Original paper

Archives of Psychiatry Research 2025;61:55-62

DOI:10.20471/jan.2025.61.05
Received Jan 8, 2024
Accepted after revision April 20, 2024

Impact of Negative and Depressive Symptoms on the Social Functioning in Patients with Schizophrenia During Day - Care Treatment

Eva Morovicsová[1], Michal Hajdúk[1,2], Ľubomíra Izáková[1], Patrícia Hricáková[1], Danka Krajčovičová[1]

[1]Department of Psychiatry, Faculty of Medicine, Comenius University in Bratislava and University Hospital Bratislava, Bratislava, Slovakia, [2]Department of Psychology, Faculty of Arts, Comenius University in Bratislava, Bratislava, Slovakia

Keywords

Schizophrenia; social interaction; forecasting

Abstract

Aim: Individuals with schizophrenia experience a wide range of difficulty in social functioning. The aim of the study is to examine changes in the subjective and clinician-rated levels of social functioning, social skills, and assertiveness in patients treated in the psychiatric day-care centre. The secondary aim is to test which symptom domains predict better functioning at follow-up. **Subjects and Methods:** The sample consisted of 32 patients with schizophrenia spectrum disorders who received at least one month of treatment in the day-care centre. Treatment consisted of complex therapeutic program spanning from the psychopharmacological treatment to psychosocial rehabilitation. Subjective social functioning was measured by the Specific Levels of Functioning Scale (SLOF), and objective functioning was measured by the Personal and Social Performance Scale (PSPS). Psychopathology was evaluated by the Clinical Global Impression – Schizophrenia. Additionally, communication skills and assertiveness were measured by self-report measures. **Results:** We found a significant improvement in the subjective and objective levels of social functioning. Patients also showed improvement in assertiveness. Results of our analysis showed moderate to strong relationships between depressive and negative symptoms and levels of social functioning at follow-up. Less severe positive symptom levels at baseline predicted better functioning at follow-up. Contrary to our expectations, assertiveness was not related to social functioning. **Conclusion:** The short complex program led to improvement in objective and subjective functioning. Depressive and negative symptoms showed the strongest links to functioning, warranting the need for specialized and tailored interventions focusing on these symptom domains.

Introduction

Schizophrenia spectrum disorders are considered to be chronic conditions that negatively affect the psychosocial functioning and quality of life of patients and their families [1]. Psychosocial functioning is an individ-

Correspondence to:
Doc. PhDr. Eva Morovicsová, PhD., MPH
Department of Psychiatry, Faculty of Medicine,
Comenius University in Bratislava and University Hospital Bratislava
Mickiewiczova 13, 813 69 Bratislava, Slovakia
Phone: +42 12/57290138
E-mail: eva.morovicsova@fmed.uniba.sk

ual's ability to carry out variety of social roles, the ability to take care of oneself, to maintain stable job, to have meaningful interpersonal relationships, and to engage in a range of leisure activities [2-3]. The following aspects are considered in the assessment: real-world functioning, functional capacity, quality of life, and success in psychiatric rehabilitation and resocialization [4]. The first signs of these difficulties are observed in the premorbid stage of illness, when the symptoms necessary for confirming diagnosis are not yet fully established [5-6]. The deterioration in psychosocial functioning is stable over time, with only 5-17 % of patients reaching their premorbid level of functioning [7]. The prevalence of symptomatic and functional recovery from the long term perspective is also very low, with the recent meta-analytic estimates as low as 13.5 % [8].

The real-world outcomes in schizophrenia are predicted by the duration of untreated psychosis, shorter length of hospitalization, and persistence of negative symptoms especially those that lead to reduction of motivation [9-11]. However, more recent meta-analytic studies showed that virtually all symptom domains show a relationship with poorer functioning [12]. In addition, the comorbid personality disorder, neurocognitive deficits, especially in verbal memory and motor skills play a role as well [13]. Both neurocognition and social cognition have been shown in a recent meta-analysis to be significant predictors of both social and occupational functioning [14]. Demographic, economic, and psychosocial predictors also play a role, e.g., social isolation, loneliness, lower education, unemployment, adverse family experiences, stigma, or discrimination [7,15-16]. Factors related to previous employment, such as frequent job changes, more demanding positions, short job tenure, prolonged unemployment, decline in job performance, interest in work, and workplace conflicts, are also important in this regard.

Patients with schizophrenia often have diminished ability to work and have difficulties with returning to work after the remission of acute symptoms [17]. A 10-year longitudinal study showed impaired work functioning in patients with schizophrenia in comparison with patients with other psychotic and nonpsychotic diagnoses [18]. Individuals with schizophrenia with treatment resistant psychotic symptoms are less likely to return to a full work life and may experience a global reduction in occupational functioning. This is associated with subsequent impairments in work and social adjustment, lack of employment opportunities, lack of support, lack of financial resources, discrimination, and high health care utilization [7].

Longitudinal studies that focused on various domains of social functioning described several trajectories of functioning according to the severity of impairment. Based on a 20-year follow-up of patients, they identified four largely stable trajectories of social functioning - preserved, moderately impaired, severely impaired, and profoundly impaired social functioning [19]. 75 % of patients with schizophrenia spectrum disorders felt into the severely to profoundly impaired social functioning groups. In another study which followed patients at 6 months, 12 months, and then 10 years after the onset of psychotic illness, the authors identified significant improvements in social functioning in all patients after the first six months, but within the second half of the first year, there was either a more modest improvement or a gradual deterioration in social functioning [20]. This suggests that the first year, and particularly the second half of the first year after the onset of psychotic illness, is crucial in terms of the development of long-term problems in the social functioning. In the case of patients living in their community, one year follow-up of their level of functioning found that up to 86 % of them showed a stable level of functioning, and only about 10% of them deteriorated statistically significantly [21].

The crucial question is to what extend is social functioning modifiable in individuals with schizophrenia, for example, through various psychosocial interventions. Social withdrawal and reduced capacity for self-assertion and assertive behaviour in patients with schizophrenia are dependent on their reduced ability to express their emotions and thoughts effectively and by the absence of a critical attitude towards the disorder, which are also reflected in the performance of everyday activities and social roles [22]. Therefore, in addition to psychopharmacological treatment, the use of a wide range of rehabilitation, psychotherapeutic and psychoeducational approaches is usually an integral part of the comprehensive treatment of schizophrenia [23-24]. These approaches are designed as structured behaviour change procedures, are conducted in a group format, and their effectiveness is more pronounced when implemented in an interactive setting. They are thematically focused on problem solving abilities, practicing self-advocacy techniques, and using role-play activities with the goal to improve communication skills in a variety of social interactions that are happening in the real-life [25-26]. As part of a comprehensive treatment, these trainings contribute to reduction of anxiety, negative symptoms, improved assertive and communication skills, and self-esteem, but also to the patient's overall functioning and increased remission rates [22,27-28]. The magnitude of improvement in social functioning and quality of life in patients with schizophrenia is determined by the length and intensity of rehabilitation and resocialization programs [29]. For example, Lee and

associates [25] found improvements in interpersonal communication, increased assertiveness, and reduced anxiety in patients with schizophrenia who received group assertiveness training. Overall, the effectiveness of longer-term assertiveness training aimed at changing behavior in patients with schizophrenia, and training to improve their social and communication skills and level of psychosocial functioning, was confirmed by the results of recent systematic review [30].

The aim of the study is to examine 1-month changes in the subjective and clinician - rated levels of social functioning, social skills, and assertiveness in patients treated in the psychiatric day-care centre. Secondary aim is to test which symptom domains predict better functioning at follow-up.

Subject and Methods

Thirty two individuals with schizophrenia spectrum disorders treated at the Day-care centre of Department of Psychiatry of FM CU and UHB were enrolled in the study. Diagnosis was made by the treating psychiatrist in accordance with the ICD-10 criteria. All participants were enrolled in the standard treatment program. Program was available for 5 days a week, with approx. 5 hours of therapeutic work per day. Besides pharmacological treatment, patients received on daily basis regular community meetings, art therapy, Metacognitive training, and assertiveness training. Inclusion criteria were diagnosis of schizophrenia spectrum disorder (ICD codes of F20.X, F23.X, F25.X), willingness to fill in questionnaires, active participation in the treatment program for at least 4 weeks, during which patient participates in majority of therapeutic activities, having complete data from baseline and follow-up assessment. Data were collected at two time points. First baseline assessment was done after admittance to the day-care centre and prior to participation in the treatment program. Follow-up assessment took place before planned termination of treatment. The study was approved by the Ethical Review Board of University Hospital Bratislava and decision number is: 27/2022. All participants provided written informed consent prior to the enrolment in the study.

Personal and Social Performance Scale (PSP)

PSP is clinician rated scale that utilizes structured clinical interview spanning across four domains, namely: socially useful activities (including work and study), personal and social relationships, self-care, disruptive and aggressive behaviour [31]. The total score in the method ranges from 0 to 100, with higher scores indicating better social functioning. Each of four domains is rated based on the severity of problems on 6-point scale. Final score is determined by the decision tree based on the domain scores. Scores of 70 or lower indicate suboptimal functioning (manifest difficulties). In the analysis, we utilized total scores and we calculated number of patients with good vs difficulties in social functioning.

Specific Levels of Functioning (SLOF)

The SLOF is a self-report questionnaire abroad to measure social functioning for people with psychiatric disorders 25 [32]. The SLOF consists of the following domains: interpersonal relationships, social acceptability, activities of daily living, and work skills. The total number of items is 43 and each item is associated with a response on a five-point scale. Higher total scores indicate better social functioning.

Assertiveness Questionnaire

The Assertiveness Questionnaire contains 19 items covering specific situations from everyday life that the participant expresses to what extent these situations or statements are typical or atypical for him/her on a scale of +3 typical, completely corresponding to -3 completely atypical, completely corresponding. Higher scores correspond to a greater degree of assertiveness [33].

Communication Skills Questionnaire

The Communication Skills Questionnaire valuates self-assessment in social interactions. It includes 20 different situations from personal and professional life [34]. The participant assesses personal satisfaction in a given area on a scale from 1 (I really need to improve this skill) to a rating of 5 (I master this skill very well). The total score reflects the level of self-assessment and the overall level of communication skills.

Statistical Analysis

We utilized Repeated measures ANOVA for assessment of longitudinal changes in the social functioning (subjective and clinician - rated), assertiveness, and social skills. In these analyses, time (baseline vs follow-up) was used as within factor. Effect size of difference is quantified in using eta square coefficient. Strength of relationships was analysed with Spearman rank correlation due to ordinal character of some variables and because of violation of normality assumptions. All analysis was carried out in the JASP software.

Results

Demographic Characteristics

Demographic and clinical variables are displayed in the Table 1.

Table 1. Demographic and Clinical Variables of Participants

	M (SD) / *N* (%)
Age	M = 32.96 a SD = 8.12
% males	43.75
Education	
Lower ≤ 12 years	10 (31.25)
Higher > 12 years	22 (78.75)
No. of episodes	
First	8 (25.00)
More episodes	24 (75.00)
Duration of illness	
0 - 5 years	13 (40.63)
5 - 10 years	7 (21.88)
More than 10 years	12 (37.50)
Status	
Without partner	29 (90.62)
With partner	3 (9.38)
Mean number of treatment weeks	M = 8.03, SD = 2.67
CGI – Baseline	
Positive	3.44 (1.13)
Negative	3.53 (1.11)
Depressive	3.16 (1.08)
Cognitive	3.22 (0.87)
Severity	3.22 (0.80)
CGI – Follow - up	
Positive	2.91 (0.93)
Negative	2.81 (0.78)
Depressive	2.69 (0.69)
Cognitive	3.03 (0.65)
Severity	2.86 (0.79)

CGI – Clinical Global Impression; M – Mean; SD – Standard deviation; N – number of participants

Longitudinal Changes in Subjective and Clinician Rated Social Functioning

We found significant increase in the subjective ratings of social functioning measured by the total score on the SLOF scale ($F(1, 31) = 45.889$, $p < 0.001$, $eta^2 = 0.597$). Mean score increased from the M = 126.56 and SD = 9.09 to M = 135.469 and SD = 9.92. In addition, we found significant increase in the total score in PSP scale as well ($F(1, 31) = 59.160$, $p < 0.001$, $eta^2 = 0.656$). Mean score increased from M = 65.59 and SD = 5.38 to M = 71.34 and SD = 6.01. During the baseline assessment. Only 22 % patients showed no at all or mild social functioning difficulties in comparison with the follow-up when 63 % showed mild or no difficulties based on clinician ratings on the PSP. Self-reported assertiveness increased as well ($F(1, 31) = 12.042$, $p = 0.002$, $eta^2 = 0.280$). Mean score increased from M = -3.53 and SD = 11.25 to M = 3.72 and SD = 12.73. No changes were found in the subjective communication skills ($F(1, 31) = 3.283$, $p = 0.08$), but numerically there was an increase from M = 62.22 and SD = 12.93 to M = 65.59 and SD = 12.98.

Predictors of Functional Outcomes at Follow - up

PSP total score and SLOF total scores at follow up were strongly correlated ($rs = 0.580$, $p < 0.001$). Baseline scores in assertiveness and perceived communication skills were unrelated to the follow - up ratings of PSP and SLOF. We found that perceived communication skills at follow - up were positively linked to better subjective functioning ($rs = 0.413$, $p = 0.019$). Correlation matrix symptoms (baseline and follow - up) and functioning is displayed in the Table 2. Taking together, better functioning was mainly associated with lower positive and negative symptoms at baseline as well as less intensive negative and depressive symptoms at follow up. Overall severity was linked to the better functioning.

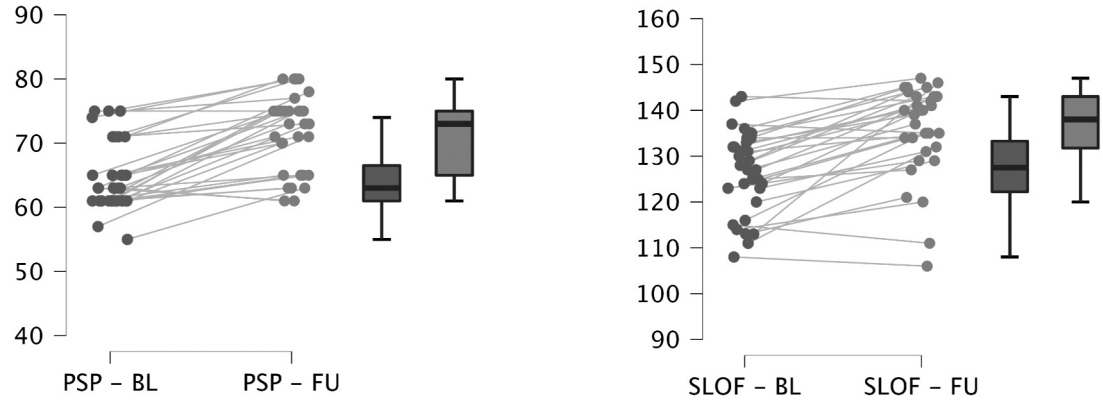

Figure 1. Longitudinal Changes in PSP and SLOF Total Scores

Table 2. Correlations between Symptoms Measured by CGI and Social Functioning

	Baseline				
	Positive	Negative	Depressive	Cognitive	Severity
SLOF - FU	-0.506**	-0.492*	-0.175	-0.340	-0.385*
PSP - FU	-0.451**	-0.552**	-0.198	-0.463**	-0.455**
	Follow - up				
	Positive	Negative	Depressive	Cognitive	Severity
SLOF - FU	-0.319	-0.509**	-0.545**	-0.425*	-0.466**
PSP - FU	-0.255	-0.504**	-0.575**	-0.047	-0.554**

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

Discussion

Our results showed a significant increase in patients' subjective as well as objective levels of social functioning. We also found an increase in subjective perceptions of assertiveness. Thus, the standard daily therapeutic programme in the day-care centre had a positive impact on the patients' real functioning. Even a short intensive intervention is sufficient to induce positive changes in the daily functioning of patients who can benefit significantly from it. A comprehensive programme, which has also been supplemented by the personalized approach in the case of patient needs, can, even in a relatively short period, improve quality of life.

The results of our study confirmed the association between negative and depressive symptoms and social functioning in patients with schizophrenia. Similar pattern of results was also observed in other studies [35-36]. Patients with more severe negative symptoms showed lower both subjective and objective measures of social functioning.

Over the last few decades, availability of modern psychosocial interventions for schizophrenia increased. These interventions are not only targeted on alleviation of symptoms but as well as to improve their overall quality of life [37]. This is the main reason why new specialised therapeutic interventions targeting this group of symptoms should be gradually implemented in clinical practice. These treatments can be personalized and can also reflect the trajectory of changes in the functional status of patients from early phases of their illness [38]. Therapeutic interventions utilized a diverse range of psychosocial techniques that are targeting different aspects of social functioning. A recent systematic review offers an overview of different psychosocial interventions and their effect on different areas of patients' lives [30]. All these interventions have in common that they are based on community functioning. More specifically, assertive community treatment, cognitive-behavioural therapy, family interventions, psychoeducation, social skills training, supported employment, which have been shown to have a major impact on important treatment outcomes, such as improved quality of life, lowering risk of relapse and severity of psychopathology.

Other work that observed the effectiveness of longer duration cognitive-behavioural social skills training has confirmed better mastery of the skills trained and functioning within the community after hospital discharge, higher levels of coping strategies, and greater patient interest in social activities after training [39-40]. Therefore, longer duration of training might be crucial for more stable and long term outcomes.

However, interventions targeting positive and depressive symptomatology should be part of therapeutic programmes as well. Overall, the approach should be sufficiently individualized depending on the patient's unique needs and therapeutic goals.

Cross-sectional relationships in our research at the end of the measurement also showed an association between depressive symptoms and problems in daily functioning. Similar findings were confirmed by the authors of studies, who reported that patients with schizophrenia with depression showed a reduced ability to function in several domains of social functioning, particularly in self-care, interpersonal activities, and occupational domains, as well as pointing to an overall reduced quality of life [41-42].

Overall, better social functioning after the treatment was associated with less severe positive and negative symptoms at the baseline, as well as less intense negative and depressive symptoms at the end of the one-month follow-up. Similar findings were reported by the authors,

who confirmed the association of positive symptomatology with more pronounced problems in the work domain, community functioning, and the occurrence of aggressive and disruptive behaviours [43-44]. However, according to some authors, improvement in positive symptoms of schizophrenia does not necessarily lead to improvement in psychosocial functioning [5].

In terms of observing the relationship between psychosocial skills and psychosocial functioning in patients with schizophrenia, no clear association between subjectively perceived assertiveness and communication skills and scores on the PSP and SLOF scales was confirmed during follow-up. A relationship between higher self-rated communication skills and better subjective functioning of patients was confirmed. Despite equivocal outcomes, several authors have confirmed the efficacy of rehabilitation, psychotherapeutic, and psychoeducational approaches on the social functioning of patients with schizophrenia [22,25].

Our results must be interpreted with caution in the context of several important limitations. First, the sample size fundamentally limits the selection of the complex statistical methods and procedures. With longer duration of follow-up, we can expect more dynamic changes in the psychosocial functioning of the patients, but there may also be short-term deteriorations or fluctuations in their condition due to the influence of external factors. The absence of a control group limits conclusions about the extent to which natural improvement over time is present and the effect of the particular therapeutic procedures that the patients themselves underwent. Self-report measures have also been used to assess psychosocial skills and psychosocial functioning, where validity may be affected by participants' tendency to provide socially desirable responses or lack of ability to estimate their level of functioning [45].

Future consideration may be given to the use of more broad-spectrum intervention options that may enrich existing interventions and bring new opportunities in terms of improving quality of life in individuals with psychosis.

However, further research needs to consider the role of other factors that may fundamentally impact social functioning in schizophrenia, such as social cognition or social motivation [46,47].

Acknowledgements

None.

Conflict of interest

None to declare.

Funding Sources

None.

References

1. Tandon R, Nasrallah HA, Keshavan MS. Schizophrenia, "just the facts" 4. Clinical features and conceptualization. Schizophr Res. 2009;110:1-23.
2. Dragašek J, Šútovský S. Psychosocial functioning in patients with schizophrenia. Psychiatr Pre Prax. 2012;13:98-103.
3. Hajdúk M, Zimányiová M, Krajčovičová D, Kořínková V, Pečeňák J, Heretik A. Predictors of functional outcome in patients with schizophrenia. Čes Slov Psychiatr. 2016;112:226-31.
4. Zimányiová M, Hajdúk M, Heretik A, Krajčovičová D, Pečeňák J. Neurocognition and functional capacity as predictors of functional outcome in schizopherenia. Čes Slov Psychiatr. 2019;115:101-7.
5. Brissos S, Molodynski A, Dias VV, Figueira ML. The importance of measuring psychosocial functioning in schizophrenia. Ann Gen Psychiatry. 2011;10:18.
6. Cannon M, Jones P, Gilvarry C, Rifkin L, McKenzie K, Foerster A, et al. Premorbid social functioning in schizophrenia and bipolar disorder: similarities and differences. Am J Psychiatry. 1997;154:1544-50.
7. Figueira ML, Brissos S. Measuring psychosocial outcomes in schizophrenia patients. Curr Opin Psychiatry. 2011;24:91-9.
8. Jääskeläinen E, Juola P, Hirvonen N, McGrath JJ, Saha S, Isohanni M, et al. A systematic review and meta-analysis of recovery in schizophrenia. Schizophr Bull. 2013;39:1296-306.
9. Perkins DO, Gu H, Boteva K, Lieberman JA. Relationship between duration of untreated psychosis and outcome in first-episode schizophrenia: a critical review and meta-analysis. Am J Psychiatry. 2005;162:1785-804.
10. Spellmann I, Riedel M, Schennach R, Seemüller F, Obermeier M, Musil R, et al. One-year functional outcomes of naturalistically treated patients with schizophrenia. Psychiatry Res. 2012;198:378-85.
11. Strauss GP, Horan WP, Kirkpatrick B, Fischer BA, Keller WR, Miski P, et al. Deconstructing negative symptoms of schizophrenia: Avolition–apathy and diminished expression clusters predict clinical presentation and functional outcome. J Psychiatr Res. 2013;47:783-90.
12. Handest R, Molstrom IM, Gram Henriksen M, Hjorthøj C, Nordgaard J. A systematic review and meta-analysis of the association between psychopathology and social functioning in schizophrenia. Schizophr Bull. 2023;49:1470-85.
13. Tabarés-Seisdedos R, Balanzá-Martínez V, Sánchez-Moreno J, Martinez-Aran A, Salazar-Fraile J, Selva-Vera G, et al. Neurocognitive and clinical predictors of functional outcome in patients with schizophrenia and

bipolar I disorder at one-year follow-up. J Affect Disord. 2008;109:286-99.
14. Halverson TF, Orleans-Pobee M, Merritt C, Sheeran P, Fett AK, Penn DL. Pathways to functional outcomes in schizophrenia spectrum disorders: Meta-analysis of social cognitive and neurocognitive predictors. Neurosci Biobehav Rev. 2019;105:212-9.
15. Badcock JC, Adery LH, Park S. Loneliness in psychosis: a practical review and critique for clinicians. Clin Psychol Sci Pract. 2020;27:e12345.
16. Michalska da Rocha BM, Rhodes S, Vasilopoulou E, Hutton P. Loneliness in psychosis: a meta-analytical review. Schizophr Bull. 2018;44:114-25.
17. McGurk SR, Mueser KT, DeRosa TJ, Wolfe R. Work, Recovery, and comorbidity in schizophrenia: a randomized controlled trial of cognitive remediation. Schizophr Bull. 2009;35:319-35.
18. Racenstein JM, Harrow M, Reed R, Martin E, Herbener E, Penn DL. The relationship between positive symptoms and instrumental work functioning in schizophrenia: a 10year follow-up study. Schizophr Res. 2002;56:95-103.
19. Velthorst E, Fett AKJ, Reichenberg A, Perlman G, van Os J, Bromet EJ, et al. The 20-year longitudinal trajectories of social functioning in individuals with psychotic disorders. Am J Psychiatry. 2017;174:1075-85.
20. Cheng Z, Huang B, Ma K, Miao Q, Yuan Y, Han X, et al. Trajectories of social function in patients with first-episode schizophrenia: Analysis of data from a 10-year follow-up study. Asian J Psychiatry. 2024;91:103834.
21. Miles AA, Heinrichs RW, Ammari N, Hartman L, McDermid Vaz S, Muharib E. Stability and change in symptoms, cognition, and community outcome in schizophrenia. Schizophr Res. 2014;152:435-9.
22. Ustun G, Kucuk L. The effect of assertiveness training in schizophrenic patients on functional remission and assertiveness level. Perspect Psychiatr Care. 2020;56:297-307.
23. Mueser KT, Deavers F, Penn DL, Cassisi JE. Psychosocial treatments for schizophrenia. Annu Rev Clin Psychol. 201328;9:465-97.
24. Pilling S, Bebbington P, Kuipers E, Garety P, Geddes J, Martindale B, et al. Psychological treatments in schizophrenia: II. Meta-analyses of randomized controlled trials of social skills training and cognitive remediation. Psychol Med. 2002;32:783-91.
25. Lee TY, Chang SC, Chu H, Yang CY, Ou KL, Chung MH, et al. The effects of assertiveness training in patients with schizophrenia: a randomized, single-blind, controlled study. J Adv Nurs. 2013;69:2549-59.
26. Morovicsová E. Využitie asertívnych práv v klinickej praxi. Rev Medicíny V Praxi. 2013;37-8.
27. Drukker M, Visser E, Sytema S, van Os J. flexible assertive community treatment, severity of symptoms and psychiatric health service use, a real life observational study. Clin Pract Epidemiol Ment Health. 2013;9:202-9.
28. Morovicsová E, Krajčovičová D, Hajdúk M. Evaluation of assertiveness training and of social skills in patients in the conditions of the daily outpatient centre. Ceska Slov Psychiatr. 2022;118:59-66.
29. Brekke JS, Long JD. Community-based psychosocial rehabilitation and prospective change in functional, clinical, and subjective experience variables in schizophrenia. Schizophr Bull. 2000;26:667-80.
30. McDonagh MS, Dana T, Kopelovich SL, Monroe-DeVita M, Blazina I, Bougatsos C, et al. Psychosocial interventions for adults with schizophrenia: an overview and update of systematic reviews. Psychiatr Serv. 2022;73:299-312.
31. Morosini PL, Magliano L, Brambilla L, Ugolini S, Pioli R. Development, reliability and acceptability of a new version of the DSM-IV Social and Occupational Functioning Assessment Scale (SOFAS) to assess routine social functioning. Acta Psychiatr Scand. 2000;101:323-9.
32. Schneider LC, Struening EL. SLOF: a behavioral rating scale for assessing the mentally ill. Soc Work Res Abstr. 1983;19:9-21.
33. Rathus SA, Nevid JS. Concurrent validity of the 30-item assertiveness schedule with a psychiatric population. Behav Ther. 1977;8:393-7.
34. Praško J, Prašková H. Asertivitou proti stresu. 2. přepracované a doplněné vydání. Praha (CZ): Grada Publishing a.s.; 2007. p. 280
35. Hunter R, Barry S. Negative symptoms and psychosocial functioning in schizophrenia: neglected but important targets for treatment. Eur Psychiatry J Assoc Eur Psychiatr. 2012;27:432-6.
36. Rabinowitz J, Levine SZ, Garibaldi G, Bugarski-Kirola D, Berardo CG, Kapur S. Negative symptoms have greater impact on functioning than positive symptoms in schizophrenia: analysis of CATIE data. Schizophr Res. 2012;137:147-50.
37. Radic K, Curkovic M, Bagaric D, Vilibic M, Tomic A, Zivkovic M. Ethical approach to prevention of schizophrenia – concepts and challenges. Psychiat Danub. 2018;30:35-40.
38. Agarwal SM, Dissanayake J, Agid O, Bowie C, Brierley N, Chintoh A, et al. Characterization and prediction of individual functional outcome trajectories in schizophrenia spectrum disorders (PREDICTS study): study protocol. PLoS One. 2023;18:e0288354.
39. Kurtz MM, Mueser KT. A meta-analysis of controlled research on social skills training for schizophrenia. J Consult Clin Psychol. 2008;76:491-504.
40. Granholm E, McQuaid JR, McClure FS, Auslander LA, Perivoliotis D, Pedrelli P, et al. A Randomized, controlled trial of cognitive behavioral social skills training for middle-aged and older outpatients with chronic schizophrenia. Am J Psychiatry. 2005;162:520-9.
41. Conley RR, Ascher-Svanum H, Zhu B, Faries D, Kinon BJ. The Burden of depressive symptoms in the long-term treatment of patients with schizophrenia. Schizophr Res. 2007;90:186-97.
42. Subodh BN, Grover S. Depression in schizophrenia: prevalence and its impact on quality of life, disability, and functioning. Asian J Psychiatry. 2020;54:102425.
43. Bowie CR, Leung WW, Reichenberg A, McClure MM, Patterson TL, Heaton RK, et al. Predicting schizophrenia patients' real-world behavior with specific neuropsychological and functional capacity measures. Biol Psychiatry. 2008;63:505-11.
44. Menendez-Miranda I, Garcia-Portilla MP, Garcia-Alvarez L, Arrojo M, Sanchez P, Sarramea F, et al. Predictive factors of functional capacity and real-world functioning in patients with schizophrenia. Eur Psychiatry. 2015;30:622-7.
45. Silberstein J, Harvey PD. Impaired introspective accuracy in schizophrenia: an independent predictor of functional outcomes. Cognit Neuropsychiatry. 2019;24:28-39.
46. Pinkham AE, Harvey PD, Penn DL. Social cognition psychometric evaluation: results of the final validation study. Schizophr Bull. 2018;44:737-48.
47. Hajdúk M, Abplanalp SJ, Jimenez AM, Fisher M, Haut KM, Hooker CI, et al. Linking social motivation, general motivation, and social cognition to interpersonal functioning in schizophrenia: insights from exploratory graph analysis. Eur Arch Psychiatry Clin Neurosci. 2023.