Psychiatry and Clinical Neurosciences (2006), **60**, 693–699 doi:10.1111/j.1440-1819.2006.01584.x

Regular Article

Assessment of quality of life with the WHOQOL-BREF in a group of Turkish psychiatric patients compared with diabetic and healthy subjects

YILDIZ AKVARDAR, MD,[1] BERNA BINNUR AKDEDE, MD,[1] AYŞEGÜL ÖZERDEM, MD,[1] ERHAN ESER, MD,[2] ŞULE TOPKAYA, MD[3] AND KÖKSAL ALPTEKIN, MD[1]

[1]*Department of Psychiatry, Dokuz Eylul University School of Medicine, İzmir,* [2]*Deparment of Public Health, Celal Bayar University School of Medicine, Manisa, and* [3]*Alsancak State Hospital, İzmir, Turkey*

Abstract Decreased quality of life is often an important cause or consequence of psychiatric illness, and needs to be included in a comprehensive treatment plan. The authors aimed to identify how psychiatric patients characterize the quality of their lives compared to others who are suffering from a chronic physical illness (diabetes) and healthy individuals. A total of 100 psychiatric patients were recruited from Dokuz Eylül University Psychiatry Department outpatient clinic. Of these, 34 had 4th edition Diagnostic and Statistical Manual diagnosis of alcohol dependence, 38 had schizophrenia, and 28 had bipolar disorder. A total of 35 patients with diabetes and 49 healthy individuals were also included in the study. The World Health Organization's Quality of Life Questionnaire was used to measure the quality of life. Patients with alcohol dependence, bipolar disorder, and schizophrenia scored lower than healthy subjects on the physical aspects of quality of life. Patients with schizophrenia had lower scores in the psychological domain compared to patients with bipolar disorder, patients with diabetes, and healthy subjects. In the social relationship domain, patients with schizophrenia and alcohol dependence scored lower compared to healthy subjects. Patients with schizophrenia were worse with respect to social relationships than bipolar patients and diabetics. World Health Organization's Quality of Life Questionnaire is useful for evaluating the needs and targets for interventions in psychiatric patients.

Key words alcohol dependence, bipolar disorder, diabetes, quality of life, schizophrenia.

INTRODUCTION

There has been an increased interest in quality of life assessments, especially in patients with a chronic medical illness. Quality of life encompasses those aspects of life that make it particularly fulfilling and worthwhile. The scope of quality of life, therefore, extends beyond traditional symptoms and includes patients' subjective feelings of wellbeing, satisfaction, functioning and impairment.[1] Psychopathology adversely affects most aspects of life, particularly its physical and psychological aspects as well as the patient's social, occupational and economic status. These long-term effects usually remain despite symptom remission, and, in fact, the residual quality of life issues may be sufficiently stressful to precipitate a relapse. Relapse or exacerbation prevention is one of the keys to successful management of the course of chronic mental illness. Impaired quality of life is viewed as one of the important causal factors or as a consequence of psychiatric illness[2] and, therefore, needs to be considered in a comprehensive treatment plan. Furthermore, quality of life constitutes a relevant factor in assessing outcomes of different psychiatric treatment modalities and their relative costs.[3]

An accurate portrayal of the problematic quality of life associated with mental disorders must be broad

Correspondence address: Yıldız Akvardar, MD, Department of Psychiatry, Dokuz Eylul University, School of Medicine, Izmir, 35340, Turkey. Email: yildiz.akvardar@deu.edu.tr

Received 10 January 2006; revised 6 June 2006; accepted 6 August 2006.

© 2006 The Authors
Journal compilation © 2006 Folia Publishing Society

and multidimensional.[1] Quality of life measures for psychiatric patients are to provide useful information for planning and evaluating care strategies. Quality of life assessment places patients at the center of inquiry, with emphasis on their opinions,[4] and responds to patients' concerns, not to be treated as cases, but as human beings with multifaceted lives with a multitude of aspects that are not directly connected to their disease. Physicians generally have a tendency to re-frame all problems as being related to a presenting disease. Quality of life assessment introduces a humanistic element into health care that has been increasingly preoccupied with mechanistic treatment of diseases and symptomatic improvement.[5] Quality of life assessment may help to identify any part of life in which the patient experiences problems. By helping the patient overcome these problems, the patient may feel healthier and make less demand on the health sector.

It is of great significance that five of the 10 leading causes of disability worldwide are mental problems: major depression, schizophrenia, bipolar disorder, alcohol use, and obsessive–compulsive disorder.[6] These causes are as relevant in developing countries as in industrialized societies. According to the Mental Health Profile Survey in Turkey, psychiatric diseases are clearly associated with higher rates of disability (number of days unable to work, number of days unable to get out of bed) than both in persons free of psychiatric disorder and in those with physical illness.[7]

In this study, the authors attempted to identify how a group of Turkish psychiatric patients characterize the quality of their lives compared to others who are suffering from a chronic physical illness, specifically, from diabetes, as well as healthy individuals. A comparative study of quality of life within various psychiatric diagnostic groups as well as a comparison to the one of healthy controls and to the one of those with a chronic physical illness (patients with diabetes presumably have a poor quality of life) might help to place the psychiatric data in a broader context. The authors hypothesized the following: (i) psychiatric patients show a significant impairment in the quality of their life than healthy individuals; (ii) quality of life is worse in psychiatric patients than in patients with diabetes; and (iii) patients with schizophrenia have the greatest impairment in all domains of quality of life.

METHODS

Subjects

The quality of life of 100 patients with 4th edition Diagnostic and Statistical Manual (DSM-IV) diagnoses of alcohol dependence ($n = 34$), schizophrenia ($n = 38$), and bipolar disorder ($n = 28$) currently under regular treatment at the outpatient clinic of the Department of Psychiatry of the Dokuz Eylül University, Izmir, Turkey, were assessed between January and June 2001. All patients were clinically stabilized and had a sufficient cognitive ability and level of literacy to complete the instruments. After receiving a complete explanation of the study, each of them gave informed consent to participate.

Sociodemographic characteristics of the groups are shown in Table 1. The groups differed significantly in their demographic parameters.

Patients with alcohol dependence

A total of 34 patients meeting DSM-IV criteria for alcohol dependence were included in the study. Their mean age was 44.97 ± 8.48 years, 82.2% were male, and their mean total score on Michigan Alcoholism Screening Test (MAST)[8,9] was 25.55 ± 10.57.

Patients with schizophrenia

Data on quality of life from 38 patients with schizophrenia meeting DSM-IV criteria were included in the study. Their mean age was 37.00 ± 10.30 years and 60.5% were male. The mean total score on Positive and Negative Symptom Scale (PANSS)[10,11] was 81.68 ± 19.64.

Patients with bipolar disorder

The study included 28 patients with bipolar disorder meeting DSM-IV criteria, euthymic for at least 1 month at the time of quality of life assessment. All of these were recruited from those followed up in the bipolar outpatient clinic. The mean age in this group was 34.79 ± 7.81 years and 35.7% were male.

Patients with diabetes

A total of 36 consecutive patients with diabetes currently under treatment in the endocrinology outpatient clinic, with no extreme complications, were included in the study. Their mean age was 54.94 ± 7.93 years and 48.6% were male.

Healthy controls

The authors included 49 persons randomly assigned from the inhabitants of the neighborhood near the hospital. These people had no reported physical or psychiatric illness at the time of the study.

© 2006 The Authors
Journal compilation © 2006 Folia Publishing Society

Table 1. Description and comparison of demographic variables of patient groups and healthy subjects

	Alcohol dependence $n = 34$	Schizophrenia $n = 38$	Bipolar $n = 28$	Diabetes $n = 35$	Healthy subjects $n = 49$	Test
Age (years)	44.97 ± 8.48	37.00 ± 10.30	34.79 ± 10.75	54.97 ± 7.93	33.78 ± 11.71	$F = 28.51$*; d.f. = 4
Gender percentage						$\chi^2 = 26.66$*; d.f. = 4
Male	88.2	60.5	35.7	48.6	36.7	
Female	11.8	39.5	64.3	51.4	63.3	
Marital status (%)						$\chi^2 = 46.46$*; d.f. = 4
Single	14.7	81.6	64.3	20.0	55.1	
Married	85.3	18.4	35.7	80.0	44.9	
Education (%)						$\chi^2 = 39.63$*; d.f. = 10
Primary school	17.6	21.1	28.6	40.0	36.7	
High school	2.9	55.3	21.4	25.7	32.7	
University	79.4	23.7	50.0	34.3	30.6	

* $P < 0.001$.

Measures

World Health Organization Quality of Life-Brief Form

All of the participants were given the World Health Organization Quality of Life–Brief Form (WHOQOL-BREF) to assess their quality of life. The WHO Quality of Life Assessment (WHOQOL) is a generic quality of life instrument that was designed to be applicable to people living under different circumstances, conditions, and cultures.[12,13] The WHOQOL is based on a purely subjective evaluation, to assess the perceived quality of life, and in this way differs from many other instruments.[3] WHOQOL also approaches the quality of life as a multidimensional concept.[4] An assessment of a number of domains is necessary to derive a more comprehensive view of a person's quality of life. Two versions are available: the full WHOQOL with 100 items and the short version known as WHOQOL-BREF with 26 items. WHOQOL-BREF, useful in clinical and service evaluations was used in this study for reasons of brevity. It is suggested that the WHOQOL-BREF provides a valid and reliable alternative to the assessment of domain profiles using the WHOQOL-100[12] and is sensitive to the health related quality of life status of those with long-term mental illness. It provides unweighted measures on four domains: physical, psychological, social relationship, and environment. The physical domain consists of questions related to daily activities, treatment compliance, pain and discomfort, sleep and rest, energy and fatigue. The psychological domain includes questions of positive and negative feelings, self-esteem, body image and physical appearance, personal beliefs and attention. The social relationship domain assesses personal relationships, social support, and sexual activity. The environmental domain explores physical security and safety, financial resources, health and social care and their availability, opportunities for acquiring new information and skills, and participation in and opportunities for recreation and transport. It is based on a Likert-type scale and is scored from 1 to 5, with higher scores indicating a better quality of life. The Turkish version[14] has highly satisfactory psychometric qualities of internal consistency, reliability, and construct validity.

Data analysis

Descriptive data on frequency, proportions, and on the means and standard deviations were obtained with respect to sociodemographic and clinical characteristics of the groups. Comparisons of Quality of Life among the different groups were carried out via one-way ANOVA on the SPSS 10.0 for Windows (SPSS Inc., Chicago, IL, USA), with post-hoc Bonferroni applied for multiple comparisons among groups. The intergroup differences in age were analyzed with one-way ANOVA and the group differences in gender, marital status and education were examined with the χ^2-test. As the groups showed significant differences in age, gender, marital status and education (see Table 1), the effects of these independent variables were controlled statistically. ANCOVA was conducted to control the effect of age on the quality of life. The impact of interactions of gender, education, and marital status with diagnostic groups on quality of life was investigated by two-way ANOVA. Statistical significance was tested using

© 2006 The Authors
Journal compilation © 2006 Folia Publishing Society

Table 2. Comparison of World Health Organization Quality of Life–Brief Form–Turkish version scores on Physical, Psychological, Social Relationship and Environmental domains among patients and healthy subjects

	Alcohol dependence $n = 34$	Schizophrenia $n = 38$	Bipolar $n = 28$	Diabetes $n = 35$	Healthy subjects $n = 49$	Multiple comparisons
Physical	12.60 ± 2.15	12.90 ± 2.73	12.70 ± 2.14	13.00 ± 1.62	14.32 ± 2.18	C vs A C vs S C vs B
Psychological	13.30 ± 2.30	12.22 ± 3.16	13.95 ± 1.67	14.45 ± 1.64	14.57 ± 2.10	C vs S S vs B S vs D
Social relationship	12.31 ± 3.36	10.05 ± 3.68	12.88 ± 3.73	14.32 ± 3.44	15.12 ± 2.86	C vs A C vs S S vs B S vs D
Environmental	13.23 ± 2.17	12.72 ± 3.77	13.53 ± 2.40	14.45 ± 2.05	13.75 ± 2.23	$P > 0.05$

Note: Comparisons (Bonferroni) for Control (C), Alcohol Dependence (A), Schizophrenia (S), Bipolar (B), and Diabetes (D); groups significant at $P < 0.05$.

two-tailed *P*-value (5% level) and 95% confidence intervals.

RESULTS

Table 2 shows the mean scores on the different domains according to the diagnostic groups. Psychiatric patients had lower scores of quality of life than healthy individuals. Quality of life scores were also lower in psychiatric patients than in patients with diabetes in all domains of WHOQOL-BREF. Patients with schizophrenia showed the lowest scores in all quality of life domains except for the physical domain. Alcohol-dependent patients had the lowest scores in the physical domain.

ANOVA revealed that the group differences were statistically significant for the physical (d.f. = 4, $F = 4.41$, $P = 0.002$), the psychological (d.f. = 4, $F = 7.09$, $P = 0.0001$) and the social relationship (d.f. = 4, $F = 13.74$, $P = 0.0001$) domains. The group differences were not statistically significant for the environmental domain (d.f. = 4, $F = 2.20$, $P = 0.07$).

Post-hoc multiple comparisons among groups were carried out as listed in Table 2. In the physical domain, patients with schizophrenia ($P = 0.03$), those with bipolar disorder ($P = 0.02$), and also those with alcohol dependence ($P = 0.006$) showed significantly lower scores than the healthy subjects. Surprisingly, the patients with diabetes showed no significant difference when compared to healthy subjects in the physical domain ($P = 0.07$).

In the psychological domain, the patients with schizophrenia showed lower scores than healthy subjects ($P = 0.0001$), the patients with diabetes ($P = 0.02$), and also than the patients with bipolar disorder ($P = 0.0001$).

The patients with schizophrenia ($P = 0.0001$) and alcohol dependence ($P = 0.003$) showed significantly lower scores than healthy subjects in the social relationship domain. In this domain, the patients with schizophrenia had significantly lower scores than patients with diabetes ($P = 0.0001$) and also than those with bipolar disorder ($P = 0.01$).

After controlling the effect of age by ANCOVA, there was still a significant difference in the physical (d.f. = 4, $F = 4.53$, $P = 0.002$), the psychological (d.f. = 4, $F = 6.97$, $P = 0.0001$), and the social relationship (d.f. = 4, $F = 13.57$, $P = 0.0001$) domains.

The interactions of gender, marital status and education with quality of life among the groups were investigated by two-way ANOVA. There were no significant interactions between these variables and quality of life among groups ($P > 0.05$).

DISCUSSION

As expected, the quality of life of patients with psychiatric disorders was lower than in the healthy subjects. The results support the conclusions of previous studies, showing lower health-related quality of life in psychiatric patients compared to the physically ill and healthy subjects.[15–18] Psychiatric patients' scores in the physical domain were significantly lower than in healthy subjects. It is not surprising that physical well-being of the mentally ill patients was lower than in healthy subjects since this domain includes questions related to daily

© 2006 The Authors
Journal compilation © 2006 Folia Publishing Society

activities, discomfort, sleep and energy and these areas might be fully affected by their illness. A similar result was obtained in Hermann *et al*.'s study[17] comparing psychotic patients to the general population, utilizing the same instrument, that is, the WHOQOL-BREF. However, it is interesting that the physical domain scores of all patients with a mental illness were lower than patients with diabetes (see Table 2), given their chronic physical illness.

The significant difference found in ANOVA in the psychological domain was primarily due to the difference between patients with schizophrenia and the following groups: the control subjects, patients with diabetes and patients with bipolar disorder. Lower scores of the patients with schizophrenia on this domain suggest more extensive problems with self-esteem, body image and cognition. The authors expected that patients with schizophrenia would obtain lower scores than normal controls as a number of previous studies have shown a considerable dissatisfaction with the quality of life in patients with schizophrenia when compared to healthy subjects.[17,19,20]

The results in the present study support the findings of a study by Chant *et al*.[18] where patients with bipolar disorder had significantly higher scores than a schizophrenia group in the psychological domain.

The social domain assesses the quality of interpersonal relationships other than the family, social support and sexual activity. In this domain, patients with schizophrenia had the lowest scores, followed by patients with alcohol dependence. This trend seems consistent with the stigmatization of these disorders in society. Social isolation due to the stigma might generally have a dramatic impact on the social domain both in patients with alcohol dependence and with schizophrenia. Furthermore, social isolation in schizophrenia may to some extent be seen both as a source and as a consequence of disability associated with psychotic disorders.[17–22] Patients with diabetes benefit from a greater social acceptance than patients with a mental illness as suggested by their higher scores in the social domain and are similar in their scores to the healthy subjects.

In the environmental domain, patients with schizophrenia again seemed the worst and this implies a disadvantage with respect to physical safety and security, financial resources, health and social care and their availability, opportunities for acquiring new information and skills, and participation in recreational activities and transport, perhaps due to the scarcity of rehabilitation programs in Turkey. Most of the patients with schizophrenia in the study were financially dependent on their families. However, it must be emphasized that the difference in the environmental domain did not reach statistical significance. It is noteworthy in this context that the validity and reliability study of WHOQOL-BREF conducted in the Turkish population[14] revealed that scores within the environmental domain did not seem to adequately discriminate, possibly due to the widespread lack of financial resources and related environmental opportunities in Turkey, similarly to the restricted conditions in other developing countries.

Psychiatric patients reported less satisfaction in all domains of WHOQOL compared to patients with diabetes. In the psychological and social relationship domains, the difference between the patients with schizophrenia and those with diabetes was statistically significant. Atkinson *et al*.[23] compared the quality of life between patients with schizophrenia and those on hemodialysis and reported no significant differences except on the family component of the Quality of Life Index. Although the difference was not statistically significant in the psychological domain, the trend was also in the expected direction (i.e. as in the present study), with the patients with schizophrenia showing lower scores than patients with a chronic physical illness.

Patients with schizophrenia obtained the lowest scores on all domains except on the physical domain, therefore, confirming the third hypothesis. Schizophrenia is a chronic disorder that results in a significant social, psychological, and occupational dysfunction. Patients with schizophrenia scored more poorly on measures of quality of life than patients with other chronic conditions. People living with long-term psychosis report worse health-related quality of life than the general population or patients with physical illness.[24] Quality of life measures are especially important when treating patients with chronic conditions that significantly impair their life, as in schizophrenia.[20] Every aspect of daily life is affected, including where they live and work, what activities they can perform, and how they interact with other people. Therefore, social integration, work, social contacts and a sense of belonging in the community must be the therapeutic goal to improve their subjective quality of life.

The scores of patients with bipolar disorder suggested less impairment than those of patients with schizophrenia in some of the domains and this perhaps may be the indicator of a positive impact of extensive remission periods on the quality of their lives. It can also be noted that self-reports of quality of life by bipolar patients are likely to be influenced by 'mood bias' or cognitive distortions regarding self-concept and functioning.[18] Studying remitted or euthymic bipolar patients (as in the present study) can reduce this bias. For these patients, the euthymic state offers a chance to reintegrate into society and a healthy lifestyle. Therefore, the prevention of further depressive and manic

© 2006 The Authors
Journal compilation © 2006 Folia Publishing Society

episodes is the prominent and crucial objective for the medical care of these patients.

As in Hermann *et al.*'s work,[17] the present study showed that the WHOQOL-BREF can be completed without difficulty by people with psychiatric disorders even if they are psychotic, on medication, and have limited formal education and significant levels of symptoms. The benefit of conducting quality of life surveys lies in providing these patients with an opportunity to express what is and isn't working in their lives. From the clinical viewpoint, this study implies that, in general, treatment programs should encourage patients and staff to work jointly to identify strategies for promoting the patient's quality of life. This approach has benefits beyond the psychoeducational model in that it involves a more equitable power distribution between patients and professionals.[21] This approach clearly necessitates teamwork. The lack of teamwork and lack of professionals such as psychiatric social workers and psychiatric nurses in Turkey needs urgent consideration. Utilizing the resources within the patients' natural support systems (e.g. families) as a means of influencing the course and quality of life of people with mental illness may be a transient solution for developing countries to overcome this socioeconomic problem.

Resources and services for mental and behavioral disorders are disproportionately low considering the enormous socioeconomic burden caused by these disorders.[25] At present, Turkey is one of the countries that has no legislation on mental health, no separate budget for mental health, and no community-care facilities.[26] The goal of integration of mental health into primary health care has not yet been successful, and no regular training programs for primary care personnel in mental health care are available. In most cases, the treatment includes only pharmacotherapy and hospitalization, when seen as needed. Research and clinical experience show that community-based care achieves better treatment results. Clinical trials also have shown that the important elements of an effective response to mental health problems are the combinations of pharmacotherapy and psychosocial interventions (rehearsal of independent living skills, training in social skills, vocational training, social support networks, family interventions) and these are presently still lacking in Turkey as well as in many other developing countries, and needs to be addressed as a priority.

A major weakness of the present study lies in the small sample size: this sets limitations on the generalizability of the results. The heuristic value of this study consists in statistically documenting the differences between various patients with mental illness and those with a chronic physical illness as well as in promoting the awareness that psychiatric patients may contribute valuable self-reports on selected aspects of their quality of life. If their 'satisfaction with functioning' is to be conceptually considered as an integral part of the health-related quality of life which per se is a subjective concept, then its assessment needs to be conducted with the patient, where possible.[27,28] However, in some cases, the involvement of family members and professionals can also be considered to obtain a collateral view on particular aspects of quality of life, in those areas that might be perceived in an excessively distorted manner due to psychopathological symptoms.[29] As a valuable generic instrument, WHOQOL-BREF appears to provide useful results consistent with clinical and theoretical knowledge and seems suited for assessing health-related quality of life in psychiatric patients in areas to be selected as potentially relevant targets for therapeutic intervention.

ACKNOWLEDGMENTS

The authors wish to express their sincere gratitude to their mentor the late Prof. Huray Fidaner, for her pioneer work regarding quality of life in Turkey. They also gratefully acknowledge editorial assistance by Zack Cernovsky, University of Western Ontario, London, Canada.

REFERENCES

1. Quilty LC, Von Amerigen M, Mancini C, Oakman J, Farvolden P. Quality of life and anxiety disorders. *Anxiety Dis.* 2002; **430**: 1–22.
2. *American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders*, 4th edn. American Psychiatric Association, Washington, DC, 1994.
3. Orley J, Saxena S, Herrman H. Quality of life and mental illness. *Br. J. Psychiatry* 1998; **172**: 291–293.
4. Saxena S, Orley J. Quality of life assessment: the World Health Organization perspective. *Eur. Psychiatry* 1997; **12**: 263–266.
5. Sartorius N. Quality of life in psychiatry. *Eur. Psychiatry* 1996; **11**: 228–229.
6. *World Health Organization. The 'newly defined' burden of mental problems.* Available from URL: http://www.who.int/inf-fs/en/fact217.html
7. Erol N, Kılıç C, Ulusoy M, Kececi M, Şimşek Z. Mental Health Profile of Turkey Report 1998, Turkish Republic Ministry of Health, General Directorate of Primary Health Care, Ankara (in Turkish).
8. Gibbs LE. Validity and reliability of the Michigan Alcoholism Screeninig Test: a review. *Drug Alcohol. Depend.* 1983; **12**: 279–285.
9. Coþkunol H, Bağdiken İ, Sorias S *et al.* Validity of Michigan Alcoholism Screening Test. *Aegean Med. J.* 1995; **1–2**: 15–18 (in Turkish).

© 2006 The Authors
Journal compilation © 2006 Folia Publishing Society

10. Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr. Bull.* 1987; **13**: 261–276.
11. Kostakoğlu AE, Batur S, Tiryaki A. The validity and reliability of the Turkish version of the positive and negative symptom scale (PANSS). *Turkish J. Psychology* 1999; **14**: 23–32 (in Turkish).
12. *WHOQOL Group.* The World Health Organization Quality of Life Assessment (WHOQOL): development and general psychometric properties. *Soc. Sci. Med.* 1998; **46**: 1569–1585.
13. *WHOQOL Group.* The World Health Organization WHOQOL-BREF Quality of Life Assessment. *Psychol. Med.* 1998; **28**: 551–558.
14. Eser E, Fidaner H, Fidaner C, Eser SY, Elbi H, Göker E. Psychometric properties of the WHOQOL-100 and WHOQOL-BREF. *J. Psychiatry Psychol. Psychopharmacol.* 1999; **7**: 23–40 (in Turkish).
15. Foster JH, Powell JE, Marshall EJ, Peters TJ. Quality of life in alcohol-dependent subjects – a review. *Qual. Life Res.* 1999; **8**: 255–261.
16. Bonicatto SC, Dew MA, Zaratiegui R, Lorenzo L, Pecina P. Adult outpatients with depression: worse quality of life than in other chronic medical diseases in Argentina. *Soc. Sci. Med.* 2001; **52**: 911–919.
17. Hermann H, Hawthorne G, Thomas R. Quality of life assessment in people living with psychosis. *Soc. Psychiatry Psychiatr. Epidemiol.* 2002; **37**: 510–518.
18. Chand PK, Mattoo SK, Sharan P. Quality of life and its correlates in patients with bipolar disorder stabilized on lithium prophilaxis. *Psychiatry Clin. Neurosci.* 2004; **58**: 311–318.
19. Bengtsson-Tops AH, Ansson L. Subjective quality of life in schizophrenic patients living in the community: relationship to clinical and social characteristics. *Eur. Psychiatry.* 1999; **14**: 256–263.
20. Alptekin K, Akvardar Y, Akdede Kıvırcık BB *et al.* Is quality of life associated with cognitive impairment in schizophrenia? *Prog. Neuropsychopharmacol. Biol. Psychiatry* 2005; **29**: 239–244.
21. Saleem P, Olie JP, Loo H. Social functioning and quality of life in the schizophrenic patient: advantages of amisulpride. *Intern. Clin. Psychopharmacol.* 2002; **17**: 1–8.
22. Vandier VL. Quality of life, gender and schizophrenia. A cross-national survey in Canada, Cuba, and U.S.A. *Commun. Ment. Health J.* 1998; **34**: 501–512.
23. Atkinson M, Zibin S, Chuang H. Characterizing quality of life among patients with chronic mental illness. *Am. J. Psychiatry* 1997; **154**: 99–105.
24. Bobes J, Gonzales MP. Quality of life in schizophrenia. **In**: Katschnig H, Freeman H, Sartorius N (eds). *Quality of Life in Mental Disorders*. JohnWiley and Sons, Chichester, 1997; 165–178.
25. *World Health Organization. Fact Sheet: The World Health Report 2001.* World Health Organization, Geneva, 2001. Available from URL: http://www.who.int
26. *World Health Organization. The World Mental Health Atlas.* World Health Organization, Geneva, 2001. Available from URL: http://www.who.int
27. Namjoshi MA, Buesching DP. A review of health related quality of life literature in bipolar disorder. *Qual. Life Res.* 2005; **10**: 105–115.
28. Sim K, Mahedran R, Chong SA. Health-related quality of life and psychiatric comorbidity in first episode psychosis. *Compr. Psychiatry* 2005; **46**: 278–283.
29. Katschnig H. Schizophrenia and quality of life. *Acta Psychiatr. Scand.* 2000; **102**: 33–37.

© 2006 The Authors
Journal compilation © 2006 Folia Publishing Society