(2,181)} = 3.9; 0.023$
Environment	13.1 ± 2.6	11.3 ± 3.5	12.4 ± 2.8	$F_{(2,181)} = 2.1; 0.128$
Self-assessment	14.1 ± 3.4	14.7 ± 3.5	14.9 ± 3.9	$F_{(2,181)} = 0.6; 0.560$
Overall	13.9 ± 2.2	13.1 ± 3.1	14.4 ± 2.3	$F_{(2,181)} = 1.2; 0.319$
Age group (years)				
18 to 24				
Physical	15.3 ± 2.7	17.1 ± 1.1	14.8 ± 2.9	$F_{(2,66)} = 1.0; 0.372$
Psychological	14.2 ± 2.8	17.3 ± 1.3	14.9 ± 3.0	$F_{(2,66)} = 2.1; 0.133$
Social	14.1 ± 3.5	16.4 ± 2.0	15.6 ± 3.4	$F_{(2,66)} = 1.6; 0.206$
Environment	13.3 ± 3.0	13.2 ± 2.9	11.9 ± 2.9	$F_{(2,66)} = 1.7; 0.199$
Self-assessment	14.8 ± 3.3	14.7 ± 3.1	15.1 ± 3.2	$F_{(2,66)} = 0.03; 0.967$
Overall	14.3 ± 2.5	15.7 ± 0.8	14.0 ± 2.2	$F_{(2,66)} = 0.6; 0.537$
25 to 60				
Physical*	14.4 ± 2.7 <sup>b</sup>	13.1 ± 3.0 <sup>a,c</sup>	15.4 ± 3.0 <sup>b</sup>	$F_{(2,269)} = 9.8; <0.001$
Psychological*	13.4 ± 3.1 <sup>b,c</sup>	12.1 ± 3.0 <sup>a,c</sup>	15.4 ± 2.8 <sup>a,b</sup>	$F_{(2,269)} = 18.4; <0.001$
Social*	13.1 ± 4.0 <sup>c</sup>	13.3 ± 3.6 <sup>c</sup>	15.0 ± 3.3 <sup>a,b</sup>	$F_{(2,269)} = 5.0; 0.008$
Environment*	12.9 ± 2.6 <sup>b</sup>	11.9 ± 2.6 <sup>a,c</sup>	13.2 ± 2.8 <sup>b</sup>	$F_{(2,269)} = 5.5; 0.004$
Self-assessment*	13.6 ± 3.6 <sup>c</sup>	12.6 ± 3.9 <sup>c</sup>	15.1 ± 3.1 <sup>a,b</sup>	$F_{(2,269)} = 7.5; 0.001$
Overall*	13.5 ± 2.3 <sup>b,c</sup>	12.5 ± 2.3 <sup>a,c</sup>	14.7 ± 2.4 <sup>a,b</sup>	$F_{(2,269)} = 13.5; <0.001$
Educational level				
Basic or lower				
Physical*	14.8 ± 2.8 <sup>b</sup>	11.6 ± 2.6 <sup>a,c</sup>	15.4 ± 2.6 <sup>b</sup>	$F_{(2,120)} = 17.2; <0.001$
Psychological*	13.9 ± 2.9 <sup>b</sup>	10.1 ± 2.9 <sup>a,c</sup>	15.4 ± 3.2 <sup>b</sup>	$F_{(2,120)} = 15.5; <0.001$
Social	13.4 ± 3.8	13.2 ± 3.8	15.3 ± 2.8	$F_{(2,120)} = 1.8; 0.164$
Environment*	12.9 ± 2.6 <sup>b</sup>	11.0 ± 1.7 <sup>a</sup>	12.3 ± 3.0	$F_{(2,120)} = 7.0; 0.001$
Self-assessment*	13.7 ± 3.4 <sup>b</sup>	10.4 ± 3.1 <sup>a,c</sup>	15.1 ± 3.3 <sup>b</sup>	$F_{(2,120)} = 13.8; <0.001$
Overall*	13.8 ± 2.4 <sup>b</sup>	11.3 ± 1.9 <sup>a,c</sup>	14.4 ± 2.5 <sup>b</sup>	$F_{(2,120)} = 14.5; <0.001$
Medium or higher				
Physical	14.4 ± 2.8	14.4 ± 2.8	15.1 ± 3.1	$F_{(2,203)} = 1.2; 0.297$
Psychological	13.5 ± 3.1 <sup>c</sup>	13.3 ± 2.9 <sup>c</sup>	15.1 ± 2.7 <sup>a,b</sup>	$F_{(2,203)} = 6.5; 0.002$
Social	13.4 ± 3.9 <sup>c</sup>	13.6 ± 3.5 <sup>a</sup>	15.0 ± 3.5	$F_{(2,203)} = 3.4; 0.037$
Environment	13.2 ± 2.8	12.5 ± 2.9	12.8 ± 2.9	$F_{(2,203)} = 0.8; 0.430$
Self-assessment	13.9 ± 3.6	14.2 ± 3.6	15.0 ± 3.1	$F_{(2,203)} = 1.8; 0.168$
Overall	13.6 ± 2.4	13.4 ± 2.2	14.4 ± 2.4	$F_{(2,203)} = 2.4; 0.092$

it continues



Table 3. continuation

Strata	Users (n = 195)	Relatives (n = 78)	Controls (n = 74)	Significance
Family income				
1-5 minimum wages				
Physical*	14.4 ± 2.7 <sup>b</sup>	12.8 ± 3.0 <sup>a,c</sup>	14.9 ± 2.8 <sup>b</sup>	F <sub>(2,220)</sub> = 8.13; < 0.001
Psychological*	13.3 ± 2.8 <sup>b,c</sup>	12.0 ± 3.2 <sup>a,c</sup>	14.6 ± 3.1 <sup>a,b</sup>	F <sub>(2,220)</sub> = 6.23; < 0.001
Social	13.4 ± 3.9	13.6 ± 3.6	14.5 ± 3.6	F <sub>(2,220)</sub> = 1.18; 0.249
Environment*	12.5 ± 2.4 <sup>b</sup>	11.3 ± 2.4 <sup>a</sup>	12.1 ± 2.8	F <sub>(2,220)</sub> = 4.65; 0.009
Self-assessment*	13.8 ± 3.6	12.5 ± 3.6 <sup>c</sup>	14.4 ± 2.9 <sup>b</sup>	F <sub>(2,220)</sub> = 2.65; 0.016
Overall*	13.4 ± 2.2 <sup>b</sup>	12.2 ± 2.3 <sup>a,c</sup>	13.9 ± 2.4 <sup>b</sup>	F <sub>(2,220)</sub> = 6.41; 0.001
Over 5 minimum wages				
Physical	15.3 ± 2.9	14.2 ± 2.9	15.5 ± 3.4	F <sub>(2,96)</sub> = 1.3; 0.270
Psychological*	14.7 ± 3.2 <sup>b</sup>	12.9 ± 2.6 <sup>a,c</sup>	16.1 ± 2.0 <sup>b</sup>	F <sub>(2,96)</sub> = 6.9; 0.002
Social*	13.5 ± 3.8 <sup>c</sup>	13.0 ± 3.5 <sup>c</sup>	16.2 ± 2.7 <sup>a,b</sup>	F <sub>(2,96)</sub> = 6.0; 0.004
Environment	14.4 ± 2.8	13.5 ± 2.5	13.9 ± 2.9	F <sub>(2,96)</sub> = 1.0; 0.359
Self-assessment*	14.3 ± 3.3	13.0 ± 4.4 <sup>c</sup>	15.9 ± 3.5 <sup>b</sup>	F <sub>(2,96)</sub> = 3.6; 0.032
Overall*	14.6 ± 2.4	13.4 ± 2.2 <sup>c</sup>	15.3 ± 2.2 <sup>b</sup>	F <sub>(2,96)</sub> = 3.5; 0.033
Marital Status				
Single				
Physical	14.5 ± 2.7	13.3 ± 3.0	14.6 ± 2.8	F <sub>(2,189)</sub> = 2.8; 0.062
Psychological*	13.5 ± 3.1	12.2 ± 3.5 <sup>c</sup>	14.4 ± 2.7 <sup>b</sup>	F <sub>(2,189)</sub> = 4.8; 0.009
Social	13.0 ± 3.8	13.3 ± 3.1	14.3 ± 3.5	F <sub>(2,189)</sub> = 2.0; 0.135
Environment	13.0 ± 2.8	11.9 ± 2.8	12.0 ± 2.8	F <sub>(2,189)</sub> = 3.1; 0.048
Self-assessment*	13.9 ± 3.6	12.4 ± 3.9 <sup>c</sup>	14.6 ± 3.0 <sup>b</sup>	F <sub>(2,189)</sub> = 4.0; 0.020
Overall	13.6 ± 2.4	12.5 ± 2.5	13.7 ± 2.1	F <sub>(2,189)</sub> = 3.2; 0.05
Married				
Physical*	14.7 ± 2.9	13.4 ± 3.1 <sup>c</sup>	15.9 ± 3.0 <sup>b</sup>	F <sub>(2,140)</sub> = 6.2; 0.003
Psychological*	13.7 ± 3.0 <sup>c</sup>	12.5 ± 2.8 <sup>c</sup>	16.2 ± 2.6 <sup>a,b</sup>	F <sub>(2,140)</sub> = 14.4; < 0.001
Social*	13.7 ± 4.2 <sup>c</sup>	13.6 ± 3.9 <sup>c</sup>	16.0 ± 2.9 <sup>a,b</sup>	F <sub>(2,140)</sub> = 4.1; 0.019
Environment*	13.2 ± 2.6 <sup>b</sup>	12.0 ± 2.4 <sup>a,c</sup>	13.8 ± 2.8 <sup>b</sup>	F <sub>(2,140)</sub> = 5.1; 0.007
Self-assessment*	13.6 ± 3.6	13.0 ± 3.8 <sup>c</sup>	15.4 ± 3.5 <sup>b</sup>	F <sub>(2,140)</sub> = 3.8; 0.025
Overall*	13.8 ± 2.4 <sup>c</sup>	12.7 ± 2.2 <sup>c</sup>	15.3 ± 2.5 <sup>a,b</sup>	F <sub>(2,140)</sub> = 9.8; < 0.001

Data are presented as mean ± standard deviation (SD); SM = Brazilian minimum wage US\$250; \* p < 0.05; The letters are used to indicate the differences: <sup>a</sup>p < 0.05 with regard to the users group; <sup>b</sup>p < 0.05 with regard to the relatives group; <sup>c</sup>p < 0.05 with regard to the control group.

they belonged. However, the scores for all domains were different (except for the social domain for individuals with low educational levels) for older subjects and subjects with lower educational levels. Family income also interfered with quality of life. Low-income users showed higher scores for the physical, psychological, environmental domains and global scores when compared to relatives but not when compared to the controls. As for those respondents who had higher family incomes, the main differences were found between relatives and controls with respect to the psychological and social self-evaluation domains. Single users showed higher scores when compared to relatives for the physical, psychological, and global self-evaluation domains. Only for the psychological domain did single relatives have lower scores when compared to the con-

trols. Married users, conversely, had higher scores in comparison to relatives for the physical and environmental domains. These relatives showed worse scores for the psychological domain and worse global scores when compared to the control subjects.

When the logistic regression analysis was performed, it was observed that the variables of drug use, lower income, and older age were associated with a lower quality of life (p < 0.05). For users, lower family income and older age were associated to worse quality of life. Moreover, users were almost twice as likely to have a poor quality of life regardless of other features (Table 4). The logistic regression analysis among relatives showed that female individuals of older age and with low incomes were at an increased risk of a lower quality of life (Table 4).

**Table 4.** Multivariate analysis (logistic regression) for poor quality of life, WHOQOL-BREF (basis overall cutoff point for the control group 14.3).

Quality of life	Odds Ratio adjusted to user	95% CI	Odds Ratio adjusted to family	95% CI
Gender				
Female	1.5	0.8 - 2.5	2.1*	1.1-4.1
Male	-		-	
Group				
User	1.9*	1.2-3.0	-	
Family	-		1.3	0.8-2.1
Control	-		-	
Educational level				
Basic or lower	1.1	0.6-1.9	1.1	0.6- 1.9
Medium or higher	-		-	
Family income				
1-5 minimum wages	3.0*	1.7-5.4	2.9*	1.7-5.2
Over 5 minimum wages	-		-	
Age group (years old)				
18 to 24	-	-	-	
25 to 60	2.4*	1.2-4.9	2.8*	1.4-5.7
Marital Status				
Single	1.6	0.9-2.8	1.5	0.8-2.6
Married	-		-	

Minimum wage = US\$250. 95%CI = confidence interval. \*p<0.05

## Discussion

As expected, users of psychoactive substances had lower scores for almost all domains and for the overall score on the WHOQOL-BREF, in comparison to the sample of non-drug users. In this study the QV of life scores were lower regardless the type of substance abused. This is consistent with a previous report showing that smokers presented lower scores in respect to the social relationships and psychological domains of the WHOQOL-BREF<sup>18</sup>. Surprisingly, the relatives of users showed even lower levels of quality of life, with differences in all domains. These findings reflect the poor quality of life of users and their relatives. Domingo-Salvany et al.<sup>19</sup> reported that the quality of life of users is worse when associated with the consumption of multiple drugs, especially among younger, lesser-educated, and unemployed individuals. Moreover, it was possible to confirm that chemical dependence affects not only the users but also relatives who live with them, in terms of psychological pathology<sup>20</sup>, which is strongly reflected in quality of life.

In this study, women showed lower levels of quality of life for the four domains of the questionnaire regardless of the group to which they

belonged, when compared to men. Some authors have stated that women present a poorer quality of life regardless of the instrument used to perform the measurement<sup>21-23</sup>. In general, female alcohol users have an impaired quality of life<sup>19</sup>, and these authors have stated that women are under more stress and have other disabilities. In this study, we can report the outcome of a worse quality of life in female users of illicit drugs, as well.

Individuals with higher education levels have a better overall quality of life<sup>19</sup>. The indices of the various domains of individuals in this study who attended school for less than eight years were lower than those of groups who were educated for longer than eight years. When we consider the scores for overall quality of life, educational level seemed to be a confounding factor, demonstrating that drug use decreased when quality of life was better. However, by detailing the quality of life domains, we can observe damage to the physical, psychological, environmental, and self-assessment aspects, which should serve as a warning about the long-term consequences of drug use in intellectually disadvantaged populations.

The variable older age appeared as a risk factor for a worse quality of life. According to Gonçalves e Kapczinski<sup>21</sup>, the relationship between



quality of life and gender and age needs to be explored further because some studies have shown that, unlike the results of this study, the older the individuals, the better their quality of life scores<sup>21</sup>. Individuals with family incomes below five minimum wages were three times more likely to experience a poorer quality of life than those with higher incomes, whether they were users, relatives or controls. According to Kluthcovsky et al.<sup>24</sup>, socioeconomic development is directly linked to having a life with acceptable quality. Thus, individuals who do not have satisfactory jobs (objective and subjective aspects) that provide them incomes within a comfortable range are unlikely to present a good quality of life<sup>24</sup>.

Drug users and their relatives had quality of life scores much lower than the control subjects, except in the environmental domain, in which users had better scores than the controls. It seems that users lost the perception of problems related to their environments and that family members were involved in other difficulties, which would also reduce this perception. However, when assessing overall quality of life, users were almost twice as likely to have a worse quality of life.

Drug users, whether they are consumers of licit or illicit substances, have lower scores for quality of life. Studies with alcohol users<sup>25</sup>, nicotine users<sup>26</sup>, and cocaine users<sup>7</sup> demonstrated the benefits and costs of ceasing consumption for changes in quality of life.

Regarding relatives, for example, wives of alcoholics showed signs of anxiety, depression, aggression, cognitive impairment, and high psychological stress, affecting their satisfaction with life<sup>27</sup>. The presence of a chemically dependent person in the home is associated with disturbances in the harmony of family life, thus affecting the relatives of users<sup>20</sup>.

The current study should be viewed with a certain degree of caution. Because this was a cross-sectional study, it was not possible to know the direction of the association of worse or better quality of life with the use of psychoactive sub-

stances. The study data can not be generalized to the entire population since it was made specifically for Brazilian individuals aged between 18 and 60 years by telephone. Answered the questionnaire more women family and men users of low-income. All measures of the questionnaire were based on self reports and the veracity of the responses of individuals can not be controlled. The influence of psychiatric comorbidity on quality of life was also not assessed because this information was not included among the variables studied. In addition, the WHOQOL-BREF is not a questionnaire specifically used to measure the quality of life of psychoactive substance users, despite being the most commonly used questionnaire with this population<sup>3</sup>. Finally, for the WHOQOL-BREF, the impact of the telephone-administered mode has not been validated by other modes of administration, even though the telephone interviews for other HRQL measures were reported to be comparable to personal interviews and self administration<sup>28,29</sup>.

Quality of life has been recognized as an important outcome measurement in treatment studies, assessments of health services, studies of the adverse effects of treatment, and studies of the impact of disease processes over time<sup>15,30</sup>. Within the context of drug use, considering that addiction is a chronic disease and that its treatment requires long-term monitoring<sup>31</sup>, quality of life can be an excellent measure because it adds the encouragement of improve the satisfaction with the life to the clinical focus of treatment<sup>32</sup>.

Quality of life is a very complex concept that involves many aspects, such as attitudes, behavioral habits, relationships, understanding of life, and self-expression. It is developed throughout life beginning in childhood, and therefore, it is likely that a low quality of life encourages the use of drugs, which can lead to the idea of using psychotropic drugs to self-medicate<sup>4</sup>. Quality of life is influenced by the drug use of the individual or his or her family members, and should be restored as early as possible among these individuals.

## Contributors

TC Moreira designed the study and wrote the protocol. TC Moreira, LR Figueiró, S Fernandes and M Ferigolo conducted literature searches and provided summaries of previous research studies. TC Moreira and HMT Barros conducted the statistical analysis. TC Moreira, LR Figueiró, S Fernandes, IR Dias, FM Justo, HMT Barros and M Ferigolo wrote the first draft of the manuscript and all authors contributed to and have approved the final manuscript.

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