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Self-perception of quality of life in patients treated with antipsychotics

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Background/aim: Despite extensive research, normal functionality remains problematic in patients with schizophrenia. Issues such as quality of life, subjective well-being, or psychosocial performance are currently objectives of interest. There are limited data collected prospectively on patients' perception of quality of life as compared between treatment groups, especially in developing countries. The aim of the present study was to analyze the evolution of patients' reported quality of life in patients with schizophrenia or related disorders treated with antipsychotics, in naturalistic settings.

Materials and methods: The study was designed as a 12-month prospective observational study of 131 subjects with schizophrenia or related disorders treated with haloperidol, olanzapine, risperidone, quetiapine, or aripiprazole, recruited from consecutive hospitalized patients in a psychiatry department.

Results: The mean scores for patients' reported quality of life and its components and for satisfaction with treatment had a favorable evolution, but increases were of reduced magnitude. The differences among treatment groups were not statistically significant, with few exceptions. A great variability of data was found.

Conclusion: Studies with a stratified analysis by factors influencing quality of life perceptions in this category of patients might allow the identification of differences, if any, between antipsychotics in this domain.

Key words: Antipsychotics, quality of life, schizophrenia

1. Introduction

Schizophrenia, the most devastating psychiatric disorder, affects 1% of the world's population, begins at a young age, and has a prolonged course and a profound effect, not only on the lives of individuals but also on their family members. The clinical course of schizophrenia patients is heterogeneous in nature and insufficiently explained. Approximately one-third of patients remain symptomatic despite treatment. Even in patients whose positive (productive) symptoms are well controlled under treatment, normal functionality remains problematic. Therefore, a relatively recent area of concern and research is that of the influence of available treatments on occupational status, social functioning, health-related quality of life, and patient satisfaction in daily life, in parallel with that of effects on symptomatology. Issues such as quality of life, subjective well-being, or psychosocial performance are currently objectives of interest to patients, their families, clinicians, and researchers. While some studies analyzed physician-rated quality of life, namely objective quality of life assessment, this may be different from patients' perceptions. Studies to investigate the effect of antipsychotics on patients' perceptions of quality of life are still insufficient, especially in developing countries. Most of the studies focusing on quality of life in patients treated with antipsychotics were cross-sectional studies, mainly comparing first- and second-generation antipsychotics (1,2). Some, but not all, of these studies suggested superiority of second-generation antipsychotics in all (3–7) or some (8–10) of the quality of life domains, while in other studies this superiority could not be confirmed (11–15). There are limited data collected prospectively on schizophrenia patients' perception of quality of life, as well as limited data to compare these issues between treatment groups (16).

The aim of the present study was to analyze the evolution of quality of life and its components as reported

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by patients, as well as of the satisfaction with treatment, in subjects with schizophrenia or related disorders treated with haloperidol, olanzapine, risperidone, quetiapine, or aripiprazole in naturalistic settings during a 12-month follow-up study.

2. Materials and methods

2.1. Study design

The study was designed as a 12-month prospective observational study of 131 patients with schizophrenia or related disorders treated with haloperidol, olanzapine, risperidone, quetiapine, or aripiprazole. Subjects were recruited from consecutive hospitalized patients in the Psychiatry Department of the Clinical Emergency Central Military Hospital "Dr. Carol Davila", Bucharest, from February 2009 to May 2010. The treatment doses and associated medications were those established by the treating physicians and could be changed on their decision during the follow-up period. In cases of changes or interruption of the initial treatment, following the doctors' or the patients' decision, the time of discontinuation, reason for discontinuation, and data from the last evaluation were recorded. Every patient had 4 evaluations: at inclusion, at discharge, and at scheduled visits at 6 and 12 months, except those lost to follow-up. Assessments at different time intervals were performed in cases of readmission. In cases of treatment discontinuation, data on quality of life variables were still recorded at the time of the last assessment, before the treatment change, and at the next evaluation, as well, if treatment with the same antipsychotic was reintroduced.

The content of the study and ethical considerations related to its subjects were explained to the patients. Patients included in the study gave written informed consent for the anonymous processing and analysis of their data.

2.2. Subjects

The study sample consisted of 131 patients consecutively admitted to the Psychiatry Department of the Clinical Emergency Central Military Hospital "Dr. Carol Davila", Bucharest, from February 2009 to May 2010 for schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, or a brief psychotic disorder according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) criteria. Inclusion criteria were: subjects aged 18–65 years meeting the above mentioned criteria for diagnosis, requiring antipsychotic treatment, a Positive and Negative Syndrome Scale (PANSS) score of at least 60, a Clinical Global Impression (CGI) score of at least 4, and a normal 12-lead electrocardiogram. Primary exclusion criteria were: treatment with clozapine, antecedents of traumatic brain injury, major organ dysfunction, neurodegenerative disorder, catatonic-type schizophrenia, major cognitive deficit, and patients being included in other clinical studies.

2.3. Variables assessed

Patients' perception of quality of life and its components was assessed by standardized tools, the MOS SF-36 scale (Medical Outcome Study 36 Item Short Form) (17) and the Q-LES-Q SF scale (Quality of Life Enjoyment and Satisfaction Questionnaire Short Form) (18). Dependent variables were the scores obtained from the mentioned scales for physical functioning, role limitations due to physical health, role limitations due to emotional problems, energy/fatigue, emotional well-being, social functioning, pain, and general health (MOS SF-36 scale) and total score, score on satisfaction with the medication, and score on overall life satisfaction (Q-LES-Q SF scale). Patients were assessed on the Q-LES-Q SF scale within 3 days of admission, at discharge, and at 6 and 12 months, and on the MOS SF-36 scale within 3 days of admission and at 6 and 12 months. Sociodemographic (age, sex, marital status, living alone or not, rural or urban living, education, occupational status) and clinical (years since onset of first episode, previous antipsychotics, onset of current episode, duration of untreated psychosis, number of previous admissions, history of substance or alcohol abuse) characteristics were recorded.

2.4. Statistical analysis

Univariate analysis of variance (ANOVA) models with least significant difference (LSD) tests, post hoc tests for continuous variables, and chi-square tests for dichotomous variables were used to compare baseline demographic and clinical characteristics between treatment groups. The results regarding the evolution of MOS SF-36 scale and Q-LES-Q SF scale scores were analyzed as a whole by inspecting the graphs obtained with the generalized linear model linear regression technique. Mean scores obtained at each evaluation were compared between treatment subgroups for each of the 3 assessments (at discharge, 6 months and 12 months) by analysis of variance ANOVA as well. In cases where the analysis of variance revealed differences between groups to be significant, the differences between pairs of antipsychotics were assessed by post hoc analysis with LSD test. At the 12-month follow-up, the mean values of variables, adjusted for the inclusion values, were compared between groups by analysis of covariance (ANCOVA) and post hoc Bonferroni test. The level of statistical significance was $P < 0.05$.

3. Results

The sample studied consisted of 131 patients with schizophrenia or related disorders treated with haloperidol (n = 19), olanzapine (n = 31), risperidone (n = 28), quetiapine (n = 33), or aripiprazole (n = 20). There were

no significant differences between treatment subgroups in most of the baseline sociodemographic and clinical characteristics, described in detail in a previous publication (19), except for the diagnosis; there were more cases of schizophrenia in the haloperidol group (89%), and more cases of schizophreniform and schizoaffective disorder in the olanzapine (32%) and quetiapine subgroups (27%), respectively. However, no significant differences between treatment subgroups were found for the first psychotic episode versus multiple episodes or for years since onset variables.

The mean ± SD total Q-LES-Q SF score for the studied group was 40.39 ± 11.23 at admission, with mean values significantly higher in the olanzapine-treated group at 44.9 ± 11.58 compared with the quetiapine group (38 ± 10.8, P = 0.015). In all groups the mean Q-LES-Q SF scores increased over the 12-month follow-up period (P < 0.001) (Figure 1; Table 1). Estimated mean scores adjusted with the inclusion values were not significantly different among treatment groups.

Patient-reported overall life satisfaction scores increased from 2.7 ± 0.94 to 3.24 ± 0.82 at 12 months (P <0.001), with no significant differences among treatment groups at any of the evaluations (Table 2). The satisfaction with treatment mean score increased from admission, 2.97 ± 0.79, to discharge, 3.41 ± 0.88, in the studied group, but no significant changes were recorded during the discharge to 6 months and the 6 months to 12 months intervals (Figure 2). At discharge the mean satisfaction with treatment score was higher in the risperidone group, at 3.79 ± 0.83, compared to the haloperidol (mean: 3.19, P = 0.027), aripiprazole (mean: 3.2, P = 0.021), and quetiapine (mean: 3.19, P = 0.008) groups. At 12 months the differences were not statistically significant, but covariance analyses of estimated mean adjusted with the inclusion values found

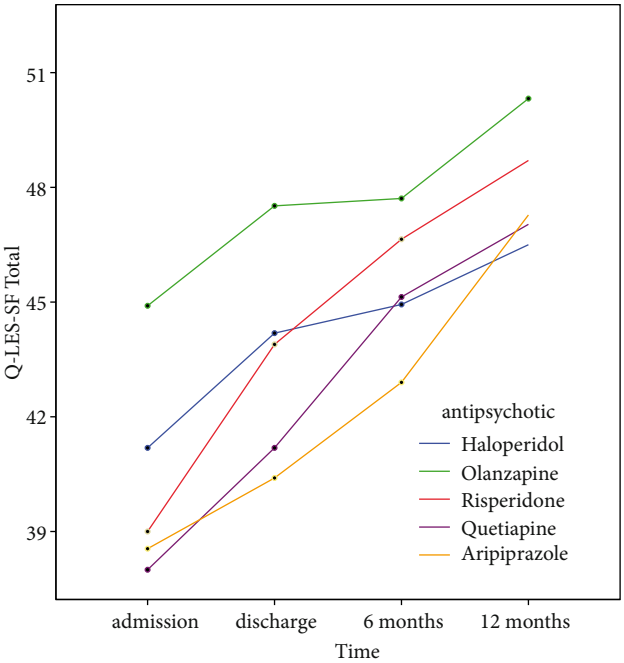

Figure 1. Q-LES-Q SF (Quality of Life Enjoyment and satisfaction Questionnaire Short Form) total scores during 12 months of follow-up, linear regression model.

the mean satisfaction with treatment score was higher in the risperidone group (3.56, 95% CI: 3.27–3.84) compared to the haloperidol group (3.04, 95% CI: 2.66–3.41) (P = 0.031).

Values of subscores for quality of life components obtained by the MOS SF-36 scale are presented in Table 3. There were no significant differences among treatment groups at 12 months for physical function, energy/fatigue, emotional well-being, or social functioning.

Table 1. Quality of life Q-LES-Q SF total scores evolution.

Q-LES-Q SF score*	Haloperidol (N = 19)	Olanzapine (N = 31)	Risperidone (N = 28)	Quetiapine (N = 33)	Aripiprazole (N = 20)	Total (N = 131)	P
At admission	41 ± 10.9	45 ± 11.6	39 ± 9.2	38 ± 10.8	39 ± 13	40 ± 11.2	0.109
At discharge	44 ± 12.8	48 ± 11.6	44 ± 10.5	41 ± 12.2	40 ± 14	44 ± 13.9	0.206
At 6 months**	45 ± 11.1	48 ± 13.1	47 ± 11.4	45 ± 12.1	43 ± 13.8	46 ± 12.3	0.712
At 12 months***	47 ±13.1	50 ± 11.9	49 ± 12.1	47 ± 12.5	47 ± 11.9	48 ± 12.1	0.814
						P < 0.001	

*: Data are rounded mean ± SD. N = number of patients in each treatment group. **: Number of patients for whom the variables were assessed at 6 months (or earlier, in the case of readmission) was: N – 2 for the haloperidol group, N – 1 for the olanzapine group, N for the risperidone group, N – 1 for the quetiapine group, and N for the aripiprazole group. ***: Number of patients for whom the variables were assessed at 12 months (or earlier, in the case of readmission) was: N – 2 for the haloperidol group, N – 2 for the olanzapine group, N for the risperidone group, N – 3 for the quetiapine group, and N – 2 for aripiprazole group. Q-LES-Q SF = Quality of Life Enjoyment and Satisfaction Questionnaire Short Form.

Table 2. Q-LES-Q SF scores (overall life satisfaction, satisfaction with treatment).

	Haloperidol (N = 19)	Olanzapine (N = 31)	Risperidone (N = 28)	Quetiapine (N = 33)	Aripiprazole (N = 20)	Total	P
Overall life satisfaction score*							
At admission	3 ± 1	3 ± 1	2 ± 0.9	2 ± 0.9	3 ± 0.9	3 ± 0.9	0.092
At discharge	3 ± 0.9	3 ± 1	3 ± 0.8	2 ± 0.9	3 ± 0.9	3 ± 0.9	0.307
At 6 months**	3 ± 0.8	3 ± 1	3 ± 0.8	3 ± 0.8	3 ± 0.9	3 ± 0.9	0.858
At 12 months***	3 ± 1.1	3 ± 0.9	3 ± 0.9	3 ± 0.7	3 ± 0.8	3 ± 0.8	0.970
						P < 0.001	
Satisfaction to treatment score*							
At admission	3 ± 0.8	3 ± 0.9	3 ± 0.6	3 ± 0.9	3 ± 0.6	3 ± 0.8	0.118
At discharge	3 ± 0.8	3 ± 0.9	4 ± 0.8	3 ± 0.8	3 ± 0.9	3 ± 0.9	0.035
At 6 months**	3 ± 0.6	3 ± 0.9	4 ± 0.8	3 ± 0.8	3 ± 0.8	3 ± 0.8	0.112
At 12 months***	3 ± 0.5	4 ± 0.8	4 ± 1	3 ± 0.7	3 ± 0.8	3 ± 0.8	0.330

*: Data are rounded mean ± SD. **: Number of patients for whom the variables were assessed at 6 months (or earlier, in case of readmission) was: N – 2 for the haloperidol group, N – 1 for the olanzapine group, N for the risperidone group, N – 1 for the quetiapine group, and N for the aripiprazole group. ***: Number of patients for whom the variables were assessed at 12 months (or earlier, in case of readmission) was: N – 2 for the haloperidol group, N – 2 for the olanzapine group, N for the risperidone group, N – 3 for the quetiapine group, and N – 2 for the aripiprazole group. Q-LES-Q SF = Quality of Life Enjoyment and Satisfaction Questionnaire Short Form.

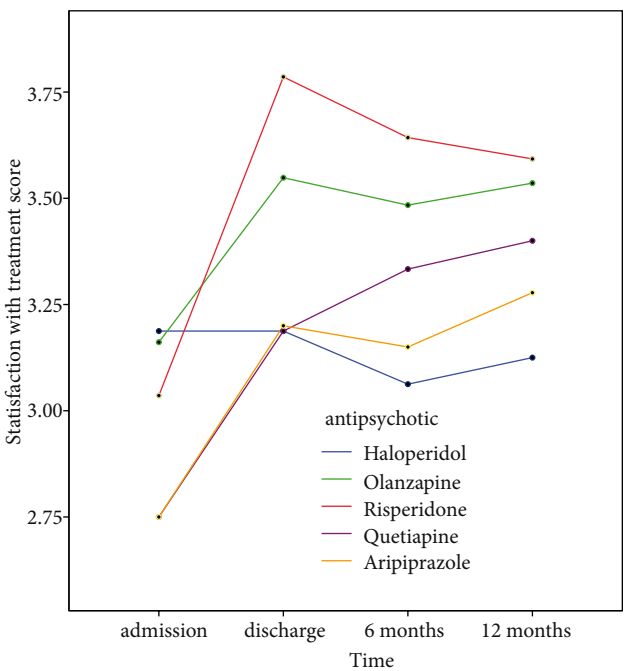

Figure 2. Q-LES-Q SF (Quality of Life Enjoyment and Satisfaction Questionnaire Short Form) satisfaction with treatment scores during the 12 months of follow-up, linear regression model.

Estimated mean scores adjusted with the inclusion values for role limitations due to physical health at 12 months were lower in the aripiprazole-treated group (mean: 27.25) compared to the risperidone (51.87, P = 0.002) and quetiapine (44.6, P = 0.023) groups. Estimated mean scores at 12 months, adjusted with the inclusion values for role limitations due to emotional problems, were also lower in the aripiprazole group (24.27) than in the haloperidol (41.92, P = 0.024), and risperidone (40.83, P = 0.015) groups. As expected, analyses of the correlation matrix revealed significant correlations between psychopathology scores (PANSS, CGI, and Global Assessment of Functioning (GAF)) and quality of life components (Table 4). However, the correlation strength between psychopathology scores and quality of life scores was relatively weak to moderate for most of the variables, with the exception of physical functioning. A moderate to strong inverse correlation was found between physical functioning and total PANSS, negative PANSS, general PANSS, CGI, and GAF scores (Pearson R correlation coefficient: –0.462, –0.484, –0.43, –0.411, and –0.401, respectively; P <0.001). A significant strong correlation was found instead between the scores for role limitations due to physical health and role limitations due to emotional problems (R = 0.86, P < 0.001). Strong correlations were also found between total Q-LES-SF score

Table 3. MOS SF-36 scores.

	Haloperidol (N=19)	Olanzapine (N=31)	Risperidone (N=28)	Quetiapine (N=33)	Aripiprazol (N=20)	Total	P
Physical function*							
At admission	55 ± 26.8	53 ± 30.6	58 ± 30	49 ± 29.5	55 ± 31.3	54± 29.6	0.810
At 12 months**	63 ± 24	65 ± 23.5	65 ± 26.8	66 ± 27.1	70 ± 25	66 ± 25.1	0.939
Role limitations due to physical health							
At admission	36 ± 34.4	28 ± 32.5	26 ± 33.5	17 ± 26.5	20 ± 27.5	24 ± 31	0.284
At 12 months**	51 ± 31.7	42 ± 33	52 ± 31.7	40 ± 29.1	24 ± 27.9	43 ± 31.7	0.042
Role limitations due to emotional problems							
At admission	30 ± 26.2	27 ± 31.9	19 ± 25.1	16 ± 25.9	16 ± 26	21 ± 27.5	0.293
At 12 months**	47 ± 29.7	41 ± 33.1	39 ± 24.2	30 ± 25.3	22 ± 24.9	36 ± 28	0.057
Energy/fatigue							
At admission	41 ± 27.2	42 ± 24.9	43 ± 22.7	35 ± 17.7	39 ± 20.1	40 ± 22.2	0.684
At 12 months**	46 ± 23.4	51 ± 21.8	50 ± 19.1	45 ± 18.9	41 ± 25.1	47 ± 21.2	0.457
Emotional well-being							
At admission	39 ± 16.5	47 ± 23.5	44 ± 14.8	38 ± 16.4	42 ± 21.6	42 ± 18.9	0.362
At 12 months**	46 ± 15.9	55 ± 19.6	54 ± 17.1	47 ± 17.2	49 ± 24.5	51 ± 18.9	0.372
Social functioning							
At admission	43 ± 28.1	52 ± 24.5	42 ± 20.5	42 ± 26.8	41 ± 27	44 ± 25.1	0.499
At 12 months**	53 ± 25.1	59 ± 25.1	58 ± 14	57 ± 23.4	49 ± 25.6	56 ± 22.6	0.567

*: Data are rounded mean ± SD. **: Number of patients for whom the variables were assessed at 12 months (or earlier, in case of readmission) was: N – 2 for the haloperidol group, N – 2 for the olanzapine group, N for the risperidone group, N – 3 for the quetiapine group, and N – 2 for the aripiprazole group.

and overall life satisfaction score ($R = 0.776$, $P < 0.001$), satisfaction with treatment ($R = 0.619$, $P < 0.001$), and emotional well-being scores ($R = 0.649$, $P < 0.001$).

4. Discussion

Generally, the mean scores for patients' reported quality of life, satisfaction with treatment, and components of quality of life had a favorable evolution during the 12 months of follow-up. Increases, however, had a reduced magnitude and were lower than improvements in symptomatology scores, which is consistent with data from other studies (20). Nevertheless, results of studies using the MOS SF-36 scale showed that in patients with chronic disorders changes in the scores of 5–10 points may be clinically significant. For most of the studied variables, the differences among studied groups were not statistically significant, with few exceptions. Satisfaction with treatment at 12 months was lower in the haloperidol-treated group compared to the risperidone group. A particular evolution was found for "role limitations due to physical health" (RLPH) and "role limitations due to emotional problems" (RLEP) in the aripiprazole-treated group, which were lower at 12 months compared to the risperidone/quetiapine and risperidone/haloperidol groups, respectively. RLPH and RLEP were the domains with the lowest values at admission (mean scores of 20–25, compared to 40 for other domains) and were found to be correlated in this data set. Studies investigating the validity of the MOS SF-36 scale in schizophrenia have also found RLPH and RLEP scores to be correlated (20). This might suggest that schizophrenic patients had difficulties in distinguishing between the sources (physical or emotional) of perceived limitations, although the ability to autoevaluate quality of life using the MOS SF-36 for this category of patients was found to be similar to that of the general population (20).

Results of studies comparing quality of life in patients with schizophrenia or related disorders in patients treated with antipsychotics are inconsistent. Some studies reported

Table 4. Correlation matrix for psychopathology scores and quality of life components scores.

		PANSS	PANSSP	PANSSN	PANSSG	CGI	GAF	Q-LES-Q	SAT_TR	LIFE_SAT	PF	PRL	ERL	Vitality	EWB	SF
PANSS	R	1	0.85**	0.69**	0.94**	0.91**	−0.84**	−0.36**	−0.27**	−0.24**	−0.46**	−0.28**	−0.2**	−0.22**	−0.29**	−0.29**
	P		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PANSSP	R		1	0.34**	0.75**	0.78**	−0.71**	−0.22**	−0.14**	−0.08	−0.27**	−0.18**	−0.13*	−0.11*	−0.21**	−0.21**
	P			0.00	0.00	0.00	0.00	0.00	0.002	0.076	0.00	0.00	0.014	0.030	0.00	0.00
PANSSN	R			1	0.51**	0.62**	−0.63**	−0.32**	−0.29**	−0.24**	−0.48**	−0.19**	−0.09	−0.22**	−0.25**	−0.16**
	P				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.069	0.00	0.00	0.002
PANSSG	R				1	0.86**	−0.75**	−0.36**	−0.26**	−0.27**	−0.43**	−0.31**	−0.24**	−0.23**	−0.28**	−0.33**
	P					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CGI	R					1	−0.87**	−0.4**	−0.28**	−0.3**	−0.41**	−0.27**	−0.2**	−0.22**	−0.29**	−0.31**
	P						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GAF	R						1	0.4**	0.23**	0.23**	0.40**	0.20**	0.12*	0.21**	0.28**	0.32**
	P							0.00	0.00	0.00	0.00	0.00	0.021	0.00	0.00	0.00
Q- LES- Q	R							1	0.62**	0.78**	0.62**	0.50**	0.46**	0.61**	0.65**	0.62**
	P								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAT_TR	R								1	0.68**	0.37**	0.36**	0.33**	0.38**	0.34**	0.19**
	P									0.00	0.00	0.00	0.00	0.00	0.00	0.00
LIFE_SAT	R									1	0.41**	0.44**	0.41**	0.49**	0.49**	0.39**
	P										0.00	0.00	0.00	0.00	0.00	0.00
PF	R										1	0.45**	0.35**	0.52**	0.57**	0.53**
	P											0.00	0.00	0.00	0.00	0.00
PRL	R											1	0.86**	0.59**	0.54**	0.46**
	P												0.00	0.00	0.00	0.00
ERL	R												1	0.51**	0.52**	0.48**
	P													0.00	0.00	0.00
Vitality	R													1	0.74**	0.55**
	P														0.00	0.00
EWB	R														1	0.61**
	P															0.00

*: Correlation is significant at the 0.05 level (2-tailed), **: correlation is significant at the 0.01 level (2-tailed). SAT_TR: satisfaction with treatment, PF: physical functioning, PRL: physical-related role limitations, ERL: emotional-related role limitations, EWB: emotional well-being, SF: social functioning.

the superiority of atypical antipsychotics compared with conventional antipsychotics (3–7) and other studies found proof of superiority limited to some domains of quality of life (8–10), while other studies could not confirm any superiority (11–15). In most of the studies a great variability of data on quality of life measures was observed (21), and this is obvious in the present study, as well, with the standard deviation of mean scores frequently being higher than the corresponding mean. This variability was implied to be a factor that could possibly explain the difficulty of finding any statistically significant differences between the groups and could have many explanations, the most important being the multitude of factors influencing the quality of life self-assessment in patients treated with antipsychotics: global psychopathology, some of its dimensions such as current disposition, adverse effects of medication, level of insight, or psychosocial factors (21). Sex was also found as a predictive factor for subjective perception of quality of life in patients with schizophrenia, with female patients having higher scores (22). Jung et al. (23) distinguished 3 profiles of patients according to the level of concordance between the patients' perception of quality of life and the physician's assessment of patients' quality of life. One group of patients are those who overestimate their quality of life compared with their level of functionality, usually patients with poor insight who minimize the importance of the disease and its consequences. On the other hand, patients with low self-assessed quality of life scores compared to their level of functionality seem to be patients with depression, somatization, anxiety, or phobias to a higher level compared with other patients, despite having comparable psychopathological scores. In the context of heterogeneous groups consisting of patients from all these categories, comparing the data related to quality of life between treatment groups is difficult. As a solution, Jung at al. (23) proposed a stratified analysis for this purpose. A limitation of our study is that the relatively low number of patients did not allow a stratified analysis by patient insight, cognitive function, or affective symptomatology as previously proposed. Nevertheless, the great variability of

data found in the patients' self-assessed quality of life in our study highlighted the necessity of further studies of this type to allow comparisons among treatment groups.

Understanding the reasons that lead to differences between studies in terms of quality of life will allow the finding of ways to improve the applicability of specific measuring scales in patients with schizophrenia and related disorders and will allow the identification of differences between antipsychotics, if any, where the quality of life of patients with schizophrenia and related disorders is concerned.

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