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## Quality of life in Romanian patients with schizophrenia based on gender, type of schizophrenia, therapeutic approach, and family history

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## Research article

# Quality of life in Romanian patients with schizophrenia based on gender, type of schizophrenia, therapeutic approach, and family history

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### Abstract

The low quality of life of patients with schizophrenia has been extensively discussed and investigated. Various aspects from gender, socio-demographic profile, and/or type of neuroleptic treatment have been taken into account in describing this condition. The purpose of this study is to assess the perceived quality of life of Romanian patients suffering from schizophrenia and to correlate it with gender differences, type of schizophrenia, family history of psychiatric illness, and type of antipsychotic treatment. 143 patients diagnosed with schizophrenia according to DSM IV-TR and ICD 10 were included in the study. Social demographic data were documented and further assessment was performed using the Subjective Well Being under Neuroleptic Treatment Scale –the short form (SWN-S) and the short version of the WHO- Questionnaire for The Quality of Life (WHO-QoL-BREF). The mental functioning dimension was higher in men than women; the social integration dimension was higher for the residual type of schizophrenia. Emotional regulation and the capacity of social integration did not show significant differences between patients who had a family history of mental illness and those who did not. Levels of self-control and physical functioning were better for patients treated with atypical antipsychotics and who did not report a family history of psychiatric illness. All five dimensions of the SWN-S were higher in patients treated with atypical antipsychotics, compared to those who were treated with typical antipsychotics. The study showed that for people with schizophrenia mental functioning was better preserved in men, in patients who did not have a family history of psychiatric illness, and in patients who were treated with atypical antipsychotics. The level of social integration was better in patients who were treated with atypical antipsychotics but this effect depended on the type of schizophrenia.

### Keywords

: schizophrenia, quality of life, SWN-S, WHOQoL–BREF, gender, treatment type, family history

### Highlights

- ✓ The level of social integration, self-control and physical function is better in subjects who are treated with atypical neuroleptics.
- ✓ Self-control, physical function and the capacity of emotional control is equally affected in both women and men with, while mental functioning would be better preserved in men.

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## Introduction

Quality of life is a construct represented by an individual's subjective perception of his/her self in relation to his place and existence/ adaptation in life, judged according to a cultural, social, and personal system of values (generally governed by objectives, expectations, standards, etc.) (1).

Schizophrenia is a disabling chronic psychiatric illness which affects most (if not all) major fields of mental functioning. The disease is equally prevalent in both men and women. However, the onset and course of illness differs between the two genders. Women show an incidence peak for schizophrenia between 21 and 25 years, compared to 25-32 for men, and women also show a second incidence peak in the fourth decade of life (2, 3).

Several studies have shown that the quality of life of female patients suffering from schizophrenia takes a smaller toll compared to male patients, probably due to a reduced number of hospital admissions, lower doses of medication for women, and generally faster remissions (4, 5). Considering long-term prognosis, however, the research literature indicates a slight trend toward poorer outcomes in female patients (6). Regarding other differences, men tend to be more predisposed to substance abuse and anti-social behaviors (4, 7), whereas women are more prone to symptoms from the affective spectrum (8).

Quality of life has become a major area of interest due to the disabling aspect of schizophrenia. In addition, it is well known that schizophrenia and schizophrenia-related disorders present an increased incidence among the first-degree relatives of patients who suffer from this illness (9).

The neuroleptic medication used to treat schizophrenia consists of two broad categories: typical and atypical antipsychotics. Although the available drugs have a wide array of pharmacological properties, generally all these drugs have the capacity to antagonize postsynaptic dopamine receptors in the brain. Dopamine and the quality of life are mutually linked through the brain's reward system. Further assessment of the quality of life needs to take in account the type of drug used, even though all relevant drugs share a common final endpoint (9).

## Materials and Methods

One hundred and forty-three patients were included in this study, being admitted in "Prof. Dr. Alexandru Obregia" Clinical Hospital of Psychiatry during a 3-year period (2009-2012). The diagnosis of schizophrenia was

established according to DSM- IV-TR (10) and ICD 10 (11) criteria. Patient ages ranged from 18 to 65 years, and 58.7% were female.

More than three quarters of the sample was diagnosed with paranoid schizophrenia (75,5%), 14,7% with undifferentiated schizophrenia, 5,6 % with residual schizophrenia, and 4,2% with hebephenic schizophrenia. Because patients diagnosed with simple schizophrenia made up only 0,9 of the sample (1 case), this segment was not included in the analysis.

Most subjects included in the lot (60,8%) did not have a family history of psychiatric illness. 86,3% of the patients diagnosed with schizophrenia and included in the lot followed a treatment plan based on an atypical neuroleptic, while only 13,7% of them received treatment with a typical neuroleptic.

All patients were undergoing antipsychotic treatment for at least 4 weeks before admission. The study was approved by the Ethics Committee of the "Prof. Dr. Alexandru Obregia" Clinical Hospital of Psychiatry, Romania. Patients also received an informed consent form and given time to consider participation; all concerns were addressed before obtaining their signed approval.

Clinical variables and psychological parameters were evaluated using the following standardized scales:

- Subjective Well-being under Neuroleptic Treatment Scale (SWN) (12-14), a self-assessment scale with the initial form of 38 items and a short variant of 20 items (10 negative and 10 positive scored items), each being scored on a Likert 6-step scale. The purpose of the scale is to show the subjective experience of the patient during neuroleptic treatment, having 5 distinct topics: physical functioning, mental functioning, self-control, emotional regulation, and social integration. A high value indicates better functioning of the patient on the respective domain. The scale has an overall evaluation of both the efficiency and the quality of the medical treatment in schizophrenia, but it also includes the subjective well-being of the respondents, and further offers the possibility of evaluating the subjective perception of the patient, no matter the psychopathology (15, 16).

- World Health Organization Quality of Life (WHO-QoL – BREF) (17-19); in our analysis, we used scores related to 4 domains of quality of life (physical, psychological, social, and living environment), while 2 other items were evaluated separately. The patients' answers were quantified using a 5-step Likert scale. High values correspond to a high level of satisfaction regarding quality of life (20-22).

Statistical processing was performed using the IBM SPSS Statistics 20 program (23, 24). A specific objective of our study was to investigate several tests/ results between distinct lots, created according to gender, type of schizophrenia, type of antipsychotic used, and family history of psychiatric illness. For this purpose, inferential statistics were used, namely parametric difference tests (“t” tests and ANOVA) or non-parametric tests (Chi square); we opted to use parametric tests when possible as they are more powerful statistically.

**Results**

1. Differential aspects of SWN-S in schizophrenia patients.

*1.1 SWN-S and gender differences*

The means and standard deviations for the two genders on each test dimension are represented in Table 1.

**Table 1.** SWN-S subscale values according to gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Mental functioning	Woman	84	10,692	3,5901	,3905
	Man	59	11,978	3,9007	,5100
Self-control	Woman	84	11,123	3,8961	,4238
	Man	59	12,311	3,0507	,3989
Physical functioning	Woman	84	11,831	4,5181	,4915
	Man	59	12,667	4,1994	,5490
Emotional regulation	Woman	84	12,477	5,0069	,5447
	Man	59	11,889	4,1081	,5371
Social integration	Woman	84	10,569	4,3901	,4776
	Man	59	11,222	3,4016	,4447

The data show that mental functioning is less affected in men. Self-control, physical functioning, emotional control, and social integration are equally affected in women and men suffering from schizophrenia (Table 2).

**Table 2.** SWN-S subscale „t” values according to gender

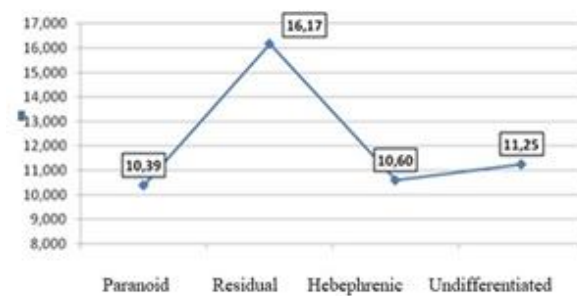
		Levene's Test for EVa		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI of the Difference	
								Lower	Upper	
Mental functioning	EVA	1,615	,206	-2,032	141	,044	-1,2855	,6327	-2,5362	-,0347
	EVnA			-2,001	117,006	,048	-1,2855	,6424	-2,5576	-,0133
Self-control	EVA	3,459	,065	-1,954	141	,053	-1,1880	,6081	-2,3903	,0142
	EVnA			-2,041	138,801	,043	-1,1880	,5820	-2,3388	-,0373
Physical functioning	EVA	,373	,543	-1,119	141	,265	-,8359	,7468	-2,3123	,6405
	EVnA			-1,134	129,372	,259	-,8359	,7369	-2,2938	,6220
Emotional regulation	EVA	2,507	,116	,742	141	,460	,5880	,7928	-,9793	2,1554
	EVnA			,769	136,886	,443	,5880	,7650	-,9246	2,1007
Social integration	EVA	7,954	,005	-,956	141	,341	-,6530	,6831	-2,0035	,6975
	EVnA			-1,001	139,152	,319	-,6530	,6526	-1,9433	,6373

*1.2 SWN-S and type of schizophrenia*

The impact of the type of schizophrenia was tested on the quality of life using the 5 dimensions of the SWN-S questionnaire. The data showed a significant difference between the types of schizophrenia on 3 of the 5 dimensions: mental functioning  $F(3,138)=2.81$ ,  $p=0.042$ , emotional regulation  $F(3,138)=2.78$ ,  $p=0.043$  and social integration  $F(3,138)=5.58$ ,  $p=0.001$ .

Post-hoc Bonferroni tests highlighted the fact that this difference was significant only for the social integration dimension: between the residual type of schizophrenia and the paranoid type of schizophrenia, hebephrenic type and undifferentiated type, in the case of the residual type, social integration level being

significantly higher. This difference is further illustrated in Figure 1:



**Figure 1.** Differences regarding social integration based on the type of schizophrenia

1.3 SWN-S and family history of psychiatric illness

Variation in the quality of life was also tested across samples having different family histories of psychiatric illness. Mental functioning, self-control, and physical functioning were better preserved in patients who did not have a family history of psychiatric illness versus those who did ( $t(141)=2.43, p=.016$ ), ( $t(141)=3.06, p=.003$ ), ( $t(141)=2.94, p=.004$ ) respectively. As for emotional regulation and the capacity of social integration, no significant differences were found:  $t(141)=1.6, p>.05$  and  $t(141)=.94, p>.05$  respectively.

1.4 SWN-S and antipsychotic type

Quality of life variation was tested across types of antipsychotic currently used. Analysis of variance showed significant differences on all 5 dimensions of SWN-S. Mental functioning was better maintained in the patients under treatment with atypical antipsychotics, versus the patients treated with typical antipsychotics ( $t(141)=4.01, p<.001$ ).

Self-control ( $t(141)=3.77, p=.001$ ), physical function ( $t(141)=3.90, p=.001$ ), emotional regulation ( $t(141)=3.12, p=.002$ ), and social integration ( $t(141)=2.79, p=.006$ ) were better preserved in patients who underwent treatment with atypical antipsychotics versus those treated with typical antipsychotics.

2. Differential aspects of WHO-QoL-BREF

2.1 Gender

By analyzing the mean scores based on gender, it can be seen that male patients register higher scores for all WHO-QoL-BREF dimensions compared to female patients (Fig. 2).

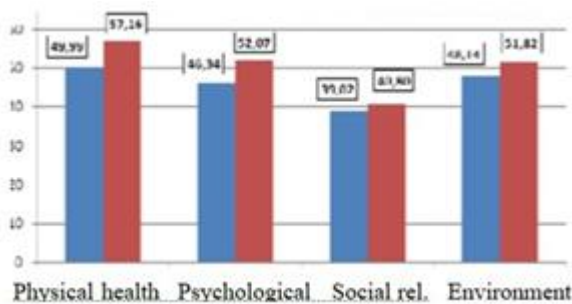


Figure 2. Mean WHO-QoL scores based on gender (blue = female; red = male)

Significant gender differences were obtained only for the Physical Health Dimension ( $T= -2,997, df=141, p<0,01$ ) and Psychological Dimension ( $t= 2,559, df=141, p<0,01$ ).

2.2 Type of Schizophrenia

Patients suffering from undifferentiated schizophrenia registered the highest mean scores for all 4 dimensions of the WHOQoL-BREF scale. The lowest mean scores were registered by patients diagnosed with hebephrenic schizophrenia on the Psychological and Environment dimensions, and by patients diagnosed with residual schizophrenia on the Physical health and Social relationships dimensions. However, ANOVA did not indicate statistically significant differences regarding schizophrenia type on these four dimensions: Physical health ( $f=0,949, df=3, p>0,05$ ), Psychological ( $f=0,223, df=3, p>0,05$ ), Social relationships ( $f=1,379, df=3, p>0,05$ ) and Environment ( $f=1,117, df=3, p>0,05$ ), based on the type of schizophrenia (Figure 3).

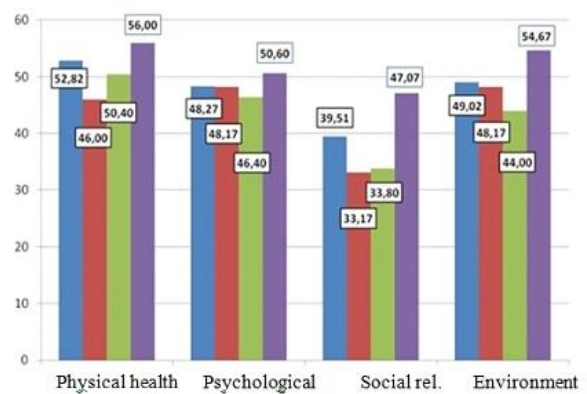


Fig 3. Mean WHOQoL scores based on type of schizophrenia  
 blue=paranoid  
 red=residual  
 green=hebephrenic  
 purple=undiff.

2.3 Family history of psychiatric illness

Analyzing the mean scores of the WHO-QoL – BREF scale, our study showed lower mean scores for Physical health, Psychological, and Environment dimensions, for patients who had a family history of psychiatric illness (Figure 4).

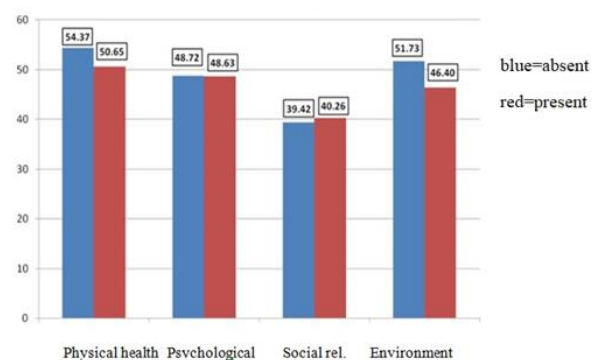


Figure 4. Mean WHOQoL scores based on family history of psychiatric illness

**Table 3.** T test for separate lots– WHOQoL-BREF \* Family history of psychiatric illness

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI of the Difference	
									Lower	Upper
Mean	EV	6.913	.010	2.103	141	.037	5.3360	2.5370	.3205	10.3515
	EVnA			1.972	92.898	.052	5.3360	2.7061	-.0378	10.7098

Regarding the Social relationships dimension, although patients having a family history of psychiatric illness registered higher mean scores, the differences were not statistically significant (Table 3).

2.4 Antipsychotic type:

Regarding type of medication, higher mean scores were registered by the patients who followed a treatment plan with an atypical antipsychotic. However, a significant difference was observed only for the Social relationship dimension (Figure 5).

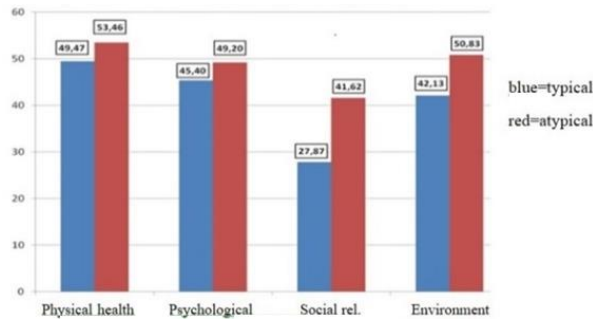


Figure 5. Mean WHOQoL scores based on type of antipsychotics used

Discussions

Taking into consideration the chronic and debilitating characteristics of schizophrenia, a series of factors that influence quality of life have been studied by specialists in the field. Clinical characteristics, treatment related issues, and socio-demographical factors for a long time represented the main focus of researchers when discussing influences on quality of life. With the introduction of atypical antipsychotics which are able to control the positive symptoms (while presenting a low profile of major side effects), the focus on quality of life shifted from an objective perspective to a subjective one, represented by “the person’s sense of well-being and satisfaction with life” (25). The aim of the current study was to assess the impact of gender, type of schizophrenia, family history of psychiatric illness, and type of treatment administered on the perceived level of quality of life of patients suffering from schizophrenia.

The association between gender and perceived level of quality of life had not been reported in many studies. In those studies, women generally had a lower degree of

disability and a better quality of life. To explain these differences, the following hypotheses had been suggested: the later onset of the illness in female patients on one hand, and the more frequent occurrence of negative symptoms associated with behavioral problems in men (that may contribute to a higher level of deterioration of functioning in male patients), on the other hand (26-28). An alternative explanation for the differences of quality of life between men and women may be related to treatment response; female patients respond faster and also at lower doses, a result that could lead to better treatment compliance (29, 30).

Overall, our study revealed better outcomes in male patients on all of the domains of the WHO-QoL – BREF score, while the SWN-S questionnaire showed a statistically significant difference only in the mental functioning domain. Our results contrast with those reported by Shtasel et al (on patients without medication) who concluded that women had a better quality of life than men, specifically in the social and relationship domains (31). Our findings using the WHO-QoL – BREF score were similar to the results obtained of Yu-Tao Xiang and colleagues who showed that female patients suffering from schizophrenia had a lower quality of life than men who had the same illness (32).

Many studies have shown the benefits of atypical antipsychotics regarding quality of life (33). Ritchie et al. (2003) revealed improvement in quality of life scores when switching from typical to atypical antipsychotics, specifically regarding olanzapine and risperidone administration (34). Voruganti et al. (2002) concluded that quality of life was improved for all patients who were switched to atypical antipsychotics, with no significant differences between the chosen antipsychotic (35). Our study reported higher quality of life regarding all domains analyzed by the two scales. Crossley et al. (2010) correlated better quality of life with a lower prevalence of extrapyramidal side effects when using atypical antipsychotics (36), providing a possible explanation for the results obtained in our study.

Our results were consistent with those of Kilian and Angermeyer (2005) regarding mental functioning, which was better preserved in patients treated with atypical antipsychotics, but in contradiction with their other findings, as they found no significant differences

between patients treated with atypical antipsychotics and those treated with conventional ones concerning other domains of quality of life (37).

Psychiatric symptoms were frequently perceived to have a negative impact on quality of life (38), but it was difficult to assess which had the largest influence; studies consistently have shown that negative symptoms have a greater effect on quality of life than positive symptoms (39-41).

Our results are similar to those of Sigauco et al (2014) which refer to the disorganization symptoms as a main factor leading to poor quality of life, especially in role-functioning and intrapsychic functioning domains (in our sample the hebephrenic type of schizophrenia registered the lowest scores in the Psychological and Environment dimensions) (42, 43).

*Study limitations:* the number of patients included in the study was relatively low and patients were not equally distributed by gender (women being more than men), and these factors might have contributed to inconsistency of our results with other data from literature as well as diminished ability to generalize to the population (44). Our sample consisted of patients under stable medication, so we did not assess the dynamic of switching from a typical antipsychotic to an atypical one. Our study was also performed without a control group.

## Conclusions

This study revealed that mental functioning is better preserved in men, in patients who did not have a family history of psychiatric illness, and in patients who underwent treatment with atypical antipsychotics. In addition, the level of self-control and physical functioning is better for patients treated with atypical neuroleptics and who did not report a family history of psychiatric illness. Social integration is also better in patients who undergo treatment with atypical antipsychotics, but results vary depending on the type of schizophrenia, being significantly better in patients diagnosed with residual schizophrenia.

By acknowledging factors that influence quality of life of patients with schizophrenia, we can further enhance our care/ therapeutic approach and increase the understanding of people who suffer from this disease.

## Conflict of interest disclosure

The authors declare that there are no conflicts of interest to be disclosed for this article.

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