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Social functioning and quality of life in schizophrenia patients: relationship with symptomatic remission and duration of illness

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Summary

Aim. The assessment of social functioning and subjective quality of life in relation to symptomatic remission in schizophrenia patients after a first psychiatric hospitalization, as well as the analysis of connection between intensity of psychopathological symptoms and the level of functioning and quality of life, taking into account the status of remission and duration of illness.

Methods. Sixty-four patients were assessed, at 13 months (1st examination) and at mean 8 years (2nd examination) after the first hospitalization, and compared with two control groups of healthy persons. The following scales were used: Positive and Negative Syndrome Scale (PANSS), Social Functioning Scale (SFS), WHO Quality of Life (WHOQoL - Bref) scale and Global Assessment Scale (GAS).

Results. At first examination, the score of SFS domains was not significantly different between patients in remission and without remission while the score of most domains of WHOQoL was significantly higher in patients with remission. At second examination, the scores of both SFS and WHOQoL were significantly higher in patients with remission and did not differ significantly from healthy persons. In both examinations, significant correlations between PANSS and SFS and WHOQoL scores were found, especially in patients without remission.

Conclusions. At mean 8 years after first psychiatric hospitalization, 2/3 of the patients with schizophrenia did not get a symptomatic remission and had worse social functioning and quality of life compared to patients with remission and to healthy controls. Psychopathological symptoms correlated significantly with social functioning and quality of life, especially among patients without remission.

Key words: schizophrenia, remission, social functioning, quality of life

Introduction

The end of big psychiatric hospitals' era, the development of non-institutional forms of care, increased activity of the customers of health service as well as the results of scientific research shed new light on the picture of schizophrenia, perceived, since Kraepelin's times, as chronic, progressive morbid process, leading to irreversible mental deficits and life's disadaptation in vast majority of patients [1, 2]. A new look at schizophrenia has been reflected among other things in different than in 20th century organization of health care systems, and formulation of the aims of treatment [3, 4]. In this context the revival of the term 'recovery' meaning developing process enabling autonomous and satisfactory living in family, workplace and society, independently on the process of the illness occurred [5, 6]. As a consequence, the approach to the assessment of the course and treatment results has changed. An attempt has been made to establish a complex measure including a number of indices such as symptomatic remission, social functioning and subjective quality of life [7–9]. So far, such standardized criteria have been proposed only for symptomatic remission [8]. The remaining components of recovery, including functional remission and adequate quality of life require further research and conceptualization, similar to the mere phenomenon of 'recovery' which is presently defined differently by various authors [1, 3, 6, 9, 10].

The criteria for symptomatic remission have been established in 2005 by the Remission in Schizophrenia Working Group – RSWG [8]. Numerous studies published afterwards confirmed the accuracy and usefulness of these new criteria and demonstrated their achievability for a significant proportion of patients. According to recently published systematic review made by AlAqeel and Margolese [11], such remission is achieved by 17% to 78% (median = 40%) of patients after first episode of schizophrenia and by 16% to 62% (median = 33%) of patients after multiple episodes, depending on the kind of study (cross-over vs. longitudinal), duration of follow-up, group structures, kind of interventions, and considering 6-month time criterion of remission.

Fulfilling criteria of symptomatic remission is not synonymous with good social functioning and satisfactory quality of life which is manifested in the data referring to the frequency of recovery [10]. According to systematic review made by Jääskeläinen et al. [10] the recovery occurs in 8,1% – 20,0% (median = 13,5%) of patients. Similar figures provides Cechnicki, the author of Polish 20-year prospective study of schizophrenia [9]. Differences in above mentioned percentages may suggest that these three dimensions of recovery are relatively loosely interconnected with each other. Analyses on their mutual relationship in the literature are equivocal [12]. Some authors suggest that the association between symptoms' intensity and social functioning and quality of life is weak [13, 14] while others point to a significant association [15–19]. At current stage of research it is not possible to unambiguously state what the mutual relationships between dimensions of recovery mentioned above are. The need of further research is postulated, assuming that clarification of existing doubts will allow for better understanding the mere concept of recovery, will support the efforts for establishing standardized criteria of functional remission and adequate quality of life, and will contribute to further validation of the criteria of symptomatic remission [20, 21].

The aim of present study is the assessment of social functioning and subjective quality of life in relation to symptomatic remission, based on prospective observation of a group of patients after first episode of schizophrenia. A hypothesis was advanced that a connection exists between the intensity of psychopathological symptoms and the level of functioning and quality of life, taking into account the remission status and duration of illness.

Methods

Subjects

The results presented here constitute a part of analyses performed within the long-term prospective study on natural course of schizophrenia after the first psychiatric hospitalization, in years 1998 – 2002. The patients were assessed four times after hospitalization: at one month, at 13 months, at mean 5,2 (SD=0,9) years and at mean 8,4 (mean 1,0) years. The overall follow-up period was 7-11 years. Eighty-six patients participated in first two stages of study, 74 patients had three assessments and 64 patients had four assessments. Among 22 patients who dropped out from the study, 18 – gave up consent to participate, 1 – died and 3 changed the place of residence. More information concerning recruitment and inclusion into study has been provided in previous publications [22, 23]. For the sake of present study, the results of 64 patients participated in 2nd and 4th stage of the study were analyzed, referring here as assessment 1 and assessment 2, respectively. Healthy control persons also participated in these two assessments, 86 and 64 subjects respectively, gender- and age-matched with the patients' groups, for the comparison of social functioning and quality of life.

Assessment

1. Positive and Negative Syndrome Scale (PANSS) was used for the evaluation of severity of symptoms [24] and cross-sectional remission in the assessment 1 and 2. Cross-sectional remission was understood as fulfilling the symptom severity criteria proposed by Andreasen [8] without time criterion [25]. The severity criterion includes 8 symptoms, reflected in PANSS as P1 (delusions), P2 (conceptual disorganization), P3 (hallucinatory behavior), N1 (blunted affect), N4 (passive/apathetic social withdrawal), N6 (lack of spontaneity), G5 (mannerism and posturing) and G9 (unusual thought content). None of these symptoms can be scored higher than 3 points [8].
2. Social Functioning Scale – SFS) adapted by Załuska [26]. The scale consists of 79 items grouped into 7 domains. Total score of SFS ranges between 55 – 145 points. Scoring more than 115 points means good functioning.
3. WHO Quality of Life Scale (WHOQoL – Bref) adapted by Jaracz et al. [27] was used for the assessment of subjective quality of life. The scale has 24 questions, grouped into four domains, and 2 separate questions pertaining to global quality of life and health status. The score for each domain ranges between 5 – 20 points, and total score ranges between 26 – 130 points.

4. Global Assessment Scale (GAS) was used for the assessment of global level of functioning during the year preceding hospitalization. The range of results is between 1 – 100 points. It was assumed that the score of 50 points or less means poor functioning [25].
5. The questionnaire for socio-demographic and clinical data.

Statistical methods

For inter-group comparisons, Mann-Whitney test for two groups and Kruskal-Wallis test for three groups were used. After rejecting null hypothesis for non-significant differences between three groups, post-hoc test was employed to find which specific groups differ significantly from one another. Chi-square test was used for estimating differences between categorical variables, and Spearman correlation coefficient was used for correlation analysis. Assumed significance level was $p < 0.05$.

The study was performed in the framework of the scientific grant MNiSW (5216/B/P01/210/38), was accepted by the Bioethics Committee and was not sponsored.

Results

Sixty-four patients who participated in both examinations were 42 males (65,6%) and 22 females (34,4%). Their mean age, during the first hospitalization was 24,5 years (range 17 – 47, SD 6,0). The first control group consisted of 52 men and 34 women at the age between 19 – 44 years (mean 24,7; SD = 4,7). The second control group included 42 men and 22 women at the age 24 – 55 years (mean 32,9; SD = 6,2). Patients who were excluded from the study did not differ from the remaining group with respect to sex, age of the first hospitalization, duration of untreated psychosis (DUP), the total score of PANSS, SFS i WHOQoL at the first and second stage of the study.

At the first examination, 50% of the patients met symptomatic remission criteria while 50% did not. There were no significant differences between these two groups in relation to the majority of analyzed characteristics, including the proportion of patients taking antipsychotic drugs systematically or not systematically by the first examination. There were differences regarding gender and DUP.

In the non-remission group more patients were male and with longer DUP (Table 1).

Table 1. Socio-demographic and clinical characteristics in remitted and non-remitted patients with schizophrenia, 13 months and 8 years after first psychiatric hospitalization

Characteristics	After 13 months			After 8 years		
	R n=32	NR n=32	p	R n=22	NR n=42	p
Socio-demographic						
Sex (males) n(%)	17 (53.1)	25 (78.1)	0.035	12 (54.5)	30 (71.4)	N.S.
Age mean (SD)	26.8 (6.8)	24.6 (4.8)	N.S.	32.3 (6.8)	33.2 (5.9)	N.S.

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Secondary/higher education n(%)	23 (65.7)	17 (53.1)	N.S.	19 (86.4)	26 (61.9)	0.042
Occupation/education n(%)	16 (50.0)	11 (34.4)	N.S.	16 (72.7)	14 (33.3)	0.003
Marital status- single n(%)	29 (90.6)	26 (81.3)	N.S.	13 (59.1)	34 (81.0)	0.060
Clinical						
Duration of untreated psychosis >3 months n(%)	9 (28.1)	20 (62.5)	0.006	1.5 (2.5)	6 (23.3)	0.014
Age during first hospitalization (mean SD)	25.2 (6.8)	23.4 (4.9)	N.S.	24.0 (6.6)	24.8 (5.7)	N.S.
Psychiatric family history n(%)	14 (43.8)	12 (37.5)	N.S.	10 (45.5)	16 (38.1)	N.S.
Comorbidities n(%)	11 (34.4)	17 (53.1)	N.S.	10 (45.5)	18 (42.9)	N.S.
GAS > 50 pkt. n(%)	16 (50.0)	14 (43.8)	N.S.	14 (63.6)	16 (38.1)	0.051
Taking antipsychotic drugs (systematically) n(%)	22 (68.8)	26 (81.3)	N.S.	12 (54.5)	28 (66.7)	N.S.

R- remitters, NR non-remitters, N.S. non-significant

At the second examination, the percentage of patients who met remission criteria accounted for 34%, and those who didn't – 66%. In the non-remitted group, significantly lower proportion of patients had university or secondary education and were employed or studied but had longer DUP in comparison to the remitted group. In this group, there was a statistical tendency indicating that more patients were singles (p=0.060) and presented worse functioning before the first hospitalization (p=0,051) (Table 1). Similarly as at the first examination there were no differences regarding the proportion of patients taking antipsychotic drugs systematically.

Table 2 shows social functioning and quality of life in remitters and non-remitters as well as in healthy controls at 13 months after hospitalization. Significant differences between these groups were found in relation to social functioning, however in most SFS domains remitters and non- remitters did not differ but in both groups social functioning was lower than in control group. The total score of SFS higher than 115 was achieved only by the healthy subjects. Results of the assessment of quality of life were also variable, however, in some areas and in total score of WHOQoL subjects in remission and in control group did not differ and were higher than in the non-remission patients.

Table 2. Social functioning, quality of life and PANSS scores in remitted and non-remitted patients with schizophrenia, 13 months after first hospitalization and in control healthy group

Characteristics	After 13 months				
	NR n=32	R n=32	H n=86	Test K-W/M-W	Test Post hoc
	mean (SD)	mean (SD)	mean (SD)	p	p<0.05
Social functioning (SFS)					
1.Social engagement/Withdrawal	101.1 (13.5)	108.6 (10.3)	115.9 (10.3)	<0.001	NR. R < H

table continued on the next page

2.Interpersonal behavior	106.3 (15.3)	117.2 (20.8)	133.7 (13.7)	<0.001	NR. R < H
3.Prosocial activities	100.3 (14.9)	106.1 (13.6)	119.9 (15.8)	<0.001	NR. R < H
4.Recreation/Pastimes	96.3 (14.5)	102.9 (14.4)	114.1 (13.3)	<0.001	NR. R < H
5.Independence - performance	84.7 (10.5)	99.9 (14.4)	106.3 (10.8)	<0.001	NR < R. H
6.Independence - competence	104.7 (14.3)	110.8 (13.8)	118.3 (7.3)	<0.001	NR. R < H
7.Employment/education	101.9 (13.8)	112.2 (11.9)	122.2 (1.8)	<0.001	NR. R < H
Total score	99.3 (10.0)	108.2 (10.0)	118.6 (6.0)	<0.001	NR < R< H
Quality of life (WHOQoL – Bref)					
General quality of life. WHO 1	2.9 (0.9)	3.7 (0.8)	3.9 (0.8)	<0.001	NR < R. H
Satisfaction with health. WHO 2	2.6 (1.0)	3.3 (0.9)	3.9 (0.8)	<0.001	NR. R < H
1.Physical health domain	13.5 (2.3)	15.7 (2.4)	16.9 (2.1)	<0.001	NR <R. H
2.Psychological domain	10.7 (2.8)	14.0 (2.8)	15.1 (2.4)	<0.001	NR < R. H
3.Social relationships	11.7 (3.2)	14.4 (2.4)	16.1 (2.8)	<0.001	NR < R< H
4.Environment	13.2 (2.0)	14.5 (2.4)	14.0 (2.7)	N.S.	-
Total score	80.2 (13.3)	95.2 (13.3)	100.1 (13.3)	<0.001	NR < R. H
PANSS					
Positive scale	16.2 (5.8)	8.4 (2.0)	-	<0.001	-
Negative scale	24.8 (8.5)	9.6 (3.5)	-	<0.001	-
General psychopathology scale	46.0 (14.5)	23.6 (8.1)	-	<0.001	-
Total score	87.0 (26.2)	41.6 (11.8)	-	<0.001	-

NR – Non-remitters, R – Remitters, H – Healthy persons; K-W – Kruskal-Wallis test for comparisons NR/R/H; M-W – Mann – Whitney test for comparisons NR/R; SD – standard deviation, N.S. non-significant

Table 2 also shows the results of the evaluation of psychopathological status in relation to the remission status. The total PANSS score and scores of positive, negative and general psychopathology sub-scales were significantly higher in non-remitters than in remitters (p<0,001).

Table 3. Social functioning, quality of life and PANSS scores in in remitted and non-remitted patients with schizophrenia 8 years after first hospitalization and in control healthy group

Charakteristics	After 8 years				
	NR n=42	R n=22	H n=64	Test K-W/M-W	Test Post hoc
	śr. (SD)	śr. (SD)	śr. (SD)	p	p<0.05
Social functioning (SFS)					
1.Social engagement/Withdrawal	104.7 (12.8)	118.1 (13.4	117.8 (10.0)	<0.001	NR < R. H
2.Interpersonal behavior	107.7 (18.9)	137.0 (15.4	134.2 (14.0)	<0.001	NR < R. H

table continued on the next page

3.Prosocial activities	97.7 (14.9)	116.4 (14.3	120.8 (10.7)	<0.001	NR < R. H
4.Recreation/Pastimes	100.0 (16.2)	117.2 (18.6	111.7 (13.8)	<0.001	NR < R. H
5.Independence - performance	96.5 (17.4)	111.6 (12.5	110.5 (11.1)	<0.001	NR < R. H
6.Independence - competence	104.9 (14.6)	118.2 (8.9	122.2 (3.2)	<0.001	NR < R. H
7.Employment/education	102.0 (14.2)	113.4 (12.3	122.1 (3.1)	<0.001	NR < R< H
Total score	101.9 (12.2)	118.8 (9.5)	119.9 (5.6)	<0.001	NR < R. H
Quality of life (WHOQoL – Bref)					
General quality of life. WHO 1	2.8 (1.1)	3.8 (0.9)	3.9 (0.7)	<0.001	NR < R. H
Satisfaction with health. WHO 2	2.9 (1.0)	3.8 (0.9)	4.0 (0.6)	<0.001	NR < R. H
1.Physical health domain	13.6 (2.8)	16.1 (2.9	17.6 (1.5	<0.001	NR <R. H
2.Psychological domain	11.7 (3.1)	14.4 (2.7)	15.4 (2.1)	<0.001	NR <R. H
3.Social relationships	11.1 (4.3)	15.3 (3.6)	15.7 (2.8)	<0.001	NR <R. H
4.Environment	12.7 (2.8)	14.8 (2.8)	15.2 (1.6)	<0.001	NR <R. H
Total score	80.8 (16.6)	98.5 (17.6)	95.8 (8.9)	<0.001	NR < R. H
PANSS					
Positive scale	23.1 (6.3)	9.7 (2.7)	-	<0.001	-
Negative scale	27.7 (6.6)	10.6 (3.8)	-	<0.001	-
General psychopathology scale	54.3 (12.7)	25.1 (5.7)	-	<0.001	-
Total score	105.5 (22.9)	45.5 (10.5)	-	<0.001	-

NR – Non-remitters, R – Remitters, H – Healthy persons; K-W – Kruskal-Wallis test for comparisons NR/R/H; M-W – Mann – Whitney test for comparisons NR/R; SD – standard deviation

Table 3 presents findings analogous to that for showed in Table 2 concerning social functioning, quality of life and symptoms at mean 8 years after the hospitalization. Significant differences between groups were found, however, except for one domain of SFS, such differences were observed between non-remitted patients and two remaining groups. No differences were found between remitted patients and control subjects. Total score higher than 115 points was noted in control group and in remitted patients. Additional analyses concerning patients showed significant differences of the total SFS score between the assessment 2 and 1 but in the remitted patients only (118,6 vs. 95,2; $p<0.001$).

Analogous analyses to that for SFS showed no difference in WHOQoL results between remitted and non-remitted group between these two assessments. Regarding PANSS the differences were found in the non-remitted group only (105,5 vs. 87,0; $p = 0,002$). Correlation analysis between PANSS and total scores of SFS and WHOQoL showed significant negative relationships, especially in the group without remission (Table 4).

Table 4. Correlation analysis between severity of symptoms and total score of social functioning, quality of life in remitted and non-remitted patients 13 months and 8 years after first hospitalisation.

PANSS	After 13 months				After 8 years			
	SFS		WHOQoL – Bref		SFS		WHOQoL – Bref	
	R	NR	R	NR	R	NR	R	NR
Positive scale	-0.19	-0.31	-0.03	-0.47*	-0.28	-0.51*	-0.48*	-0.32*
Negative scale	-0.42*	-0.53*	-0.08	-0.60*	-0.11	-0.50*	-0.28	-0.38*
General psychopathology scale	-0.21	-0.37*	-0.15	-0.62*	-0.32	-0.54*	-0.36	-0.47*
Total score	-0.30	-0.46*	-0.17	-0.65*	-0.22	-0.58*	-0.35	-0.45*

Discussion

Results of our study indicate that social functioning and quality of life of patients depended on the status of symptomatic remission, however this relationship for quality of life appeared as early as after first hospitalization, but for social functioning was observed later in the course of illness.

In the initial period after the hospitalization social functioning of patients with remission and without remission did not differ in almost all domains, except for the independence - performance domain and for the total score. Similar level of functioning of both groups was probably related to post-psychotic state, also called ‘moratorium’ or ‘woodsheeding’ (plateau). This period is characterized by a relative stabilization of symptoms and functioning, along with important but not easily visible psychological adaptation processes [6]. The functioning of both remitted and not-remitted patients was significantly worse than that observed in control group. This may imply a negative effect of the disease on one hand, but on the other, which is more important, that achieving clinical remission is not sufficient for good social functioning, as mentioned in the introduction.

In comparison to social functioning, which is mainly behavioral and objective dimension of the evaluation, subjective quality of life, which is essentially cognitive and emotional facet, showed greater differentiation of the assessment between both groups of patients. Remitted patients evaluated their quality of life in majority of areas similarly to healthy people and significantly better than non-remitted patients. These results may suggest that symptomatic remission is important for quality of life already in the early period of treatment. Observed differences in the assessment of quality of life may reflect dynamic adaptation process having a nature of a phenomenon defined as ‘response shift and quality of life’. This process is a function of different mechanisms of coping with stress stemming from the disease and disability and other stressful factors and its aim is restoration or maintenance of homeostasis. Restitution of balance is based on several adaptive and defensive mechanisms like: denial, social

comparisons, taking up or enhancing religious practices, seeking for social support, cognitive reinterpretation or redefinition of the quality of life. All these mechanisms may be efficient as strategies aimed to improve emotional status and eventually to improve the assessment of the subjective quality of life [29–31]. Among the patients studied, these mechanisms might pertain mainly to the patients in remission but in the patients who did not achieve remission, due to severity of symptoms, it is probable that the "response shift" had not yet occurred.

At mean 8 years after the first hospitalization, significant differentiation of social functioning and quality of life in relation to the remission status was observed. Patients with remission, who constituted one-third of the whole group, reported higher scores of social functioning and quality of life than the non-remitters, and their scores did not differ from the scores of the healthy controls, except for the employment/education domain which is considered as one of the most impaired areas of social functioning in schizophrenia [9]. On the one hand, these data indicate that for approximately one third of patients the outcome of treatment of the first episode of psychosis seems to be optimistic, however, on the other hand, they draw a pessimistic picture for the majority of patients who demonstrated poor clinical status and low social functioning and quality of life. In this context it should be added that the proportion of patients who did not fulfill criteria of remission has increased from 50% to 64% during the observation. One may assume, that for the majority of patients, multidimensional negative consequences of schizophrenia result from losses incurred in the early period of the illness. This hypothesis may be supported by the findings, for instance, concerning a longer duration of untreated psychosis and poorer functioning before first hospitalization.

In order to prevent negative consequences of schizophrenia including perpetuation of early losses connected with the illness, it is indispensable to implement complex early intervention programs for first episode of schizophrenia. They enable, among others, a reduction of risk of exaggerating of deficits, resuming or maintaining social contacts, formation of every-day abilities and social competences as well as facilitating occupational rehabilitation and returning to school [2, 9].

Finally, it is worth emphasizing that differentiated level of social functioning and quality of life in relation to the remission status observed in our study, as well as varied strength of the association between intensity of symptoms and the level of social functioning and quality of life in patients with and without remission, suggests the need to consider the status of remission as an important moderator of these relationships in further studies.

The authors of the present work acknowledge limitations of the study. One of them is lack of 6- month time requirement for symptomatic remission. Due to difficulties in applying the above criterion in clinical practice, similarly as in other research [25, 32, 33], only the severity component for remission was used. It should be highlighted, that attaining the cross-sectional remission is considered "as an important and highly relevant treatment goal" [25].

Conclusions

In schizophrenic patients who achieved remission after the first psychiatric hospitalization, social functioning and quality of life was better than in patients without remission and similar to healthy subjects. For quality of life such difference was observed already in the early period after a hospitalization, while for social functioning only after few or several years of illness' course.

Severity of psychopathological symptoms had an impact on social functioning and quality of life, but mainly in non-remitted patients.

Multidimensional effect of treatment at mean 8 years after the first hospitalization was favorable for one-third and unfavorable for two thirds of the patients. Implementation of early intervention programs might improve a chance for favorable outcome for a much larger group of patients.

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APPENDIX

Figure 1. **Social functioning and quality of life in remitted and non-remitted patients at 13 months after first hospitalisation and in healthy controls**

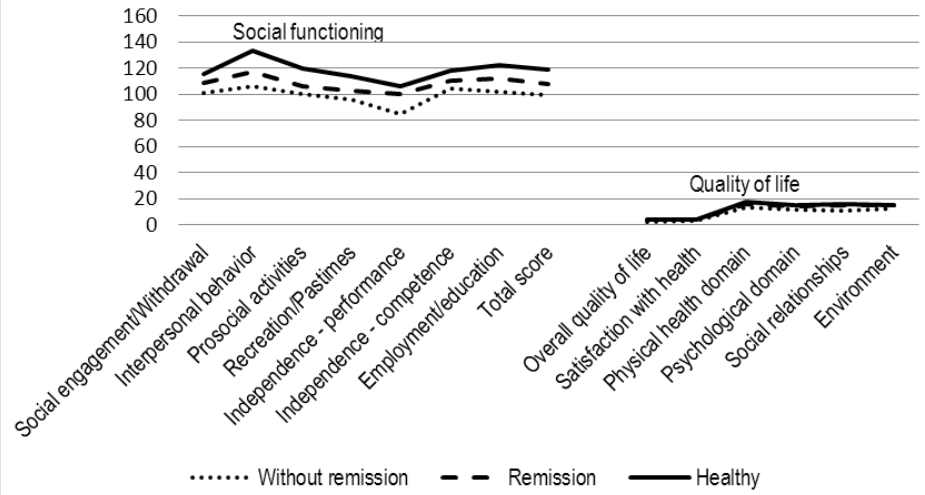

Figure 2. **Social functioning and quality of life in remitted and non-remitted patients at 8 years after first hospitalisation and in healthy controls**