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The relationship between quality of life and functionality in patients with schizophrenia – A preliminary report

Vlad Dionisie

Carol Davila University of Medicine and Pharmacy, Bucharest, Romania, vlad.dionisie@gmail.com

Mihnea Costin Manea

Carol Davila University of Medicine and Pharmacy, Bucharest, Romania, mihnea.manea@live.com

Manea Mirela

Carol Davila University of Medicine and Pharmacy, mirelamanea2003@yahoo.com

Lavinia Steluta Bonciu

Bagdasar-Arseni Clinical Emergency Hospital, Bucharest, Romania, lavinia.bonciu@stud.umfcd.ro

Sorin Riga

Romanian Academy of Medical Sciences, Bucharest, Romania, D_S_Riga@yahoo.com

See next page for additional authors

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The relationship between quality of life and functionality in patients with schizophrenia – A preliminary report

Authors

Vlad Dionisie, Mihnea Costin Manea, Manea Mirela, Lavinia Steluta Bonciu, Sorin Riga, and Maria Gabriela Puiu

The relationship between quality of life and functionality in patients with schizophrenia – A preliminary report

Vlad Dionisie¹, Mihnea Costin Manea^{1,2*}, Mirela Manea^{1,2}, Lavinia Steluta Bonciu³, Sorin Riga^{4,5}, Maria Gabriela Puiu^{1,2}

¹ Department of Psychiatry and Psychology, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

² Prof. Dr. Alexandru Obregia Clinical Hospital of Psychiatry, Bucharest, Romania

³ Bagdasar-Arseni Clinical Emergency Hospital, Bucharest, Romania

⁴ Department of Stress Research and Prophylaxis, Prof. Dr. Alexandru Obregia Clinical Hospital of Psychiatry, Bucharest, Romania

⁵ Romanian Academy of Medical Sciences, Bucharest, Romania

ABSTRACT



This research aimed to investigate the relationship between quality of life and level of functioning in a group of Romanian patients with schizophrenia. A cross-sectional, observational, prospective study on 47 patients with schizophrenia was conducted. Socio-demographic and clinical data were documented and WHOQOL-BREF and Life Skills Profile-16 instruments were further administered. To examine the correlation between variables, Person correlation test was employed. The mean age of the sample was 38.32±12.32 years and 66% of the patients were males. Significant correlations were found between all aspects of the quality of life (physical health, psychological, social relationships and environmental health) and total score of LSP-16 ($r=-0.426$, $p<0.01$; $r=-0.396$, $p<0.01$; $r=-0.452$, $p<0.01$; $r=-0.470$, $p<0.001$, respectively). Our research revealed that lower overall functionality in patients with schizophrenia was associated with a decreased quality of life. The development and implementation of new psychological and pharmacological tools in clinical practice to improve these outcomes appears to be critically needed.

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*Corresponding author:

Mihnea Costin Manea,

Department of Psychiatry and Psychology, Carol Davila University of Medicine and Pharmacy, Dionisie Lupu Street, no. 37, 020021, Bucharest, Romania

E-mail: mihnea.manea@live.com

Introduction

Approximately 24 million persons worldwide are currently living with schizophrenia according to World Health Organization [1]. The most important symptoms of schizophrenia can be grouped into four major domains: psychotic, negative, affective and cognitive. Thus, it is to be expected that the consequences of this mental illness can be seen in each activity domain of affected people. Attempts to measure the impact of schizophrenia have been focused either on personal suffering or on societal impact.

Quality of life (QoL) is a multidimensional concept that reflects the individual's perception of his or her own general condition [2]. This perception reflects the state of the individual "in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns" [2], thus providing a

rather personal and subjective view of the consequences of illness at an individual level.

Disease burden is an expression of the consequences of the disease based on an assessment of the impact of the disease on individuals from onset to the end of the disease [3]. It includes the assessment of interventions that could alter the course of the disease and in terms of costs it assesses both direct and indirect costs. Health Adjusted Life Years (HALYs) based on Disability Adjusted Life Years (DALYs) and Quality Adjusted Life Years (QALYs) are used to quantify the burden of disease [3,4]. All these measures assess disability and quality of life from the perspective of society and in relation to it.

Even though compared with other chronic illnesses schizophrenia has relatively low prevalence rates it is ranked in top 15 leading cause of disability at a global level [5]. As the onset is often in the 20s [6] schizophrenia manifests its consequences throughout the entire fertile and

productive lifespan. Despite unequivocal progress, treatments for schizophrenia still address only a narrow range of symptoms, mostly the positive ones [7,8] while negative and cognitive symptoms, which are unremitted and sometimes aggravated by medication, continue to contribute to the low functionality and decreased quality of life [9-12]. Other factors with a negative influence on quality of life and functionality of individuals suffering from schizophrenia are low income [13], reduced family and social support [11,14,15], early onset of disorder [11,16,17], somatic comorbidities [18], and comorbid substance used disorders.

Although a rise in the number and significance of studies addressing quality of life and functionality of persons living with schizophrenia have been observed, data from Romania is still far from providing a clear picture of this matter. In this context, the present paper sought to investigate the relationship between quality of life and level of functioning in a group of Romanian patients with schizophrenia.

Materials and Methods

A cross-sectional, observational and prospective study on patients diagnosed with schizophrenia according to ICD-10 criteria [19] and admitted to "Prof. Dr. Alexandru Obregia" Clinical Hospital of Psychiatry for relapse was carried out. The patients were recruited between May-July 2022.

The inclusion criteria were the following: 1) Age >18 years and <65 years, 2) diagnosis of schizophrenia (any type) according to ICD-10 criteria; 3) willingness to participate in the study and given informed consent. The exclusion criteria consisted of the following: 1) illiteracy, 2) severe medical comorbidities, 3) uncorrected visual or hearing impairments, 4) age <18 years old or >65 years old, 5) symptomatology that could impair the ability to cooperate (severe psychotic symptomatology, aggressiveness or psycho-motor agitation), 6) subjects on compulsory admission, 7) not willing to participate in the study or no give informed consent.

Socio-demographic and clinical data (gender, age, living area, level of education, marital status, employment status, presence of physical comorbidity, duration of illness and age of disease onset) were collected using a questionnaire designed by the authors of this research.

QoL of the included patients was assessed using WHOQOL-BREF questionnaire, a short version of the WHOQOL-100 [20]. WHOQOL-BREF is a self-reported quality of life measurement instrument consisting of 26 items. Twenty-four items are divided in four domains (physical health, psychological health, social relationships and environmental health) and two questions are related to general quality of life and health. WHOQOL-BREF was adapted and validated in non-clinical samples,

as well as in several patient groups (e.g., HIV/AIDS, major depression or alcohol dependence), including schizophrenia patients [21-23]. Each item is scored between 1 and 5, and then it can be transformed to a 0-100 scale [24]. A higher score indicates a better QoL reported by the patient [22].

Function and disability were assessed through Life Skills Profile (LSP)-16. LSP-16 is a short version of the Life Skills Profile and it is aimed at measuring general levels of functioning and disability in certain basic living skills [25]. LSP-16 was one of the main instruments to measure functionality in adult patients with schizophrenia [26]. LSP-16 is a clinician-rated instrument and comprises 16 items that can be categorized in four domains: withdrawal, self-care, compliance and anti-social behavior [26]. Each item can be scored on a scale from 0 to 3. The total score can range between 0-48 points and a higher score indicates a greater disability [27].

All questionnaires were administered on discharge day.

Statistical analysis was performed using GraphPad Prism version 8.0 software. Each variable was tested for normality distribution using Shapiro-Wilk test. Continuous variables were expressed as mean and standard deviation (SD). Categorical variables were expressed as percentage or frequency. To examine the correlation between variables, Person correlation test was employed. A p value < 0.05 was considered to be statistically significant for all tests performed.

Results

Forty-seven patients diagnosed with schizophrenia according to ICD-10 criteria participated in this study. In our sample, 31 (66%) patients were males, the mean age was 38.32 years (SD=12.32), 38 (80.85%) patients were single and living in an urban area. Regarding the level of education, 46.8% of the patients had between 9 to 12 years of formal education. Unemployed patients and those with disability pension represent 48.8% and 42.55% respectively of all included participants. The mean duration of illness was 13.45 (SD=10.51) and the mean age at disease onset was 24.83 (SD=7.65). Other socio-demographic and clinical characteristics data are presented in Table 1.

Regarding the results from WHOQOL-BREF questionnaire, patients with a diagnosis of schizophrenia scored the lowest percentage on social relationships domain (mean=34.75, SD=23.72). The mean score for the psychological domain was 54.17 (SD=20.49) and for the psychological domain was 50.53 (SD=21.25). The mean for the LPS-16 total score was 19.47 (SD=8.93). Patients had a mean score of 5.14 (SD=3.29) on LSP-16 withdraw domain and a mean score of 3.42 (SD=2.48) on anti-social domain LSP-16. Other results regarding WHOQOL-BREF and LSP-16 are presented in Table 2.

Table 1. Socio-demographic and clinical characteristics of the patients

| | |
|---------------------------------------|-------------|
| Gender, N (%) | |
| • Males | 31 (66) |
| • Females | 16 (34) |
| Age (years), mean±SD | 38.32±12.32 |
| Living area, N (%) | |
| • urban | 38 (80.85) |
| • rural | 9 (19,14) |
| Level of education, N (%) | |
| • ≤8 years | 10 (21.27) |
| • 9-12 years | 22 (46.8) |
| • ≥12 years | 15 (31.91) |
| Marital status, N (%) | |
| • Single | 38 (80.85) |
| • Married | 0 (0) |
| • Domestic partnership | 5 (10.63) |
| • Divorced or separated | 4 (8.51) |
| Employment status, N (%) | |
| • Unemployed | 22 (48.8) |
| • Employed | 4 (8.51) |
| • Retired | 1 (2.12) |
| • Disability/Illness pension | 20 (42.55) |
| Physical chronic comorbidity, N (%) | |
| • Yes | 13 (27.65) |
| • No | 34 (72.34) |
| Duration of illness (years), mean±SD | 13.45±10.51 |
| Age at illness onset (years), mean±SD | 24.83±7.65 |

Table 2. Means and standard deviations (SD) of the WHOQOL-BREF and LPS-16 total and domain scores.

| | Mean | SD |
|---|-------|-------|
| WHOQOL-BREF domain (transformed scores) | | |
| • Physical health | 50.53 | 21.25 |
| • Psychological health | 54.17 | 20.49 |
| • Social relationships | 34.75 | 23.72 |
| • Environmental health | 52.66 | 21.19 |
| LPS-16 total score | 19.47 | 8.937 |
| LPS-16 domain | | |
| • Withdraw | 5.149 | 3.290 |
| • Self-care | 7.638 | 3.467 |
| • Compliance | 3.255 | 2.515 |
| • Anti-social | 3.426 | 2.483 |

Table 3 shows correlations among LPS-16 total score, WHOQOL-BREF domains and duration of illness. There were statistically significant moderate and negative correlations between LPS-16 total score and

physical health, psychological, social relationships and environmental health domains scores ($r=-0.426$, $p<0.01$; $r=-0.396$, $p<0.01$; $r=-0.452$, $p<0.01$; $r=-0.470$, $p<0.001$, respectively).

Table 3. Pearson correlations among LPS-16 total score and WHOQOL-BREF domains and duration of illness

| | WHOQOL-BREF | | | | |
|--------------------|---------------------|-----------------|----------------------|----------------------|----------------------|
| | Duration of illness | Physical health | Psychological health | Social relationships | Environmental Health |
| LPS-16 total score | 0.1614 | -0.426** | -0.396** | -0.452** | -0.470*** |

** $p<0.01$; *** $p<0.001$

Between social relationships domain scores and withdraw domain scores there was a moderate negative correlation ($r=-0.462$, $p<0.01$). Moreover, between social relationship domain scores and self-care scores there was a moderate negative correlation ($r=-0.469$, $p<0.01$). Interestingly, between social relationship domain scores and anti-social domain scores there was a negative correlation but without statistical significance ($r=-0.124$, $p>0.05$). Similar results were obtained between the self-care domain and physical health domain ($r=-0.524$, $p>0.05$). A significant negative moderate correlation between self-care domain scores and psychological domain scores was observed ($r=-0.440$, $p<0.01$). Other results regarding correlations among WHOQOL-BREF domains and LSP-16 domains are presented in Table 4.

Table 4. Pearson correlation among WHOQOL-BREF domains and LSP-16 domains.

| LSP-16 domain \ WHOQOL-BREF domain | Withdraw | Self-care | Compliance | Anti-social |
|------------------------------------|----------|-----------|------------|-------------|
| Physical health | -0.294* | -0.524 | -0.341* | -0.066 |
| Psychological health | -0.370* | -0.440** | -0.349* | 0.032 |
| Social relationships | -0.462** | -0.469** | -0.233 | -0.124 |
| Environmental health | -0.435** | -0.507*** | -0.252 | -0.151 |

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Discussions

In the research presented herein, we demonstrated that a lower overall functionality in patients with schizophrenia is associated with a decreased quality of life in all studied domains (i.e., physical health, psychological, social relationships and environmental health). These results indicate that the greater the disability, the worse the quality of life. Moreover, in our study we reported that a higher quality of life regarding social relationships and psychological health is associated with a decreased disability regarding self-care activities and social skills. Interestingly, our data revealed that there is no significant correlation between a higher degree of anti-social behavior and decreased satisfaction regarding social interactions.

A growing body of research revealed that patients with schizophrenia have a lower QoL compared to healthy individuals [28,29]. Some socio-demographic and clinical characteristics of patients with schizophrenia have been documented as possible factors influencing QoL. Negative and depressive symptoms, lack of insight into illness, treatment side-effects, attitudes toward treatment, and emotional distress have been linked to poor QoL. Other factors such as self-esteem, social support, employment, treatment with atypical antipsychotic and patient adherence to treatment were outlined as contributors to an increased QoL [30,31]. Similar factors, such as positive and negative symptoms, lack of employment and other financial problems, longer duration of untreated psychosis, chronic course of the disease, and symptoms of depression have been found to increase the risk of disability rates [32,33]. In our sample, the patients had a duration of illness (mean±SD) of 13.45±10.51 years and 48.8% of the patients were unemployed. Beyene et al. noted in 2021 that duration of illness longer than 5 years is a predictor of disability [34].

A large proportion of our sample (80.85%) was single. Other studies found that married participants were having a decreased QoL as compared to the single ones [35,36]. The burden of responsibilities associated with marriage might explain this particular finding [35]. In this study, more than half of the patients (66%) were males. Manickam et al. (2005) and Peng et al. (2021) found that there are not gender differences in LSP scores [37,38]. On the other hand, there are studies reporting a better QoL in males than in females [39]. These differences could be explained by the number of patients included, differences in socio-demographic characteristics and sampling method.

In our study, we observed a negative relationship between disability and subjective QoL, meaning that a higher degree of disability is associated with a worse QoL in all studied aspects. Similar results were reported by other studies. Hosseini et al. (2011) demonstrated that an increased QoL is associated with a higher functionality measured using Global Assessment of Functioning Scale [40]. In the study of Galuppi et al. (2010), the total score obtained on the VADO Personal and Social Functioning Scale was correlated with the scores of all four domains of WHOQOL-BREF [41]. In contrast to our data, a positive correlation between LSP total score and Quality of Life scale total score was noted in another study [42]. Considering the many characteristics that these two concepts have in common, an interrelationship is to be expected though.

Alessandrini et al. (2016) reported that higher levels of QoL in the psychological wellbeing, relationships with friends and physical well-being dimensions were associated with a decreased disability in social functioning dimension. Also, better daily life functioning was related

to a better QoL in the psychological wellbeing domain [43]. Pinar et al. (2019) reported similar results [44]. These results are in accordance with ours and outline the importance of functioning in several key-aspects of everyday life in determining subjective QoL. Moreover, different types of interventions aimed at reducing social isolation might be a promising solution to improve this aspect [45]. Consequently, given the relationship we found between social withdrawal and QoL, such interventions might improve QoL as well.

Brissos et al. (2011) revealed that the duration of illness is negatively correlated with the total score and the scores of all scale domains (socially useful activities, personal and social relationships, self-care). More precisely, it was demonstrated that the longer the duration of illness, the lower the functionality [46]. These findings are in opposition with ours as we reported no significant correlation between duration of illness and total LSP-16 score. One potential explanation could be the small number of patients included in the present study.

Our study has several limitations that need to be acknowledged. Firstly, we included a small number of patients in our sample and only from a single center, but as mentioned in the title, this is a preliminary report. Secondly, the design of the study was cross-sectional, therefore no causal modelling is possible. Thirdly, we used a generic QoL scale. Lastly, other variables that might influence QoL (e.g., medication adherence, type of medication, side-effects, psychopathology) were not included in the assessment of the patients.

Conclusions

This study provides further contributions to the characterization of the relationship between QoL and disability in patients with schizophrenia. All aspects of QoL (i.e., physical health, psychological health, social relationships and environmental health) were in an interrelationship with functionality. Moreover, it appears that a good satisfaction regarding social relationships and psychological health is linked to a better functioning in self-care and socialization. Future research on larger cohorts of patients with schizophrenia could bring more arguments for the results reported in this study. Development of psychological and pharmacological interventions aimed at improving these outcomes and implementation of such interventions in clinical practice is highly needed.

Highlights

- ✓ Lower quality of life was associated with increased disability in patients with schizophrenia.
- ✓ Satisfaction with social relationships was associated with a lower degree of withdrawal and better self-care performance.

Compliance with ethical standards

Any aspect of the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

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