

## Social functioning determinants in chosen mental disorders

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### Summary

**Aim.** The aim of this article is to assess the influence of sociodemographic and clinical factors on social functioning in schizophrenic, affective and anxiety disorders.

**Method.** Patients of age between 18 and 65, suffering from schizophrenia, affective or anxiety disorders and treated in mental hospitals in five European cities were examined at admission to hospital and 3 months after discharge. The Brief Psychiatric Rating Scale (BPRS) and Groningen Social Disability Schedule (GSDS) were used. Statistical methods (ANOVA and MANCOVA) were performed on the three groups investigated to assess the relation between social functioning and diagnosis.

**Results.** Family situation, city of residence (in acute states) and BPRS mean scores were found to be significantly associated with the level of social disability among the group of patients with schizophrenia. In the group with affective disorders, the severity of the symptoms, city and occupational status (during remission) were associated with the level of social disability. In the group with anxiety disorders the severity of symptoms was correlated with the level of social disability. Age, study centre and hospitalization had a similar association, but only in acute states.

**Conclusions.** The severity of psychopathological symptoms plays a significant role in determining the level of social functioning, regardless of the diagnosis. In all three diagnostic groups the city of residence determined the level of social disability, which was lowest in the two western cities (London, Dresden), and highest in Wrocław. Being in a relationship is associated with a low level of social disability for patients with schizophrenia. Occupational activity is associated with a high level of social functioning for patients with affective disorders.

*Key words:* social functioning, disability, schizophrenia, affective disorders, anxiety disorders

### Introduction

Recent World Health Organization (WHO) reports have documented a high position of psychiatric disorders according to such measures as Years of Life with Disability (YLD) and Disability Adjusted Life-Years, (DALY). In terms of YLD psychiatric disorders are longer term disorders than such serious diseases as cataracts, asthma, diabetes and HIV/AIDS. The DALY and YLD coefficients for neuropsychiatric disorders are 12% and 31%, respectively. In Europe these coefficients are even higher (20% and 43%, respectively) [1]. It is clear that the diagnostic process does not end

with a description of the symptoms and correct characterization of a disorder. This process should also include an assessment of such traits as the social and professional functioning of a patient and quality of life. In recent years many interesting articles have appeared on these subjects [2, 3, 4]. The social functioning of people with psychiatric disorders is a particularly important aspect of treating a patient. Thus, it is not only important to describe changes in a person's level of social disability, but also to find the factors which affect functioning. The aim of this article is to assess the influence of sociodemographic and clinical factors on social functioning of patients with schizophrenia, anxiety and affective disorders.

### Material and methods

The study used data from the controlled international EDEN project (European Day Hospital Evaluation) [5], regarding the assessment of treatment in psychiatric wards and outpatient clinics in five European cities: Dresden, Wrocław, London, Michalowce and Prague. The study group was recruited amongst patients admitted to a psychiatric ward of their own free will in one of these five cities over a period of one year. The members of study group (from 18 to 65 years of age), who all satisfied the criteria for inclusion [5, 6] and gave permission in writing to be included in the study, were assessed six times, in accordance with the study protocol. This study analyses data taken regarding patients from diagnostic groups F2, F3 and F4 according to the ICD-10 classification system at two times: on admission to hospital (measure I), as well as three months after discharge from hospital (measure II). The sociodemographic and clinical characteristics of the study group according to diagnostic group are presented in Table 1. The group of patients with schizophrenic disorders, F2, was dominated by patients suffering from schizophrenia (56.6%) and schizo-affective disorders (26.7%) Among the patients diagnosed with affective disorders, F3, 42.6% had a depressive episode, 35.7% had recurrent depressive disorder and 16% had bipolar affective disorder. The group of patients with neurotic, stress-related and somatoform disorders, F4, was dominated by patients diagnosed with anxiety disorders. Among this group, 30.1% were diagnosed with other anxiety disorders, 29.6% with reaction to severe stress, and adjustment disorders, 12.1% with phobias and 10.7% with obsessive-compulsive disorders.

The study used sociodemographic and clinical data regarding each patient, Version 4 of the Brief Psychiatric Rating Scale (BPRS) and the Groningen Social Disability Schedule II (GSDS) [5].

The data were analysed with the aid of Version 10.3.1 of Statistical Packages for the Social Sciences (SPSS). The total GSDS score was taken to be the dependent variable. The explanatory variables were sociodemographic factors (age, sex, education, family situation, professional status and study centre) and clinical factors (diagnostic group, total BPRS score). For the purposes of this study the family situation variable combined information regarding civil status and who a patient lived with. Three categories were used: individuals living alone, living in a partnership, living in a family but without a partner. If a patient had been previously treated, the following data

Table 1: Sociodemographic and clinical characteristics of the diagnostic groups studied

Trait	Schizophrenic disorders	Affective disorders	Anxiety disorders
Percentage of females	49.6%	65.9%	66.5%
Mean Age (Std. Dev.)	36.7 (11.3)	42.2 (11.4)	39.9 (11.8)
Mean no. of years in education (Std. Dev.)	12.4 (2.7)	12.4 (3.0)	11.8 (2.5)
Percentage with partners	24.4%	46.1%	41%
Percentage living alone	21.7%	18.9%	15.6%
Percentage living with family	53.9%	35%	43.4%
Percentage obtaining disability benefit	48.4%	21.1%	14.1%
Clinical characteristics			
Mean BPRS at admission (Std. Dev.)	2.12 (0.49)	1.99 (0.39)	1.82 (0.36)
Mean BPRS 3 months after discharge (Std. Dev.)	1.68 (0.5)	1.51 (0.39)	1.56 (0.39)
Percentage suffering first episode	8.1%	19.1%	27.7%
Mean duration of disorder in years (Std. Dev.)	11.5 (8.6)	10.5 (10.1)	9 (8.8)
Percentage with at least 4 previous hospitalizations	35.5%	15.5%	7.9%
Social Functioning			
Mean GSDS at admission (Std. Dev.)	1.37 (0.60)	1.20 (0.49)	1.09 (0.55)
Mean GSDS 3 months after discharge (Std. Dev.)	0.95 (0.57)	0.79 (0.59)	0.75 (0.54)

were also used: the duration of the disorder (measured from the year in which the first psychiatric diagnosis was made), the number of previous episodes and the number of previous hospitalizations. ANCOVA was used to analyse the data from each of the three diagnostic groups, which enabled an assessment of the significance of each of the factors on the total GSDS score taking into account two covariates: age and total BPRS score. The factors used in a multivariate model of covariance, MANCOVA, were chosen on the basis of results from these tests. In cases where a factor was found to be significant, the Bonferroni procedure for multiple testing was applied to find categories which were homogeneous with respect to the GSDS score. Two tail tests were applied at a significance level of 5%.

## Results

Schizophrenic disorders. The following factors were found not to have a significant effect on the total GSDS score on admission into hospital (measure 1): sex ( $F=1.827$ ;  $df=1$ ;  $p=0.178$ ), education ( $F=0.375$ ;  $df=2$ ;  $p=0.688$ ), the number of previous episodes ( $F=0.148$ ;  $df=2$ ;  $p=0.863$ ), as well as the number of previous psychiatric hospitalizations ( $F=0.935$ ;  $df=3$ ;  $p=0.425$ ). None of the following factors had a significant effect on the total GSDS score three months after discharge (measure 2): study centre ( $F=0.927$ ;  $df=4$ ;  $p=0.450$ ), sex ( $F=0.137$ ;  $df=1$ ;  $p=0.712$ ), education ( $F=1.977$ ;  $df=1$ ;

$p=0.162$ ), professional status ( $F=0.532$ ;  $df=3$ ;  $p=0.661$ ), family situation ( $F=2.932$ ;  $df=2$ ;  $p=0.056$ ), the number of previous episodes ( $F=2.320$ ;  $df=2$ ;  $p=0.101$ ), or the number of previous hospitalizations ( $F=0.624$ ;  $df=3$ ;  $p=0.601$ ).

The explanatory variables which were found to be significant by the ANCOVA analysis were included in a multivariate analysis of covariance (Tab. 2). For measure 1 these factors were family situation:  $F=5.271$ ;  $df=2$ ;  $p=0.006$ : and study centre  $F=2.747$ ;  $df=4$ ;  $p=0.029$ ), as well as professional status, which was not found to have a significant effect on the total GSDS score ( $F=0.393$ ;  $df=3$ ;  $p=0.758$ ), but was associated with it at the level of the whole study group [Rymaszewska 2006]. In the group of patients suffering from schizophrenic disorders the following factors had a significant effect on the first measure of the GSDS score: family situation, study centre and BPRS score. Neither age nor professional status had a significant effect. Pairwise comparison of the groups lead to the conclusion that the GSDS score was significantly higher among those living with their family, but not having a partner, than those living with a partner ( $p=0.003$ ). Similarly, people living alone had a significantly higher GSDS score than those living with a partner ( $p=0.001$ ). Significant differences were found in the GSDS scores in the following pairs of study centres: Wrocław and London ( $p=0.001$ ), London and Michalovce ( $p=0.002$ ), as well as London and Prague ( $p=0.035$ ).

Table 2. Association of factors with the overall GSDS score at admission and after discharge

Schizophrenic disorders						
	at admission			3 months after discharge		
Source of variability	df	F	p	df	F	p
Constant	1	1.103	0.302	1	2.856	0.096
Family situation	2	8.036	0.000	2	3.225	0.043
Professional status	3	0.496	0.685	3	1.180	0.320
Study centre	4	4.266	0.002	3	1.092	0.355
Age	1	0.001	0.980	1	0.156	0.694
Overall BPRS score	1	45.837	0.000	1	95.202	0.000
Affective disorders						
	at admission			3 months after discharge		
Source of variability	df	F	p	df	F	p
Constant	1	0.003	0.953	1	20.452	0.000
Family situation	2	0.626	0.536	2	1.909	0.150
Professional status	3	1.475	0.221	3	3.003	0.031
Study centre	4	5.750	0.000	3	8.719	0.000
Age	1	0.506	0.478	1	0.151	0.698
Overall BPRS score	1	72.095	0.000	1	185.279	0.000
Anxiety disorders						
	at admission			3 months after discharge		
Source of variability	df	F	p	df	F	p
Constant	1	3.724	0.055	1	8.064	0.005
Family situation	2	0.437	0.647	2	0.377	0.686

Professional status	3	1.375	0.252	3	1.960	0.123
Study centre	4	5.385	0.001	3	1.914	0.130
Age	1	12.194	0.001	1	2.414	0.123
Overall BPRS score	1	32.615	0.000	1	95.241	0.000

Only the BPRS score and family situation had a significant association with measure 2 of the GSDS score for the group of patients with schizophrenic disorders. The adjusted mean GSDS score was significantly lower for people living with a partner than for people living alone ( $p=0.049$ ). The remaining factors: study centre, age and professional status did not have a significant effect. The results are presented in Tab. 3.

Table 3. Adjusted mean GSDS scores for schizophrenic disorders (95% C.I.)

	At admission			3 months after discharge		
	95% confidence interval			95% confidence interval		
	Lower bound	Upper bound		Lower bound	Upper bound	
<b>Study Centre</b>						
Wroclaw	1.443	1.310	1.576			
Dresden	1.271	1.076	1.466			
London	0.918	0.694	1.142			
Michalovce	1.442	1.284	1.601			
Prague	1.384	1.177	1.590			
<b>Family situation</b>						
Living with family	1.355	1.247	1.463	0.973	0.856	1.089
Living alone	1.456	1.295	1.617	1.078	0.904	1.253
Living with partner	1.064	0.912	1.216	0.797	0.632	0.961
Calculated according to the model derived with age=37.4241, overall BPRS score=2.0724				Calculated according to the model derived with age=37.6250, overall BPRS score=1.6681		

Affective disorders. On the basis of the ANCOVA analysis of measure 1, the following factors were not significantly associated with the GSDS score: sex ( $F=0.266$ ;  $df=1$ ;  $p=0.606$ ), education ( $F=0.182$ ;  $df=2$ ;  $p=0.834$ ), duration of the disorder ( $F=1.021$ ;  $df=2$ ;  $p=0.361$ ) and the number of previous episodes ( $F=0.008$ ;  $df=2$ ;  $p=0.992$ ). The significance of the number of previous psychiatric hospitalizations ( $F=3.650$ ;  $df=3$ ;  $p=0.013$ ) was not interpreted, as the group, which differed from the remaining groups, was the group with an unknown number of previous hospitalizations. The factors included in the multivariate model (Tab. 4) were: the one factor found to be significantly associated with the GSDS score: study centre ( $F=5.416$ ;  $df=4$ ;  $p=0.000$ ), together with the factors that were not found to have a significant association in this diagnostic group, but were significantly associated with the GSDS score in the whole study group (family situation:  $F=0.310$ ;  $df=2$ ;  $p=0.733$  and professional status:  $F=1.679$ ;  $df=3$ ;  $p=0.171$ ). One

way analysis of measure 2, taking into account age and the BPRS score, indicated that only study centre is associated with the GSDS score ( $F=7.022$ ;  $df=4$ ;  $p=0.000$ ). The other factors were found to be insignificant: sex ( $F=0.219$ ;  $df=1$ ;  $p=0.640$ ), education ( $F=0.598$ ;  $df=2$ ;  $p=0.551$ ), family situation ( $F=1.915$ ;  $df=2$ ;  $p=0.149$ ), professional status ( $F=1.755$ ;  $df=3$ ;  $p=0.156$ ), number of previous episodes ( $F=1.585$ ;  $df=3$ ;  $p=0.193$ ), as well as the number of previous hospitalizations ( $F=0.495$ ;  $df=3$ ;  $p=0.686$ ). The same factors were used in the multivariate model as in the previous analysis (study centre, family situation and professional status, see Tab. 4).

Table 4. Adjusted mean GSDS scores for Affective disorders (95% C.I.)

	At admission			3 months after discharge		
				95% confidence interval		
		Lower bound	Upper bound			
Study Centre						
Wrocław	1.276	1.173	1.379	0.839	0.724	0.953
Dresden	1.227	1.130	1.323	0.753	0.645	0.860
London	1.033	0.889	1.176	0.688	0.544	0.833
Michalovce	1.018	0.876	1.159	0.571	0.415	0.726
Prague	1.373	1.266	1.481	1.077	0.962	1.193
Professional status						
Professionally active				0.732	0.638	0.827
On disability benefit				0.752	0.624	0.879
Calculated according to the model derived with age = 42.3879, overall BPRS score = 1.9548				Calculated according to the model derived with age = 42.7007, overall BPRS score = 1.4994.		

It was found that the study centre and the BPRS score were significantly associated with the first measure of the GSDS score in the group of patients with affective disorders. Professional status, age and family situation were insignificant.

Pair wise comparison of groups indicated the following pairs differed with respect to the GSDS score: Wrocław and Michalovce ( $p=0.031$ ), London and Prague ( $p=0.004$ ), as well as Prague and Michalovce ( $p=0.001$ ). These results are presented in Tab. 4. The following factors were significantly associated with measure 2 of the GSDS score: professional status, study centre and BPRS score. The adjusted mean GSDS scores of professionally active patients differed significantly from those of the unemployed patients ( $p=0.041$ ). Pair wise comparisons indicated significant differences in GSDS scores between the following pairs of study centres: Wrocław and Prague ( $p=0.028$ ), Dresden and Prague ( $p=0.000$ ), London and Prague ( $p=0.001$ ), as well as Michalovce and Prague ( $p=0.000$ ).

Anxiety disorders. On the basis of ANCOVA analysis, it was found that the following factors are not significantly associated with the first measure of the GSDS score: sex ( $F=0.456$ ;  $df=1$ ;  $p=0.500$ ), education ( $F=1.122$ ;  $df=2$ ;  $p=0.328$ ), duration of the disorder ( $F=1.049$ ;  $df=2$ ;  $p=0.353$ ), number of previous episodes ( $F=3.027$ ;  $df=2$ ;  $p=0.053$ ), as well as the number of previous hospitalizations ( $F=0.736$ ;  $df=2$ ;  $p=0.482$ ). The variable which was significant in the univariate model (study centre:  $F=7.220$ ;  $df=3$ ;  $p=0.000$ ) was included in a multivariate regression model (Tab. 2), together with those variables which were associated with the GSDS score in the study group as a whole (family situation:  $F=2.348$ ;  $df=2$ ;  $p=0.099$  and professional status:  $F=2.147$ ;  $df=3$ ;  $p=0.096$ ). Due to the small number of individuals in the London study centre, multivariate analysis of covariance did not use the data from this centre. The following were significantly associated with the GSDS score for patients with anxiety disorders: study centre, age and BPRS score.

The adjusted means GSDS scores (Tab.5) of patients with anxiety disorders in Wrocław were significantly different from the mean scores of patients from Dresden and Michalovce ( $p=0.020$  and  $p=0.001$ , respectively).

Table 5. Adjusted mean GSDS scores for anxiety disorders at admission (95% C.I.)

		95% confidence interval	
		Lower bound	Upper bound
Wrocław	1.376	1.203	1.548
Dresden	1.021	0.858	1.185
Michalovce	0.944	0.794	1.094
Prague	1.157	1.007	1.306
Calculated according to the model derived with age = 40.0503, overall BPRS score = 1.7874.			

Study centre and professional status were significantly associated with the second measure of the GSDS score ( $F=3.567$ ;  $df=3$ ;  $p=0.016$  and  $F=3.783$ ;  $df=3$ ;  $p=0.012$ , respectively). Pair wise comparisons indicated that there were no significant differences between pairs of study centres. Unemployed people had a significantly lower GSDS score than people receiving disability allowance ( $p=0.007$ ). The remaining factors were not significantly associated with the GSDS score: sex ( $F=0.241$ ;  $df=1$ ;  $p=0.624$ ), education ( $F=1.692$ ;  $df=2$ ;  $p=0.188$ ), number of previous episodes ( $F=1.544$ ;  $df=3$ ;  $p=0.205$ ) and the number of previous psychiatric hospitalizations ( $F=1.614$ ;  $df=2$ ;  $p=0.202$ ). The multivariate model confirmed the significant association between the BPRS score and social functioning. The remaining factors were not significantly associated with the GSDS score.

## Discussion

In each of the diagnostic groups the intensity of psychopathological symptoms had a significant influence on the level of social disability, both on admission to hospital and three months after discharge. However, in the case of patients who had previously

been treated for psychiatric disorders, factors such as the duration of the disorder, the number of previous episodes and the number of previous hospitalizations were not significantly associated with the level of social disability.

On the basis of univariate analysis, it was found that among patients with schizophrenic disorders, the lowest level of social disability occurred in Londoners. Dresdeners, together with patients from Prague and Michalovce, showed similar levels of social disability. The highest level of social disability was shown by patients from Wrocław. Nevertheless, based on multivariate analysis of covariance, it was found that during an attack, only Londoners showed a significantly different (lower) level of social disability than patients from the remaining study centres. Three months after discharge there was no association between the level of social disability and study centre.

The study of Wiersma et al. [4] carried out an assessment of the social disability of patients with schizophrenia using the WHO-Disability Assessment Scale (WHO-DAS). They found significant differences in the initial measure of the level of social disability according to study centre. Patients from Mannheim were characterized by the highest level and patients from Sofia with the lowest level of social disability.

During an attack, the study centre, intensity of the symptoms and family situation of a patient suffering from schizophrenia were significantly associated with the level of social disability in the month leading up to admission into hospital. Three months after discharge, only family situation and the intensity of psychopathological symptoms were associated with the level of social disability in this group. A significantly lower level of social disability was observed in patients living in a partnership compared to those not living in a partnership. This may indicate a high level of social functioning before an attack, which has a positive effect on the level of functioning during an attack, or the positive effect of having a partner on social functioning, despite a person having a disorder.

The study of Salokangas et al. [7] carried out in Finland on an impressively large sample (N=3 200) of patients suffering from schizophrenia, concluded that patients who lived in a partnership carried out their responsibilities and adapted to the demands of society better than patients who did not have a partner. Agerbo et al. [8] came to the same conclusion, mentioning the lack of a partner and the lack of an occupation as risk factors in the history of a patient.

Neither sex, education, professional status nor parameters characterizing the course of a disorder were associated with the level of social disability of patients suffering from schizophrenic disorders. There exists some disagreement regarding the relation between sex and the level of social disability in patients suffering from schizophrenia. Melle et al. [9] came to different conclusions than those of the present study, stating that males with a higher education had a lower level of social disability. However, they concluded, in accordance with the results presented here, that living in a partnership is associated with a lower level of social disability [9, 10]. In Ganey's study males were also found to have a lower level of social disability [10]. However, many studies have indicated that female patients have a lower level of social disability and better prognosis in schizophrenic disorders [11, 12]. Wieselgren and Lindstrom [12] also state that higher education is associated with a better prognosis in schizophrenic disorders. When considering the causes of such disagreements, one should take into account



the following factors: the varying study populations (outpatients vs. inpatients), the measurements used, statistical analysis, as well as the differing goals of these studies. The assessment of factors of social disability is not equivalent to the prognosis for a patient suffering from a given disorder or group of disorders.

Both Lay et al. [13] and Häfner et al. [14] stated that there was no association between sex and the level of social disability of schizophrenic patients. Wiersma et al. [4] also stated that there was no association between sex and long-term prognosis for schizophrenic patients. They stated that the following factors do not have any prognostic value: age, the duration of a disorder, the time for which a disorder was not treated and the type of remission. The final two factors mentioned were not considered in the present study.

Grant et al. [15] compared the social functioning of patients suffering from their first schizophrenic attack with the functioning of patients who had suffered previous episodes. There was no difference in the level of social disability between these groups, which may indicate that social disability appears at an early stage of a disorder.

Analysis of variance indicated significant differences between the level of social disability of patients from different study centres. Among the group of patients suffering from affective disorders the lowest level of social disability leading up to hospitalization was observed among patients from Michalovce. Patients from Dresden, London and Prague showed a similar level of social disability. Patients from Wrocław showed the highest level of social disability. Three months after discharge, it was stated that patients from Michalovce showed the lowest and patients from Prague the highest level of social disability.

More advanced methods of analysis confirmed that leading up to hospitalization, the level of social disability of patients with affective disorders was associated with the intensity of psychopathological symptoms and the study centre. Correcting for the influence of other factors, the highest level of social disability was observed in patients from Prague and Wrocław and the lowest level of social disability in patients from Michalovce and London. During remission, patients from Prague were characterized by a higher level of social disability than patients from the remaining study centres.

In addition, after hospitalization there was a significant association between possessing an occupation and a low level of social disability. Unemployed individuals clearly functioned least well in society. Both prior to and after hospitalization, intensive psychopathological symptoms were associated with high levels of social disability. Such an association has also been found by other authors [2, 16, 17].

Neither the history of a disorder nor the number of previous episodes were associated with the level of social disability of patients with affective disorders. This was a surprising result. However, previous studies have come to similar conclusions. Kruijshaar et al. presented similar results [2]. They compared the level of social disability among patients suffering their first attack and among those who had suffered previous episodes. A similar conclusion may be made from the study of Judd et al. [16] on patients with unipolar affective disorders. They stated that the level of social disability of patients was strongly associated with the intensity of the psychopathological symptoms. During remission patients did not show any social disability and

in cases where the patient had previously suffered a few episodes the level of social disability was marginally, but not significantly, higher. The interesting description by Mintz et al. [18] of the relationship between symptoms and professional functioning of patients with affective disorders should be mentioned here. The recovery of professional functioning followed the disappearance of symptoms of depression.

It was also found that during the anxiety episodes, patients from Michalovce functioned socially at the highest level, followed by patients from Dresden and Prague, who functioned at a similar level. In this group patients from Wrocław again showed the lowest level of social functioning. The group of such patients from London was not analysed, due to their small number. Three months after discharge there was no significant association between study centre and social disability. Analysis of covariance indicated that the social disability of patients suffering from anxiety disorders was associated with the intensity of symptoms. During an attack, social disability was also associated with age and study centre. Taking into account the influence of covariates, the highest level of social disability was shown by patients from Wrocław. Their level of disability was significantly higher than the level of disability in patients from Michalovce and Dresden. The remaining explanatory variables were not significantly associated with GSDS.

In the Dutch study by Ormel et al. [3], the GSDS score and Present State Examination were used to assess the intensity of psychopathological symptoms of outpatients suffering from affective, anxiety and mixed disorders. As in the present study, they concluded that the intensity of symptoms was significantly associated with the level of social disability. No such association was found between the level of social disability and the duration of a disorder.

### Conclusions

The intensity of psychopathological symptoms is significantly associated with the level of social disability, regardless of the type of psychiatric disorder. In each of the three diagnostic groups there was a significant association between the study centre and the level of social disability. The level of social disability was lowest in the western study centres and highest in Wrocław. In the case of patients with a schizophrenic disorder, possessing a partner had a positive influence on social functioning, whereas having a professional occupation was associated with a high level of functioning in patients with affective disorders.

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