# *The World Health Organization Quality of Life Scale Brief Version: A validation study in patients with schizophrenia*

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*Number of words in the manuscript:* 3998

# *Abstract*

*Purpose:* The World Health Organization Quality of Life Scale Brief Version (WHOQOL-BREF) is used for patients with schizophrenia although no validation is available. This work addresses this issue by dealing with its psychometric properties in a clinical sample of patients with schizophrenia.

*Methods:* Two hundred forty-one patients from 10 Adult Mental Health Care Centers (AMHCC) meeting the following inclusion criteria were included: 1) International Classification of Diseases-10 or ICD-10 diagnosis of schizophrenia, 2) Global Assessment of Functioning scores or GAF≤50, 3) Illness duration of more than 2 years and 4) Clinical stability at assessment time. Patients were evaluated at baseline and at one-year follow-up regarding quality of life (QOL), clinical variables and other psychosocial measures.

*Results:* Internal consistency was excellent for the total WHOQOL-BREF (0.88 at baseline and 0.89 at follow-up) and adequate (0.65 to 0.78 at baseline; 0.66 to 0.79 at one-year follow-up) for the WHOQOL-BREF domains. Correlations between WHOQOL-BREF scores and those of global functioning, psychiatric symptoms, disability and social support ranged between small and large. There were significant differences between groups of patients with schizophrenia in the WHOQOL-BREF. Patients who were anxious, disabled, lacked social support and used more social services scored significantly lower in some or all WHOQOL-BREF domains. Changes in WHOQOL-BREF scores were positively associated with changes over time in global functioning, social support and use of health services, and negatively with psychiatric symptoms and disability (correlation coefficients between small and moderate). After one-year follow-up, patients improved in overall functioning and there was a decrease in psychiatric symptoms.

*Conclusions:* This study shows that the WHOQOL-BREF has good reliability and validity, and suggests that it is suitable for the assessment of QOL in patients with schizophrenia.

*Keywords:* WHOQOL-BREF · quality of life · schizophrenia · reliability · validity

## *Abbreviations:*

QOL: Quality of life · WHOQOL-100: World Health Organization Quality of Life Scale · WHOQOL-BREF: World Health Organization Quality of Life Scale Brief Version· AMHCC: Adult Mental Health Care Centers · GAF: Global Assessment of Functioning· ICD-10: International Classification of Diseases-10 · PH: Physical health · P: Psychological · SR: Social Relationships · E: Environment · DSM-IV: Diagnostic and Statistical Manual of Mental Disorders Fourth Edition · PANSS: The Positive and Negative Syndrome Scale · DAS-s: The World Health Organization Short Disability Assessment Schedule · FSSQ: The Functional Social Support Questionnaire

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## *1. Introduction*

Quality of life (QOL) in patients with schizophrenia is an area of increasing significance because it is an essential component for clinical trials and patient management. The assessment of QOL takes into account patients' rights, autonomy and opinions during the processes involving diagnosis and care[1]. Although it is not clear whether patients with schizophrenia are good at evaluating their QOL because they might show cognitive and insight deficits, there is evidence that support the validity of the assessment made by these patients[2].

Valid and reliable instruments to assess QOL have been developed for use with various target populations. Those instruments are grouped into specific and generic[3]. Specific instruments aim to assess QOL in particular target populations, while generic instruments aim to assess QOL across a variety of disease indications as well as healthy population. These types of instruments are complementary and wherever possible it is preferable to use them together. The Quality of Life Scale[4], the Quality of Life Interview[5] or the Lancashire Quality of Life Profile[6] are specific instruments for patients with schizophrenia. The World Health Organization Quality of Life Scale[7] or WHOQOL-100, the 36-Item Short Form Survey[8] and the EUROQOL instrument[9] are generic instruments.

*The World Health Organization Quality of Life Scale Brief Version*[10] or *WHOQOL-BREF* is a short version of the WHOQOL-100[7] and it was developed to deal with time restrictions, minimize respondent burden and for use in situations where facet-level detail is unnecessary[11]. Both scales support a characterization of QOL defined as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns[12]" (p.28). They allow a comprehensive assessment of QOL and can be used in different settings such as medical practice, research or audit. The WHOQOL-BREF is an international cross-culturally analogous QOL evaluation tool[13] which contains aspects regarding social relations and environment not covered by other instruments.

The WHOQOL-BREF has been adapted and validated in the general population[14-17], adolescents[18], older people[19-21], smokers[22], alcoholics[23], patients with HIV/AIDS[24], traumatic injuries[25;26] and psychiatric outpatients[27-29].

The suitability of the scale, the aspects it covers, its reliability and validity in other populations makes it promising for the assessment of patients with schizophrenia[30-34] although no validation is available. This work addresses this issue by validating this instrument in a sample of patients with schizophrenia. Firstly, we aim to establish its overall internal consistency and the internal consistency associated with its domains. Secondly, we address WHOQOL-BREF validity evidence: associations with clinical and psychosocial variables, and QOL differences between groups of patients with schizophrenia, established according to socio-demographic variables, psychiatric symptoms, disability, social support and use of health services. The association between subjective QOL and socio-demographic variables is controversial and it is currently considered that socio-demographic variables are not significantly associated with QOL[35-37]. We do not expect significant differences in QOL between groups of patients established according to socio-demographic variables. It is thought that perceived social support has a positive relationship with subjective QOL, while disability, the severity of depression, anxiety and negative symptoms as well as use of services have a negative one[38]. Consequently, we expect that disabled, depressed and anxious patients, as well as those lacking social support and those with higher health service use show poorer levels of subjective QOL. Finally, we aim to test changes in QOL, along with other variables, after one-year follow-up. As a result of the treatment provided to patients, we expect significant improvements in global functioning, psychiatric symptoms, disability, social support and QOL.

## *2. Method*

### *2.1. Sample*

Patients came from 10 Adult Mental Health Care Centers (AMHCC) in Barcelona (Spain). These AMHCC are run by the Catalan Department of Health and share similar characteristics regarding the care provided to patients. They offer a care package to patients with schizophrenia by means of multidisciplinary community mental health teams (i.e. a psychiatrist, a psychologist, a community mental health nurse and a social worker). This care package involves medical and psychosocial interventions of varying intensity depending on patients' needs and is coordinated by one of the members of the mental health teams (i.e. a community mental health nurse).

From December 2006 to January 2008, these AMHCC participated in a study consisting of a one-year follow-up of patients in contact with services who met the following inclusion criteria: 1) Global Assessment of Functioning or GAF[39] scores of 50 or lower, 2) Illness length greater than 2 years, 3) International Classification of Diseases-10 or ICD-10[40] diagnosis of schizophrenia and 4) Clinical stability at assessment time. Patients were excluded if they had dementia, organic brain injury or mental retardation. Patients who visited consecutively and who met study inclusion criteria were asked to participate. Specifically, 260 patients met these inclusion criteria but 19 did not consent to participate. Data from this study was used for the present work.

The final sample comprised 241 (67.6% male) patients, their mean age was 41.7 years (SD = 11.6) and 72.6% of them had illness duration greater than 10 years; 70.5% of patients had a diagnosis of paranoid schizophrenia and 29.5% of other schizophrenias (i.e. 10.8% undifferentiated, 9.1% residual, 6.2% hebephrenic, 1.2% simple and 2.1% other). Other socio-demographic characteristics of patients are described in Table 1.

INSERT ABOUT HERE TABLE 1

A total of 219 patients (90.9%) were successfully evaluated at one-year follow-up. Sixteen people (out of 22) were not evaluated following their psychiatrist's instructions because they were not clinically stable at assessment time or did not have contact with services, 3 died (1 from terminal illness and 2 by suicide), 2 did not properly complete the evaluation and 1 dropped out of the study.

### *2.2. Instrument*

The WHOQOL-BREF is composed of 26 items taken from the 100 items in the WHOQOL-100. It contains one item for each of the 24 facets included in the WHOQOL-100 and two items (not considered in the scoring) regarding overall QOL and general health. It requires 10 minutes to administer and assesses subjective QOL in four domains: 1) Physical Health (PH; e.g. "How satisfied are you with your sleep?"; theoretical range: 7-35), 2) Psychological (P; e.g. "How much do you enjoy life?"; theoretical range: 6-30), 3) Social Relationships (SR; e.g. "How satisfied are you with your personal relationships?"; theoretical range: 3-15) and 4) Environment (E; e.g. "How satisfied are you with your access to health services?"; theoretical range: 8-40), and provides an overall QOL measure (theoretical range: 26-130). Each item is rated on a five-point Likert Scale, ranging from 1 (Not at all, Very dissatisfied, Very poor) to 5 (An extreme amount, Very satisfied, Very good). The higher the score, the better the QOL reported by the patient except for items 3, 4 and 26 that, therefore, need to be reversed for the scoring.

The development of the WHOQOL-BREF involved: 1) review of QOL cultural concepts, 2) definition of WHOQOL-BREF domains and 3) development and translation of WHOQOL-BREF questions [41]. The WHOQOL-BREF showed good psychometric properties. Internal consistency values ranged from 0.66 to 0.84; and correlations with the WHOQOL-100 subscales ranged from 0.89 to 0.95. Skevington et al.[42] confirmed and extended information about its properties and showed good to excellent psychometric properties in adults recruited from in-patient and outpatient health care facilities, regardless of diagnosis or severity, and from the general population.

### *2.3. Procedure*

The study was approved by the Ethics Committee of the Catalan Union of Hospitals in accordance with the ethical standards of the 1964 Declaration of Helsinki. The procedures and assessments were described to each patient who then provided informed consent.

The community mental health teams performed patients' assessments. The diagnosis was established by the psychiatrist by means of a non-structured interview following

ICD-10[40] research diagnosis criteria and considered self-reports and caregiver reports. The psychiatrist also carried out the assessment of psychiatric symptoms, while the rest of the assessments were performed by the other members of the community mental health teams under the psychiatrist's supervision. The psychiatrist was in charge of setting up the assessment agenda, supervising its development and sending the sheet scores to the psychologist in charge of the design and analyses of the study database.

To ensure the quality of assessment data, all psychiatrists participated in a schizophrenia diagnostic agreement workshop comprising two case studies. All researchers were trained in the administration of the instruments in a 4-hour session run by a psychologist with experience in psychological assessment of psychiatric patients. Systematic reviews of data coding and registration were taken and patient information was contrasted with data from the AMHCC responsible for each patient.

Patients were evaluated at baseline and at one-year follow-up with the following assessment tools:

The *WHOQOL-BREF*[43].

The GAF[39]. This is a reliable and valid measure of global psychological functioning in patients with severe mental disorder. Its theoretical range is 1–100, where 100 denotes best possible functioning. It is included in the *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition* [39] or DSM-IV.

*The Positive and Negative Syndrome Scale* or PANSS[44]. This instrument is used for assessing symptom severity in patients with schizophrenia and it is translated and validated in Spanish[45]. It assesses psychiatric symptoms in three domains: positive (theoretical range: 7-49 where 49 denotes higher levels of positive psychiatric symptoms), negative (theoretical range: 7-49 where 49 represents higher levels of negative psychiatric symptoms), general (theoretical range: 16-112; where 112 denotes higher levels of general psychiatric symptoms), and provides an overall measure of psychiatric symptoms (theoretical range: 30-210, where 210 means higher levels of psychiatric symptoms). Internal consistency values of its subscales range between medium and high and its convergent validity with other measures of psychiatric symptoms is high and range from 0.70 to 0.81[45].

*The World Health Organization Short Disability Assessment Schedule* or DAS-s[46]. This is a seven-item scale developed by the World Health Organization and its theoretical range is between 0 and 30, where 30 corresponds to higher levels of disability. It is a valid measure of global functioning in patients with mental disorders included in *the ICD-10*[40].

*The Functional Social Support Questionnaire* or FSSQ[47]. This is an eight-item questionnaire that measures the strength of the patient's social network. It assesses perceived social support in two domains: confidential social support (theoretical range: 6-30, where 30 denotes higher levels of confidential social support) and affective social support (theoretical range: 5-25, where 25 represents higher levels of affective social support), and provides an overall measure of social support (theoretical range: 11-55, where 55 shows higher levels of social support). It is also translated and validated in Spanish[48] and the reliability indexes are of 0.80 and 0.92 for hetero-report and self-report, respectively. The concurrent validity with other health measures ranges from 0.20 to 0.21 and from -0.13 to -0.81[48].

First, the psychiatrist conducted the assessment of global functioning and psychiatric symptoms with the GAF and the PANSS to check if patients meet inclusion criteria. Then, the other members of the community mental health teams administered the rest of assessment tools in the following order: 1) DAS-s, 2) the WHOQOL-BREF and 3) the FSSQ.

After each evaluation, systematic reviews of data coding and registration were taken and patient information was contrasted with family interviews and AMHCC registered data.

### *2.4. Data analysis*

Data were analyzed using the *Statistical Package for the Social Sciences* v.15.

Internal consistency was evaluated by means of Cronbach's α and the contribution of WHOQOL-BREF items to the overall α, and the α associated with their domains. The internal consistency was calculated at baseline and at one-year follow-up. Cronbach's α values were considered as follows: $0.60 \leq \alpha < 0.80$ adequate, $0.80 \leq \alpha < 0.85$ good and $\alpha \geq 0.85$ excellent[49].

To assess validity evidence[50], Pearson's correlations between WHOQOL-BREF scores at baseline and the GAF, PANSS, DAS-s and FSSQ scores at baseline were calculated. Correlation values were considered as follows: 1) <0.3 = small, 2) 0.3 to 0.5 = moderate and 3) ≥5 large[51]. T-tests and analysis of variance were used to analyze differences in WHOQOL-BREF scores between groups of patients with schizophrenia. Patient groups were defined according to socio-demographic variables, the presence of anxiety symptoms[44] (item 2 of PANSS general ≥4), depressive symptoms[44] (item 6 of PANSS general ≥4), lack of social support[48] (FSSQ ≤32) and disability (DAS-s total mean score ≥4). For the DAS-s a cut-off score of ≥4 was considered because an item score ≥4 indicates the presence of disability even with assistance[46]. Moreover, patients groups were defined according to use of health services during the year prior to baseline assessment.

T-tests for dependent samples were used to assess change over time between baseline and at one-year follow-up for WHOQOL-BREF, GAF, PANSS, DAS-s and FSSQ scores, and use of community mental health services (i.e. community psychiatric visits and community nursing visits). We compared the number of patient visits during the year prior to baseline assessment and the number of patient visits during the year following this assessment. The Bonferroni correction for multiple comparisons was applied[52] and a p value ≤0.003 was considered significant. The effect size was also estimated[53] and its values were considered as follows: 1) <0.3=small, 2) 0.3 to 0.5=moderate and 3) ≥5 large[51].

Differences between scores at baseline and at one-year follow-up were calculated for WHOQOL-BREF scores, GAF, PANSS, DAS-s, FSSQ scores and use of community services. Sensitivity to change was determined by Pearson's correlation coefficients between WHOQOL-BREF score differences and the other score differences.

## *3. Results*

### *3.1. Internal consistency*

Internal consistency coefficients at baseline for WHOQOL-BREF total score was 0.88 and 0.89 at one-year follow-up. For the WHOQOL-BREF domains, coefficients ranged between 0.65 and 0.78 at baseline and between 0.66 and 0.79 at one-year follow-up. We also tested the change in Cronbach's alpha values when items are suppressed. Only the suppression of item 4 (i.e. “How much do you need any medical treatment to function in your daily life?”) increased the level of internal consistency of the total WHOQOL-BREF by 0.01, at baseline and at one-year follow-up. The suppression of any other items maintained or decreased internal consistency coefficients by 0.01 at baseline and at one-year follow-up. Similar results have been reported regarding the WHOQOL-BREF domains. Specifically, item suppression increases or decreases Cronbach's alpha values by 0.01, which may be considered negligible.

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### *3.2. Validity evidence*

Pearson's correlations between WHOQOL-BREF scores and GAF, PANSS, DAS-s and FSSQ scores at baseline were mostly significant, and ranged from -0.04 to 0.55 (see Table 2). Specifically, correlations between WHOQOL-BREF and GAF scores were small; correlations between WHOQOL-BREF and PANSS scores were negative and small; correlations between WHOQOL-BREF and DAS-s scores were also negative but moderate, and correlations between WHOQOL-BREF and FSSQ scores ranged between small and large.

Table 2 shows the differences in groups of patients with schizophrenia in WHOQOL-BREF scores. There were no statistically significant differences in WHOQOL-BREF scores between groups established according to socio-demographic variables. There were significant differences between groups of patients with schizophrenia based on psychiatric symptoms, social functioning and use of health services. In particular, there were significant differences between anxious and non-anxious patients in WHOQOL-PH and WHOQOL-P. Anxious patients scored significantly lower in those domains. Disabled patients and patients without social support scored significantly lower in almost all WHOQOL-BREF domains.

Regarding social health service use, there were significant differences between groups in WHOQOL-E. Patients that used those services scored lower in this domain than those patients that did not use those services. No other differences were observed regarding use of health services.

### *3.3. Changes over time*

There were statistically significant changes over time regarding PANSS positive, PANSS negative, PANSS general, PANSS total, GAF clinical and GAF social scores. To be precise, there was a decrease in psychiatric symptoms as shown by change in PANSS scores over time and an improvement in overall functioning as indicated by changes in GAF scores over time. Effect sizes were medium for most scores but small for GAF social scores. DAS-s scores decreased over time but not significantly and WHOQOL-BREF scores and FSSQ scores remained about the same over time. With regard to use of health services, there were statistically significant changes over time in community nursing visits. Specifically, there was an increase in community nursing visits with a small effect size. No other statistically significant differences over time were observed (See Table 3).

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### *3.4. Sensitivity to change*

Firstly, score differences between baseline and one-year follow-up were calculated for WHOQOL-BREF domains, WHOQOL-BREF total score, the other assessment tools and community service visits. Secondly, Pearson's correlation coefficients between WHOQOL-BREF score differences and all other score differences were calculated. Table 4 shows that Pearson's correlations between changes in WHOQOL-BREF scores and changes in GAF, PANSS, DAS-s, FSSQ scores and community service visits were mostly significant. Those coefficients ranged from -0.00 to 0.36. In particular, correlations between the change in WHOQOL-BREF and the change in GAF scores were small; correlations between changes in WHOQOL-BREF and changes in PANSS and DAS-s scores were negative and small; correlations between changes in WHOQOL-BREF and changes in FSSQ scores ranged between small and moderate. As for use of health services, only community nursing visits showed statistically significant correlations. Specifically, correlations between changes in WHOQOL-BREF scores and changes in community nursing visits were small.

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## *4. Discussion*

The aim of this study was to validate the WHOQOL-BREF in patients with schizophrenia. The WHOQOL-BREF showed suitable psychometric properties in this patient population.

Internal consistency values at baseline and at one-year follow-up were excellent for the total WHOQOL-BREF and adequate for WHOQOL-BREF domains. These findings are in agreement with the evidence about the psychometric properties of the WHOQOL-BREF. During the development of the WHOQOL-BREF[41], Cronbach's α values of the WHOQOL-BREF domains ranged between 0.66 and 0.84. In 2002, the WHOQOL group participated in a field trial held in 23 countries, which intended to confirm and extend information on WHOQOL-BREF psychometric properties. Cronbach's α values of the WHOQOL-BREF domains observed ranged between 0.55 and 0.88 for the PH domain, between 0.73 and 0.89 for the P domain, between 0.55 and 0.77 for the SR domain and between 0.65 and 0.87 for the E domain[42]. In a study with adult psychiatric outpatients, the internal consistency of the WHOQOL-BREF four domains ranged from 0.66 to 0.80[29].

We expected to find that global functioning and perceived social support had a positive relationship with subjective QOL, while the severity of depression, anxiety and negative symptoms as well as disability and use of services had a negative one[38]. Those were the directional relationships of the present findings, which also have been found in other studies. Some authors have found similar associations between the domains of the WHOQOL-BREF and measures of psychopathological symptoms, social support[24;29] and functioning[54]. One should note that the correlation coefficients of QOL with those variables ranged between small and large, with disability and social support showing the largest coefficients. This might suggest that disability and social support are more closely related to QOL than psychiatric symptoms and global functioning. However, it should be emphasized that psychiatric symptoms and functioning were assessed by clinicians, while QOL and social support were self-rated by patients. Those results suggest that patients' perceptions of mental health do not correspond with clinicians' perceptions[55-57]. Some authors have even argued that those perceptions might be independent[58-60]. This lack of agreement between informants might be related to higher associations between measures provided by the same informant than between measures provided by different informants[61].

There were no differences in WHOQOL-BREF domains between groups of patients established according to socio-demographic variables. The present findings have been observed in other studies. Skantze et al.[62] showed that QOL had no association with gender, marital status and standard of living, while in a multicentre study[63] no differences in subjective QOL between men and women with schizophrenia were observed. Young[64] found no associations between perceived QOL and sex, age, education and marital status. Although some studies have reported significant associations between subjective QOL and socio-demographic factors[29; 55; 65], it is agreed that the relationship between socio-demographic factors and subjective QOL is controversial, weak, or non-existent[38]. Therefore, socio-demographic variables are still not considered to be significantly associated with QOL in patients with schizophrenia, which is consistent with our results.

There were significant differences between patient groups. Disabled patients and patients lacking social support showed poorer levels of QOL in almost all WHOQOL-BREF domains, while anxious patients scored lower in the PH and P domains of the WHOQOL-BREF. Although one should note that group differences may be unreliable since they were made according to established cut-offs of single scale items rather than through diagnostic interviews, our results are consistent with findings which show that QOL is associated with disability, social support and psychiatric symptoms[30]. Patients who used social services more showed poorer levels of QOL related to environment. In other words, patients with more care needs at a social level appeared to show poorer levels of QOL. The association between care needs and QOL in patients with schizophrenia has been widely investigated[38] and it has been shown that there is a relationship between high numbers of unmet needs and low QOL, which is consistent with the present findings.

There are differences in QOL when comparing patients with schizophrenia with healthy subjects or other clinical groups[38]. Patients with schizophrenia are significantly impaired in both the general and all specific QOL domains compared with healthy subjects but only in some domains when compared with other clinical groups. At baseline, WHOQOL-BREF scores in our study sample differed from those of healthy people. For example, in the development of the WHOQOL-BREF[41] mean scores in healthy people were 16.2 for the PH, 15 for the P, 14.3 for the S and 13.5 for the E domain, which were higher than those in our sample. Akvardar et al.[66] showed similar WHOQOL-BREF scores to those obtained in our study and found that patients with schizophrenia scored significantly lower than healthy subjects in all WHOQOL-BREF domains. They also showed lower scores in the P and SR domains when compared to patients with diabetes and bipolar disorder.

At one-year follow-up, we expected, as a consequence of the role of AMHCC in the provision of care to patients with schizophrenia, a decrease in levels of psychiatric symptoms and disability and an increase in levels of global functioning, QOL and social support. There were only improvements regarding psychiatric symptoms and global functioning together with an increase of community psychiatric nursing visits. We observed a decrease in disability but non-significant and we did not observe improvements regarding QOL and social support as perceived by patients. Although WHOQOL-BREF was sensitive to changes over time, the associations between changes in WHOQOL-BREF scores and changes in the rest of variables were mostly small except for changes in social support that ranged between small and moderate. Again, those results might show lack of agreement between patients' and clinicians' assessments. Moreover, the lack of improvements regarding QOL could be explained by the fact that impairment in QOL appears to be relatively stable across the course of the illness[38].

To date, the WHOQOL-BREF has been used for the assessment of patients with schizophrenia although no validation of the scale is available. The present findings provide evidence regarding the psychometric properties of the WHOQOL-BREF in patients with schizophrenia, which supports its use in this patient population. It shows that the WHOQOL-BREF has good reliability and validity, and suggests that it is a suitable scale for the assessment of QOL in patients with schizophrenia. Taking all the above into account, the WHOQOL-BREF could be used in patients with schizophrenia as an assessment tool for purposes such as research or routine practice.

## *Acknowledgments*

This study was supported by grant PI050789 from the Ministerio de Salud de España, Instituto de Salud Carlos III, Fondo de Investigación Sanitario, Madrid, Spain and grant

2009SGR00822 from the Agency for Management of University and Research Grants, Generalitat de Catalunya, Barcelona, Spain. We thank the WHOQOL group for allowing the use of the WHOQOL-BREF.

## *Conflicts of interest*

The authors declare no conflict of interest.

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Table 1. Socio-demographic characteristics of the sample at baseline

| **Variable** | **N** | **%** |
|---|---|---|
| Age* | | |
| ≤ 42 years | 133 | 42.8 |
| > 42 years | 178 | 57.2 |
| Gender | | |
| Females | 78 | 32.4 |
| Males | 163 | 67.6 |
| Illness duration | | |
| ≤ 10 years | 66 | 27.4 |
| > 10 years | 175 | 72.6 |
| Marital status | | |
| Single | 181 | 75.1 |
| Living with partner or married | 32 | 13.3 |
| Divorced or separated or widow | 28 | 11.6 |
| Educational level | | |
| ≤ Primary school | 113 | 46.9 |
| >Primary school | 128 | 53.1 |
| Living arrangement | | |
| Family Property | 166 | 68.9 |
| Others | 45 | 31.1 |
| Employment status | | |
| Active | 53 | 22 |
| Non-active | 188 | 78 |
| Schizophrenia type | | |
| Paranoid | 170 | 70.5 |
| Other | 71 | 29.5 |

**The two groups have been established taking into account the mean*

Table 2. Validity evidence of the WHOQOL-BREF[1] for patients with schizophrenia

| | WHOQOL PHYSICAL | WHOQOL PSYCHOLOGICAL | WHOQOL SOCIAL RELATIONS | WHOQOL ENVIRONMENT | WHOQOL TOTAL |
|---|---|---|---|---|---|
| **Association with clinical and psychosocial variables:** [r (p value)] (n=241) | | | | | |
| GAF[2]-clinical | 0.17 (p=0.010) | 0.25 (p<0.001) | ns | 0.21 (p=0.001) | 0.23 (p<0.001) |
| GAF-social | 0.20 (p=0.002) | 0.20 (p=0.002) | ns | 0.23 (p<0.001) | 0.23(p<0.001) |
| PANSS[3] positive | ns | -0.18 (p=0.005) | -0.13 (p=0.048) | -0.14 (p=0.025) | -0.17 (p=0.009) |
| PANSS negative | ns | ns | -0.14 (p=0.033) | ns | ns |
| PANSS general | -0.17 (p=0.008) | -0.25 (p<0.001) | -0.19 (p=0.004) | -0.19 (p=0.002) | -0.24 (p<0.001) |
| PANSS total | -0.13 (p=0.038) | -0.21 (p=0.001) | -0.18 (p=0.004) | -0.17(p=0.008) | -0.21 (p=0.001) |
| DAS-s[4] | -0.30 (p<0.001) | -0.31 (p<0.001) | -0.31 (p<0.001) | -0.36 (p<0.001) | -0.40 (p<0.001) |
| FSSQ[5]-total social support | 0.35 (p<0.001) | 0.35 (p<0.001) | 0.55 (p<0.001) | 0.51 (p<0.001) | 0.52 (p<0.001) |
| FSSQ-confidential support | 0.34 (p<0.001) | 0.34 (p<0.001) | 0.53 (p<0.001) | 0.49 (p<0.001) | 0.50 (p<0.001) |
| FSSQ-affective support | 0.25 (p<0.001) | 0.29 (p<0.001) | 0.41 (p<0.001) | 0.40 (p<0.001) | 0.42 (p<0.001) |
| **Group differences:** [t test(p value)] (n=241) | | | | | |
| Age (≤42years old:>42 years old) | ns | ns | ns | ns | ns |
| Gender (male: female) | ns | ns | ns | ns | ns |
| Illness length (≤10 years:>10 years) | ns | ns | ns | ns | ns |
| Education (≤ primary school: >primary school) | ns | ns | ns | ns | ns |
| Employment status (active: non active) | ns | ns | ns | ns | ns |
| Diagnosis (paranoid schizophrenia: other schizophrenias) | ns | ns | ns | ns | ns |
| Living arrangement (family property: others) [F (p value)] | ns | ns | ns | ns | ns |
| Marital status (single: married or living with partner: divorced or separated or widow) | ns | ns | ns | ns | ns |
| [t test (p value)] | | | | | |
| Depressed vs. non depressed (PANSS general: item number 6 ≥ 4 vs. item number 6 < 4) | ns | ns | ns | ns | ns |
| Anxious vs. no anxious (PANSS general: item number 2 ≥ 4 vs. item number 2 < 4) | 3.23 (p=0.001) | 3.76 (p<0.001) | ns | ns | ns |
| Disabled vs. non disabled (DAS-s ≥ 4 vs. DAS-s<4) | ns | 3.14 (p=0.001) | 2.72 (p=0.003) | 4.30 (p<0.001) | 3.92 (p<0.001) |
| Lacking social support vs. having social support (FSSQ ≤ 32 vs. FSSQ > 32) | -4.45 (p<0.001) | -4.28 (p<0.001) | -7.37 (p<0.001) | -6.62 (p<0.001) | -6.94 (p<0.001) |
| Use of social services vs. no use of social services$^{\Upsilon}$ | ns | ns | ns | -2.96 (p=0.003) | ns |
| Use of emergency calls vs. no use of emergency calls$^{\Upsilon}$ | ns | ns | ns | ns | ns |

n= simple size at baseline; ns: non-significant; ϒ: Time frame : patient visits during the year previous to the fist assessment versus patients visits during a year after the first assessment

1.WHOQOL-BREF: World Health Organization Quality of Life Brief Version; 2. GAF: Global Assessment of Functioning; 3. PANSS: Positive and Negative Syndrome Scale; 4. DAS-s: The World Health Organization Short Disability Assessment Schedule; 5. FSSQ: Functional Social Support Questionnaire

Table 3. Clinical and psychosocial variables and use of health services at baseline and at one year follow-up

| Measure | Baseline | | 1 year follow-up | | Differences over time | | |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | t | p | ES |
| (n=219) | | | | | | | |
| PANSS[1] positive | 16.67 | 6.26 | 15.22 | 6.10 | 5.02 | <0.001 | 0.32 |
| PANSS negative | 24.07 | 6.99 | 22.34 | 6.90 | 5.08 | <0.001 | 0.33 |
| PANSS general | 42.35 | 12.73 | 39.22 | 12.30 | 5.30 | <0.001 | 0.34 |
| PANSS total | 83.10 | 22.47 | 76.79 | 21.96 | 6.14 | <0.001 | 0.38 |
| GAF[2] clinic | 47.07 | 9.69 | 49.58 | 11.01 | -4.94 | <0.001 | 0.32 |
| GAF social | 44.29 | 10.00 | 46.26 | 10.36 | -3.45 | <0.001 | 0.23 |
| DAS-s[3] | 9.09 | 4.46 | 8.59 | 4.46 | 2.37 | ns | 0.16 |
| WHOQOL-BREF[4] physical health | 13.25 | 2.42 | 13.27 | 2.54 | -0.95 | ns | 0.01 |
| WHOQOL-BREF psychological health | 12.18 | 2.86 | 12.19 | 2.81 | -0.01 | ns | 0.00 |
| WHOQOL-BREF social relationships | 10.54 | 3.26 | 10.50 | 3.24 | 0.23 | ns | 0.02 |
| WHOQOL-BREF environment | 13.24 | 2.26 | 13.31 | 2.36 | -0.51 | ns | 0.04 |
| WHOQOL-BREF general | 81.82 | 13.94 | 81.95 | 14.11 | -0.18 | ns | 0.01 |
| FSSQ[5] total social support | 36.68 | 9.47 | 36.57 | 9.72 | 0.22 | ns | 0.02 |
| FSSQ confidant support | 16.55 | 4.99 | 16.37 | 5.17 | 0.63 | ns | 0.00 |
| FSSQ affective support | 10.90 | 3.14 | 10.78 | 3.22 | 0.68 | ns | 0.00 |
| Community psychiatric visits[ϒ] | 5.76 | 4.22 | 6.28 | 4.43 | -1.75 | ns | 0.12 |
| Community nursing visits[ϒ] | 5.92 | 7.13 | 8.38 | 9.03 | -4.35 | <0.001 | 0.28 |

SD: standard deviation; ns: non-significant ; ϒ. Time frame: patient visits during the year previous to the fist assessment versus patients visits during a year after the first assessment

1. PANSS: Positive and Negative Syndrome Scale; 2. GAF: Global Assessment of Functioning; 3. DAS-s: The World Health Organization Short Disability Assessment Schedule; 4. WHOQOL-BREF: World Health Organization-Quality of Life Scale Brief Version; and 5. FSSQ: Functional Social Support Questionnaire

Table 4. Sensitivity to change of the WHOQOL-BREF[1] for patients with schizophrenia

|  | WHOQOL PHYSICAL r(p) | WHOQOL PSYCHOLOGICAL r(p) | WHOQOL SOCIAL RELATIONS r(p) | WHOQOL ENVIRONMENT r(p) | WHOQOL TOTAL r(p) |
|---|---|---|---|---|---|
| **Sensitivity to change** (n= 219) |  |  |  |  |  |
| GAF[2] clinical | 0.11 (p=0.092) | 0.14 (p=0.035) | 0.09 (p=0.198) | 0.04 (p=0.539) | 0.14 (p=0.035) |
| GAF social | 0.23 (p=0.001) | 0.18 (p=0.008) | 0.07 (p=0.283) | 0.14 (0=0.035) | 0.23 (p=0.001) |
| PANSS[3] positive | -0.10 (p=0.132) | -0.10 (p=0.145) | -0.15 (p=0.029) | -0.02 (p=0.803) | -0.13 (p=0.065) |
| PANSS negative | -0.16 (p=0.017) | -0.19 (p=0.005) | -0.16 (p=0.019) | -0.08 (p=0.236) | -0.20 (p=0.003) |
| PANSS general | -0.14 (p=0.038) | -0.19 (p=0.004) | -0.20 (p=0.003) | -0.05 (p=0.448) | -0.19 (p=0.004) |
| PANSS total | -0.16 (p=0.016) | -0.20 (p=0.003) | -0.21 (p=0.002) | -0.06 (p=0.368) | -0.21 (p=0.001) |
| DAS-s[4] | -0.15 (p=0.030) | -0.19 (p=0.006) | -0.16 (p=0.020) | -0.11 (p=0.112) | -0.21 (p=0.001) |
| FSSQ[5] total social support | 0.24 (p<0.001) | 0.27 (p<0.001) | 0.28 (p<0.001) | 0.27 (p<0.001) | 0.36 (p<0.001) |
| FSSQ confidential support | 0.25 (p<0.001) | 0.27 (p<0.001) | 0.31 (p<0.001) | 0.26 (p<0.001) | 0.36 (p<0.001) |
| FSSQ affective support | 0.17 (p=0.014) | 0.21 (p=0.002) | 0.07 (p=0.299) | 0.21 (p=0.002) | 0.25 (p<0.001) |
| Nursing community visits (n=218)[ϒ] | 0.12 (p=0.075) | 0.09 (p=0.190) | 0.18 (p=0.007) | 0.01 (p=0.892) | 0.11 (p=0.096) |
| Psychiatric community visits (n=218)[ϒ] | 0.03 (p=0.699) | 0.01 (p=0.888) | -0.06 (p=0.392) | 0.00 (p=0.989) | 0.00 (p=0.947) |

n = sample size; ϒ: Time frame: patient visits during the year previous after first assessment vs. patient visits during the year after the second assessment.

1.WHOQOL-BREF: World Health Organization Quality of Life Scale Brief Version; 2. GAF: Global Assessment of Functioning; 3. PANSS: Positive and Negative Syndrome Scale; 4. DAS-s: The World Health Organization Short Disability Assessment Schedule; 5. FSSQ: Functional Social Support Questionnaire