Original Paper

Social Functioning in Schizophrenia Clinical Correlations

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ABSTRACT: Schizophrenia remains one of the major psychiatric disorder with huge social and economic costs for the individual and community. The role of psycho-social factors is important both on the etiopathogenesis of the illness and its evolution, lack of social functioning and associated stress have impact on everyday life of people with this diagnosis. Our study of 100 subjects with schizophrenia has showed significant correlations between clinical and social items: bigger number of admissions, longest duration of the evolution, cognitive deficits, smoking, suicidal behavior, age, marital status, smoking, level of perceived stress. The social functioning was influenced by these factors, and the therapeutically management during the hospitalization does not showed an improvement of the social function.

KEYWORDS: *social functioning, schizophrenia, perceived stress, suicidal behavior, cognitive deficits*

Introduction

Schizophrenia represents a major psychiatric disorder with an important impact, both on the individual with this diagnosis and community as well, through its prevalence of approximatively 1% of population [1] and its huge social and economic costs generated by disabilities provoked.

Etiopathogenesis of schizophrenia is yet not well known, the most discussed theory being the one who refers to a complex of genetic, biochemical, biological and psycho-social factors, in which each category has its determined role.

Data from the literature mentioned an incidence of up to 50% in families where both parents are affected by schizophrenia, or even by over 80% when one of the monozygotic twins was diagnosed [2], while other genetic studies have identified a number of genes that appear to be involved in different measures in etiopathogenesis schizophrenia [3]. Another etiopathogenic model has as background the biochemical imbalances of the brain's main neurotransmitters with implications in the electrical transmission channels, these theories subsequently constituting the basis of the antipsychotic drugs used in the treatment schizophrenia, whose therapeutic goal is precisely the restoration of biochemical balance [4]. Among the biological factors involved in the etiopathogenesis of schizophrenia are obstetrical traumas, influenza virus infection of pregnant women, diabetes and malnutrition of pregnant women, rubella during pregnancy and smoking [5], while among psychosocial factors we can mention psychotrauma, low social support, discrimination, poverty, urban environment, and migration [6].

Having in mind this complex picture of schizophrenia, we need to emphasize the impact of illness on everyday life of people affected, this category of people being confronted not only with the effects of an erroneous social perception of labeling and avoidance, but also with self-stigmatization, such as loss of self-esteem, major difficulties in creating and maintaining social relationships, or serious problems on educational and professional level, leading to a low socio-economic level [7]. All of these are leading to a level of stress which could influence not only the severity of the symptoms, but also the response to pharmacological treatment strategies, and as we hypothesized, to a low level of social adjustment for the people affected.

Material and methods

The present study was non-interventional, following the natural evolution of the patient, and it was conducted on a sample consisting of 100 patients diagnosed with chronic paranoid

schizophrenia, according to ICD-10 criteria, who were hospitalized in the Chronics Psychiatry Hospital Dumbraveni, Vrancea County, during a one-year period (January 1st, 2016-December 31st, 2016).

In the study were not included subjects with associated diagnosis of organic cerebral pathologies, neurodegenerative diseases, mood disorders, and substance use disorders.

The severity of symptomatology was assessed using the Positive and Negative Syndrome Scale (PANSS) [8], while the level of cognitive status was evaluated through MMSE (Mini Mental Examination) scale [9], both items being measured at the begining and at the end of hospitalizing period. The level of social functioning was assessed at the moment of patient's discharge using Global Assessment of Functioning Scale (GAFS) [10], and the level of stress was measured at same moment, using Perceived Stress Scale (PSS) [11].

The statistical analysis of results was performed using the SPSS software package (SPSS Inc.) and Microsoft Excel (Microsoft Office 2010 package). We used descriptive statistics and cross-tabulation analysis, and Spearman and chi-square tests to evaluate the association between categorical variables, where correlations were considered statistically significant for values of p inferior to 0.05.

All the subjects recruited were volunteers, and they have participated to the study following the informed consent. The study was approved by the Committee of Ethics and Academic and Scientific Deontology of the University of Medicine and Pharmacy of Craiova.

Results

The study sample population had an average age of 48.22±11.94 years, out of the total number of 100 subjects 57.00% being male, respectively 43.00% female. According to the residence, 72.00% of subjects were living in the rural environment, and 60.00% were unmaried, 23.00% married, respectively 17.00% divorced or widowed.

Most of them were high-school graduates (33.00%), followed by graduates of gymnasium (32.00%), respectively primary school graduates (7.00%).

None of the subjects were graduated superior studies (faculty), and 7.00% did not follow any study program.

The disability provoked by schizophrenia was proved once more through professional status of the subjects, none of them were professionally active, the huge majority of them (91.00%) receiving social financial support (disability pension) (Table 1).

Table 1. Social and demographical characteristics of the subjects

Characteristic	Number (%)
Gender	
Female	43 (43.00%)
Male	57 (57.00%)
Environment	
Urban	28 (28.00%)
Rural	72 (72.00%)
Marital status	
Married	23 (23.00%)
Unmarried	60 (60.00%)
Divorced/Widowed	17 (17.00%)
Educational status	
No study	7 (7.00%)
Primary school	28 (28.00%)
Gymnasium	32 (32.00%)
High-school	33 (33.00%)
Professional status	
Retired	91 (91.00%)
Unemployed	9 (9.00%)

According to the clinical status of the subjects, it was observed that the population of the study sample was almost equally divided between persons with only one admission (44.00%) in the hospital during the studied year and those with two admissions (49.00%) during the same period, and for the majority of them (85.00%), schizophrenia had a reactive onset. Also, the suicidal behavior was present in only 21.00%, while substance use disorders (alcohol consumption-42.00%, respectively smoking 52.00%) were present in a ratio comparable with data from literature [12, 13]. According to the results obtained by using GAF scale, the level of social adjustment for 93.00% of the subjects remains a poor one, even if they had an improved clinical status at discharge (94.00%), and this could be considered an indicator that remission of symptoms alone does not represents a condition for the good social functioning of people with schizophrenia (Table 2).

Table 2. Clinical characteristics of the subjects

Characteristic	Number (%)
Number of hospital admissions	
1 admission	44 (44.00%)
2 admissions	49 (49.00%)
>2 admissions	7 (7.00%)
The form of onset of the disease	
Reactive	85 (85.00%)
Insidious	15 (15.00%)
Suicidal behaviour	
Absent	79 (79.00%)
Suicidal ideation / atempts	21 (21.00%)

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Alcohol consumption	
Abstinents	58 (58.00%)
Occasional / moderate	10 (10.00%)
Abuse	32 (32.00%)
Smoking	
Non-smokers	48 (48.00%)
Smokers	52 (52.00%)
Clinical status at discharge	
Improved	94 (94.00%)
Stationary / aggravated	6 (6.00%)
Social adjusment	
Positive	7 (7.00%)
Poor	93 (93.00%)

PANSS scale administrated at the moment of admission in hospital showed the presence of the severe psychotic symptoms by an average score of 87.03±12.07 for the subjects of the study sample, a score who slightly decreased to an average of 77.38±14.03 after at the moment of discharge, as an effect of the therapeutical management process.

The presence of severe and mild cognitive deficit was also highlighted by the MMSE's scores of 15.87±4.11 at the moment of admission, respectively 18.92±4.14 at the end of hospitalization period (Table 3).

Table 3. PANSS and MMSE's scores of the subjects

PANSS	**Admission**	**Discharge**
Min	59	47
Q1	79	66.75
Median	84	76.5
Q3	94.25	88
Max	115	113
MMSE	**Admission**	**Discharge**
Min	7	8
Q1	13	16
Median	16	19
Q3	19	22
Max	25	28

In our study samply we have found higher stress levels according to the scores over 20 on the PSS (average score 29.02±5.75), this psychological marker could be related with the inpatient status, the severity of symptoms, and the poor level of social adjustment for majority of the subjects (Table 4).

Table 4. PSS scores of the subjects

PSS	**PSS score**
Min	20.00
Q1	24.00
Median	27.00
Q3	33.00
Max	42.00

The statistical analysis revealed the existence of significant correlations between a number of items in our study, which were confirmed partially our hypothesis that for schizophrenic patients the level of social functioning represents the result of a complex context in which are involved factors related with psychiatric treatment, their psychological status and the way in which they are perceiving and they are perceived by the community (social adjustment). Thus, we have discovered significant statistical correlations between the bigger number of admissions and the longest duration of the evolution of schizophrenia and poor social adjustment (Chi square $p<0.05$).

On the clinical side of the items analyzed, the improved status at the discharge was correlated in a significant statistical relation with the longest evolution of the illness (Chi square $p<0.05$), as we found same level of correlation with age less than 50 years (Chi square $p<0.05$). Moreover, it was revelead that suicidal behavior was significant correlated (Chi square $p<0.05$) with marital status, respectively smoking, while the form of the onset of schizophrenia had a direct significant relation (Chi square $p<0.05$) with the number of the admissions during the year in which our study was realized (Table 5).

Table 5. Statistical significant correlations between clinical items

Social adjustment	**Positive**	**Poor**	**Chi square p**
1 admission	13.64%	86.36%	0.021
>1 admissions	1.79%	98.21%	
≤5 years from onset	14.29%	85.71%	0.036
>5 years from onset	3.08%	96.92%	
Clinical status	**Improved**	**Stationary**	**Chi square p**
Age < 50 years	89.09%	10.91%	0.022
Age ≥ 50 years	100.00%	0.00%	
≤5 years from onset	85.71%	14.29%	0.010
>5 years from onset	98.46%	1.54%	
Suicidal ideation	**Absent**	**Present**	**Chi square p**
Married	95.65%	4.35%	0.025
Non-married/Divorced	74.03%	25.97%	
Smoker	69.23%	30.77%	0.012
Non-smoker	89.58%	10.42%	
Onset	**Reactive**	**Insidious**	**Chi square p**
1 admission	93.18%	6.82%	0.042
>1 admissions	78.57%	21.43%	

Finally, were highlighted highly significant correlations (p Spearman <0.0001) between age of the subjects and the level of cognitive deficit expressed through MMSE scores, which are directly influencing the social skills of the persons with schizophrenia, as well as between the high level of the perceived stress and the longest duration from the onset of the disease (over 5 years) (p Spearman <0.05) (Table 6, Fig. 1, Fig. 2, Fig. 3).

Table 6. Statistical significant correlations between clinical items and scores on the evaluation tools

Variable 1	Variable 2	ρ Spearman correlation coefficient	p Spearman
Age	MMSE score-admission	-0.476	< 0.0001
Age	MMSE score-discharge	-0.492	< 0.0001
PSS score	Duration of the illness	0.223	0.0260

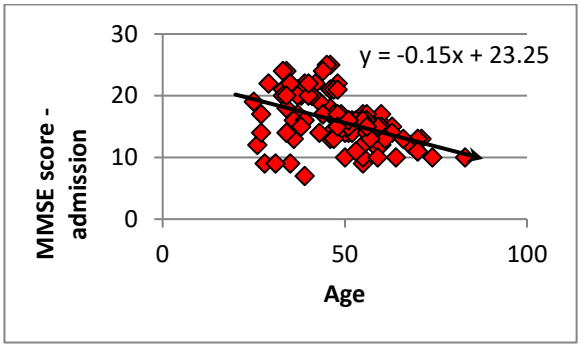

Fig. 1. Correlation between age and MMSE score at admission

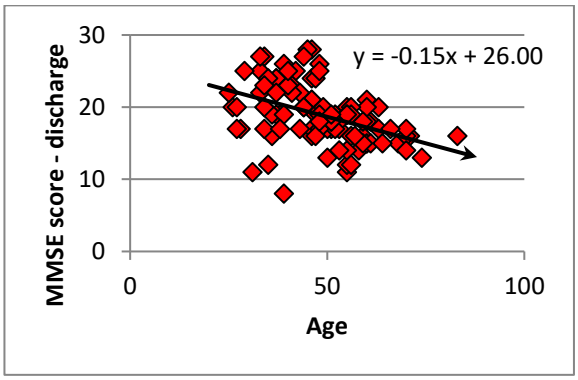

Fig. 2. Correlation between age and MMSE score at discharge

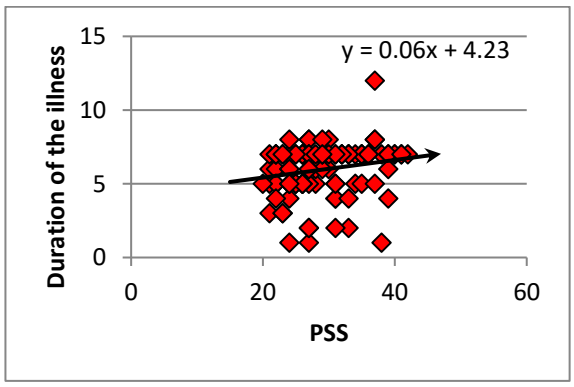

Fig. 3. Correlation between duration of the illness and PSS score

Discussion

Is it well recognized that deficits in social functioning expressed through poor social interactions and difficulties in building and maintaining familial or friendly relationships [14] are a core feature of schizophrenia and they are influenced both by social and demographic characteristics of the people with this diagnosis, and clinical factors. In this context, social functioning has received more attention and it was recognized as a one of the therapeutical targets by Diagnostic and Statistical Manual, 4th edition (DSM-IV), where the level of social functioning was correlated with the the effectiveness of antipsychotic treatment [10]. Even more, the level of social functioning became one of the items measured in the schizophrenia studies as an indicator of the outcome of various therapeutical approaches [15].

The results of our study are consistent with these assertions, as it was mentioned above, the majority of the subjects having a poor socio-economical status, without being involved in professional activities, and also, they were not able to have a stable familial or social relationship. Unemployed patients (actually the whole population of our study) show significantly worse functional outcomes [16,17], according to our results these being expressed through a poor social adjustment and were correlated also with the longer overall illness duration (over five years of evolution) and many recurrences [16].

If we found out that were statistical significant correlations between duration of the illness, the clinical status of the patients at discharge and their levels of the social adjustment, previous studies have also proved that not only the improvement of the psychotic symptoms could lead to an improvement in the social functioning of the suffering people [18],

10.12865/CHSJ.44.02.10

an important role being played by the cognitive deficits of the persons with schizophrenia, combined with the presence of the negative symptoms [19].

Cognitive deficits represent also a core feature of schizophrenia [20] and they could be identified even before its onset, with a process of worsening during the evolution of illness, especially when number of episodes is increasing, despite all therapeutical approaches [21], as it was revelead by our data, where level of cognitive deficit was directly correlated with the age of the subjects. Cognitive impairment (mild or severe, as in our study sample) is directly connected with impairment in social functioning [22,23,24], one of its impact being on person's independent living skills (professional activities, care abilitiles) [25].

Previous studies have showed that patients with schizophrenia are known to be at high risk for suicide, suicidality in patients with schizophrenia being also a predictive factor for a worse functional outcome [16]. According to data from literature, suicidal behavior typically occurred four and a half years after the first psychotic episode, with a prevalence of 30.2% to 34% [26,27], while our results showed 21% presence of suicidal ideation and behavior among the subjects of our study. It was reported at 7.2% of the persons with schizophrenia a suicide attempt in the month before admission [26], and also that there could be a link between smoking and suicidal behavior, especially in women [28], which is consistent with our results.

The action of stress in persons with schizophrenia it is not uniform, mostly due to lack of personal skills to cope with stressors, and its effects could lead to the greater severity of symptoms, and more frequent relapses [29], as we have found that it was a significant correlation between higher level of stress and longest period of the disease's evolution.

Conclusion

The social functioning of the individuals with schizophrenia in our study was influenced by a complex of factors, both clinical and psycho-social: longer duration of the disease's evolution, multiple admissions in hospital settings, cognitive deficits, suicidal behavior. The outcome of the therapeutically management during the hospitalization does not showed an improvement of the social function, nor of the cognitive skills, the effect of perceived stress being present at the moment of discharge. In this context, it is recommended to include complementary therapies in order to improve social skills of the persons with schizophrenia and to give them better chances to obtain the recovery.

References

1. McGrath J, Saha S, Chant D, Welham J. Schizophrenia: a concise overview of incidence, prevalence, and mortality. Epidemiologic reviews, 2008, 30(1):67-76.
2. McGuffin P, Owen MJ, Farmer AE. Genetic basis of schizophrenia. Lancet, 1995, 346:678-682.
3. Harrison PJ, Owen MJ. Genes for schizophrenia: recent findings and their pathophysiological implications. Lancet, 2003, 361: 417-419.
4. Carlsson M, Carlsson A. Schizophrenia: a subcortical neurotransmitter imbalance syndrome? Schizophr Bull, 1990, 16(3):425-432.
5. Thomas HV, Dalman C, David AS, Gentz J, Lewis G, Allebeck P. Obstetric complications and risk of schizophrenia: effect of gender, age at diagnosis and maternal history of psychosis. Br J Psychiatry, 2001, 179:409-414.
6. Fox JW. Social class, mental illness, and social mobility: the social selection-drift hypothesis for serious mental illness. J Health Soc Behav, 1990, 31: 344-353.
7. Wahl OF, Harman CR. Family views of stigma. Schizophrenia Bulletin, 1989, 15(1):131-139.
8. Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. Schizophr Bull, 1987, 13(2):261-276.
9. Folstein MF, Folstein SE, McHugh PR. Mini-mental status-A practical method for grading the cognitive state of patients for the clinician. Journal of Psychiatric Research, 1975, 12(3):189-198.
10. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. American Psychiatric Publishing Inc, 1994, Arlington VA US, 273-316.
11. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. Journal of Health and Social Behavior, 1983, 24:386-396.
12. Bellack AS, Diclemente CC. Treating substance abuse among patients with schizophrenia. Psychiatric Services, 1999, 50:75-80.
13. Sagud M, Mihaljević-Peles A, Mück-Seler D, Pivac N, Vuksan-Cusa B, Brataljenović T, Jakovljević M. Smoking and schizophrenia. Psychiatr Danub, 2009, 21(3):371-375.
14. Green MF, Kern RS, Braff DL, Mintz J. Neurocognitive deficits and functional outcome in schizophrenia: are we measuring the "right stuff"?. Schizophr Bull, 2000, 26:119-136.
15. Burns T, Patrick D. Social functioning as an outcome measure in schizophrenia studies. Acta Psychiatr Scand, 2007, 116:403-418.
16. Schennach-Wolff R, Jäger M, Seemüller F, Obermeier M, Messer T, Laux G, Pfeiffer H, Naber D, Schmidt LG, Gaebel W, Huff W, Heuse I, Maier W, Lemke MR, Ruther E, Buchkremer G, Gastpar M, Moller HJ, Riedel M. Defining and predicting functional outcome in schizophrenia and schizophrenia spectrum disorders. Schizophr Res, 2009, 113:210-217.

17. Honkonen T, Stengård E, Virtanen M, Salokangas RK. Employment predictors for discharged schizophrenia patients. Soc Psychiatry Psychiatr Epidemiol, 2007, 42:372-380.
18. Juckel G, Morosini PL. The new approach: psychosocial functioning as a necessary outcome criterion for therapeutic success in schizophrenia. Curr Opin Psychiatry, 2008, 21:630-639.
19. Ventura J, Hellemann GS, Thames AD, Koellner V, Nuechterlein KH. Symptoms as mediators of the relationship between neurocognition and functional outcome in schizophrenia: a meta-analysis. Schizophr Res, 2009, 113:189-199.
20. Bowie CR, Harvey PD. Cognition in schizophrenia: impairments, determinants, and functional importance. Psychiatr Clin North Am, 2005, 28:613-633.
21. Lewandoski KE, Cohen BM, Ongur D. Evolution of neuropsychological dysfunction during the course of schizophrenia and bipolar disorder. Psychol Med, 2010, 19:1-18.
22. Hofer A, Baumgartner S, Bodner T, Edlinger M, Hummer M, Kemmler G, Rettenbacher MA, Fleischhacker WW. Patient outcomes in schizophrenia II: the impact of cognition. Eur Psychiatry, 2005, 20:395-402.
23. Kurtz MM, Wexler BE, Fujimoto M, Shagan DS, Seltzer JC. Symptoms versus neurocognition as predictors of change in life skills in schizophrenia after outpatient rehabilitation. Schizophr Res, 2008, 102:303-311.
24. Matza LS, Buchanan R, Purdon S, Brewster-Jordan J, Zhao Y, Revicki DA. Measuring changes in functional status among patients with schizophrenia: the link with cognitive impairment. Schizophr Bull, 2006, 32:666-678.
25. McGurk SR, Mueser KT, Pascaris A. Cognitive training and supported employment for persons with severe mental illness: one-year results from a randomized controlled trial. Schizophr Bull, 2005, 31:898-909.
26. Radomsky ED, Haas GL, Mann JJ, Sweeney JA. Suicidal behavior in patients with schizophrenia and other psychotic disorders. Am J Psychiatry, 1999, 156(10):1590-1595.
27. Harkavy-Friedman JM1, Nelson EA, Venarde DF, Mann JJ. Suicidal behavior in schizophrenia and schizoaffective disorder: examining the role of depression. Suicide Life Threat Behav, 2004, 34(1):66-76.
28. Iancu I, Sapir AP, Shaked G, Poreh A, Dannon PN, Chelben J, Kotler M. Increased suicidal risk among smoking schizophrenia patients. Clin Neuropharmacol, 2006, 29(4):230-237.
29. Betensky JD, Robinson DG, Gunduz-Bruce H, Sevy S, Lencz T, Kane JM, Malhotra AK, Miller R, McCormack J, Bilder RM Szeszkoa PR. Patterns of stress in schizophrenia. Psychiatry Res, 2008, 160(1): 38-46.

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 10.12865/CHSJ.44.02.10