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THE QUALITY OF LIFE OF PATIENTS SUFFERING FROM SCHIZOPHRENIA – A COMPARISON WITH HEALTHY CONTROLS

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Background. In the past, the first goal of schizophrenia treatment was to reduce psychotic symptoms, mainly positive symptoms. Recently, as a result of an emphasis on patient needs, the concept of quality of life (QoL) has been brought into the treatment. The goal has therefore changed from the alleviation of symptoms to improvement of the patient's satisfaction with social activities. Self-evaluations by people with schizophrenia were previously thought to lack reliability because of the presence of psychopathological symptoms and poor awareness of the disease. Recently the importance of evaluating the satisfaction of patients themselves, however, has been recognized in schizophrenia. Studies on this field showed us, that QoL data from patients with chronic mental illness were reliable and concluded that subjective QoL evaluation was applicable to such patients.

Aims. The purpose of the present study was to compare the QoL in patients suffering from schizophrenia in clinical remission with healthy controls and examine the extent of the effects of subjective cognitive functioning on QoL in these patients.

Methods. Data were obtained using the quality of life questionnaire (Quality of Life Enjoyment and Satisfaction – Q-LES-Q), and subjective questionnaire for cognitive dysfunction (Cognitive Failures Questionnaire – CFQ) for 40 schizophrenia patients in clinical remission and 40 healthy controls.

Results. Cognitive function correlates negatively with subjective QoL in patients with schizophrenia.

INTRODUCTION

In the past, the first goal of schizophrenia treatment was to reduce psychotic symptoms, mainly positive symptoms[1], rather than recovering social functioning. Recently, as a result of an emphasis on patient needs, the concept of quality of life (QoL) has been brought into the treatment of somatic illness, particularly chronic illness such as chronic heart failure[2]. The goal of treatment has therefore changed from the alleviation of symptoms to improvement of the patient's satisfaction with QoL and social activities. Because of this trend, attempts to evaluate the effects of treatment using QoL as an indicator have occurred in the field of clinical psychiatry, including treatments and rehabilitation for schizophrenia.

Essentially, the basic concept of QoL places importance on subjectivity in terms of patients' self appraisal of their own satisfaction. Self-evaluations by people with schizophrenia were previously thought to lack reliability because of the presence of psychopathological symptoms and poor awareness of the disease[3]. Hence many trials have used objective QoL evaluations, such as the Quality of Life Scale (QLS)(ref.[4]) which rely on interviews with psychiatrists or other trained interviewers. The importance of evaluating the satisfaction of patients themselves, has been recognized in schizophrenia. Reporting that patients with schizophrenia were aware of and could express their social dysfunction. Skantze et al.[5] supported the view that QoL could be ascertained only on subjective evaluation. Lehman[6,7] demonstrated that QoL data from patients with chronic mental illness were reliable and concluded that subjective QoL evaluation was applicable to such patients. QoL is considered to be important in research on treatment outcome for schizophrenia, and researchers have argued strongly for development of a robust QoL scale specific to schizophrenia, based on the subjective judgment of patients[8]. Relationships between executive functioning and QoL could not be confirmed[9–11]. In addition, only Wegener et al.[12] have reported a significant relationship between sustained attention and QoL.

In the study of the quality of life in Japanese chronic schizophrenic patients, Tomida et al.[13] showed that Positive and Negative Syndrome Scale (PANSS) depression/anxiety factors predicted Japanese Schizophrenia Quality of Life Scale (JSQLS) and psychosocial conditions and motivation/energy, and that the Wisconsin Card-Sorting Test (WCST) Categories Achieved predicted JSQLS symptoms/side-effects.

Specific cognitive functions are significantly impaired in patients with schizophrenia when compared to healthy persons[4,14,]. Green[15] analyzed the influence of cognitive deficits on the daily lives of patients with schizophrenia,

and reported that vigilance (sustained attention) was associated with social skills and that executive functioning was related to community functioning.

In light of these reports, we verified the relationship between subjective QoL, as measured by the Quality of Life Enjoyment and Satisfaction (Q-LES-Q), and subjective cognitive function, as measured by the Cognitive Failures Questionnaire (CFQ).

METHODS

Subjects were outpatients diagnosed with schizophrenia according to ICD-10 research diagnostic criteria. Their written consent to participate in the research was given. Patients fulfilling all of the following three criteria were enrolled in the study: (a) presence of life time schizophrenia disorder, (b) now in clinical remission (CGI-S one or two); and (c) absence of other axis I disorders, including major depressive episodes or anxiety disorders. Demographic data, including age, sex, onset age, duration of disorder, number of psychiatric hospital admissions, were obtained from the subjective questionnaire. Because we use anonymous self-administrative questionnaires, it was possible to describe only basic sociodemographic features.

EVALUATION

Evaluation of psychopathological symptoms

Patients were recruited from the outpatients department of the Department of Psychiatry University Hospital Olomouc. The ICD-10 research criteria for schizophrenia in remission were administered by trained psychiatrists. All patients had been hospitalized for schizophrenia in their past history. The diagnosis of lifetime schizophrenia was confirmed according to the patients' documentation and clinical interview. At the time of evaluation all the patients were in clinical remission as confirmed by experienced psychiatrist (Clinical Global Impression – Severity; CGI-S one or two). After the evaluation of the psychiatrist, patients filled in self-administrative questionnaires.

Subjective QoL evaluation

The quality of life was measured using a subjective questionnaire which was administered anonymously. No names were recorded but the demographic details were listed in the protocol which was taken by the investigator. Quality of Life Satisfaction and Enjoyment (Q-LES-Q) is 93 questions divided into 8 domains answered mainly as a five-point Likert - type scale. It is mostly self-completed, possibly with the help of investigator[16]. Q-LES-Q is useful for assessment of life satisfaction and enjoyment in patients with schizophrenia, schizoaffective and mood disorder patients. It takes from 20 to 40 minutes, according to the health status of the patient. The domains physical health, feelings, leisure, social relations and overview of the quality of life are completed by patients while the domains, work, home and school only where relevant[17].

Subjective examination of cognitive function

The Cognitive Failures Questionnaire (CFQ) is designed to assess a person's proneness to committing cognitive slips and errors in the completion of everyday tasks. Cognitive Failures Questionnaire – CFQ consists of 25 questions focusing on attention, memory, kinetic functions and so on[18]. It consists of five numerical scales with verbal description. As a self-report questionnaire, the Cognitive Failures Questionnaire (CFQ) was originally devised to measure perception, memory, and motor lapses in daily life. CFQ scores have been found to correlate with some psychiatric symptoms associated with stress; hence, high scores on the CFQ are considered by some as an indicator of increased vulnerability to stress[19]. The minimum number of points that respondents can obtain is 25 and maximum 125. The higher the score, the worse was the rating of the cognitive functions[18]. Responses to all questions tend to be positively correlated and the whole questionnaire correlates with other measures of self-reported deficits in memory, absent-mindedness or slips of action[20].

Statistical analysis

Patient and control demographic and baseline clinical characteristics were analyzed using column statistics. Normal distribution of the demographic and QoL variables was determined by the Shapiro-Wilk W test. Differences between patients with schizophrenia and healthy controls were analyzed using t-tests for independent groups and the Mann-Whitney test. For the analysis of categorical data we used the chi-squared or Fisher exact test. The relationships between variables with a normal distribution were calculated using Pearson correlation analysis, while Spearman rank correlation was used for variables with non-normal distribution. Linear regression with the QoL scores as independent variable and age, age of the onset of the disorder, length of the disorder and subjective cognitive dysfunction scores as dependent variables was carried out to identify the principal clinical variables which influence the quality of life in patients with schizophrenia. The Kruskal–Wallis H-test was used to analyze the data. Post-hoc analyses were done using the Mann–Whitney U-test with Bonferroni correction. STATISTICA version 8.0 was used and the level of significance was set at 5%.

RESULTS

Table 1 lists the subjects' demographic characteristics. Forty schizophrenics between 21 and 60 years of age (55% females) from the Outpatient Department of Psychiatry were included. All used psychotropic medication, mostly second generation of antipsychotics. Forty healthy controls (47.5% females) without any lifetime Axis I diagnosis were recruited through local advertisement. The controls were aged between 21 and 59 years. There were subjects with all levels of education in both groups. There were no statistically significant differences for age or education. There were statistically significantly fewer

Table 1. Demographic characteristic of the patients and healthy controls.

	Patients (n=40)	Healthy controls (n=40)	Statistics
Age	37.55 ± 10.81	37.43 ± 10.96	Unpair t-test: ns.
Sex			Fisher's exact test: n.s.
Male	18	21	
Female	22	19	
Education			Chi^2: n.s.
– Basic	3	0	
– Secondary school without leaving examination	21	15	
– Secondary with leaving examination	12	17	
– University	4	8	
Marital status			Fisher's exact test
– Single	20	10	$p < 0.05$
– Married	10	22	$p < 0.05$
– Unmarried with partner	3	7	ns.
– Divorced	3	1	ns.
– Widower	4	0	ns.
Number of children			Chi^2: ns.
– None	23	17	($p = 0.0609$)
– One	11	8	
– Two	5	15	
– Three	1	0	
Employment			Fisher's exact test:
– Yes	18	32	$p < 0.005$
– No	22	8	
Economical standard			Chi-square:
– Low	15	1	$p < 0.0005$
– Middle	20	28	
– High	5	11	

patients married and more living alone than in the second group. The biggest statistical difference was shown in the number of employed and unemployed people. There was also a statistically significant difference in the subjective reflection of economical standards in the patients compared to controls. Comparisons of the sociodemographic and clinical characteristics of schizophrenia patients and healthy controls including statistics are shown in Table 1.

There are statistically significant lower mean scores for quality of life domains in patients than in healthy controls in subjective rating of physical health, feelings, leisure time, and rating in general. There were no differences between mean scores of the CFQ scores between groups in household and social activities. There were also no differences between mean scores of the work and school/study domains between groups but these results are not used for direct comparison between groups (unevaluated) because there were statistically significant fewer people working or studying in the patient group. There were no differences between means of the CFQ scores between groups. Results of Q-LES-Q and CFQ including statistics are given in Table 2 and Fig. 1.

The correlation matrix of the scores for each of each Q-LES-Q domains, age and number of children including statistics are given in Table 3. The correlation with CFQ is negative and statistically significant in the domains feelings, leisure time, and QoL in general (Table 3). There was positive correlation in domains feelings and number of children. Linear regression analysis suggested that the worse the subjective cognitive functioning measured with CFQ, the better the subjective score for the quality of life in domains feelings, leisure and in general (Fig. 2, 3, 4). Subjective cognitive functioning measured by CFQ did not correlate with the age or number of children.

There were no statistically significant difference in mean scores of Q-LES-Q domains or CFQ between males and females (all unpaired t-tests.).

The group of patients was divided into three subgroups according to the family economic level: a subgroup of low, medium and high economic family level. There were no statistically significant differences in mean scores of Q-LES-Q domains between subgroups of different economic level of the patients (all Kruskal-Wallis tests) but there was statistically significant difference in

Table 2. Quality of life and CFQ.

	Patients (n=40) means ± SD	Healthy controls (n=40) means ± SD	Statistic Unpair t-test
Quality of life domains:			
Physical health	35.5 ± 11.4	43.5 ± 6.5	$p < 0.001$
Feelings	40.6 ± 8.8	48.9 ± 8.2	$p < 0.001$
Work	43.1 ± 12.1	47.5 ± 7.4	unevaluated *
Household	29.8 ± 8.0	33.0 ± 7.9	ns.
School / study	29.9 ± 1.4	31.4 ± 3.6	unevaluated **
Leisure	22.1 ± 6.5	25.1 ± 4.4	$p < 0.05$
Social activities	36.2 ± 12.8	39.8 ± 7.6	ns.
General	44.5 ± 12.5	54.3 ± 7.9	$p < 0.001$
CFQ	48.0 ± 15.4	48.9 ± 14.7	ns.

* most of patients did not work ** most of patients and controls were not students

Table 3. Q-LES-Q subscores and CFQ, demographic variables and clinical variables in schizophrenic patients.

Domains of Q-LES-Q:	CFQ	Age	Number of children
Physical health	r = – 0.272	r = – 0.033	r = 0.062
Feelings	r = – 0.340*	r = – 0.101	r = 0.358*
Work	r = – 0.251	r = 0.091	r = – 0.139
Household	r = – 0.101	r = – 0.040	r = – 0.190
School	unevaluated	unevaluated	unevaluated
Leisure	r = – 0.398*	r = – 0.211	r = – 0.009
Social activities	r = – 0.034	r = 0.174	r = 0.269
General	r = – 0.370*	r = – 0.0299	r = 0.2681
CFQ		r = – 0.091	r = 0.093

* Pearson r: $p < 0.05$

mean scores of CFQ between subgroups of different economic levels of the patients (low level 55.3 ± 14.9 versus medium level 45.7 ± 14.4 versus high level 35.4 ± 10.7; Mann-Whitney test; $p < 0.05$).

The group of patients was divided into two subgroups without secondary education (without maturity), and with secondary or university education. The subgroup of patients without secondary education had statistically significant higher mean score in work (Table 4) and less mean score in leisure domains than the groups with secondary and university education. There were no statistically significant differences in other domains between educational subgroups.

DISCUSSION

The patients feel their quality of life statistically significant lower than the healthy controls in the domains feelings, leisure time and in general. Most patients did not work or study, therefore it is impossible to compare the groups in these two domains.

The relationship between subjective cognitive function and QoL was calculated as correlations and linear regression. The results suggested that the worse the feeling of subjective cognitive functioning is connected with higher subjective score for quality of life in some areas. Patients with lower subjective cognitive functioning might rate their QoL higher. Matsui et al.[21] reported that there was no significant relationship between executive functioning and subjective QoL using the abbreviated version of SQLS. Hofer et al.[22] used the same cognitive function survey, and reported no relationship between executive functioning and subjective QoL. Prouteau et al.[23] reported that poorer sustained attention predicted better subjective QoL, and Wegener et al.[12] reported that sustained attention had a negative effect on subjective QoL. The inconsistency of these findings might result from the fact that each study used different instruments to measure subjective QoL and cognitive functions. In the future, there is

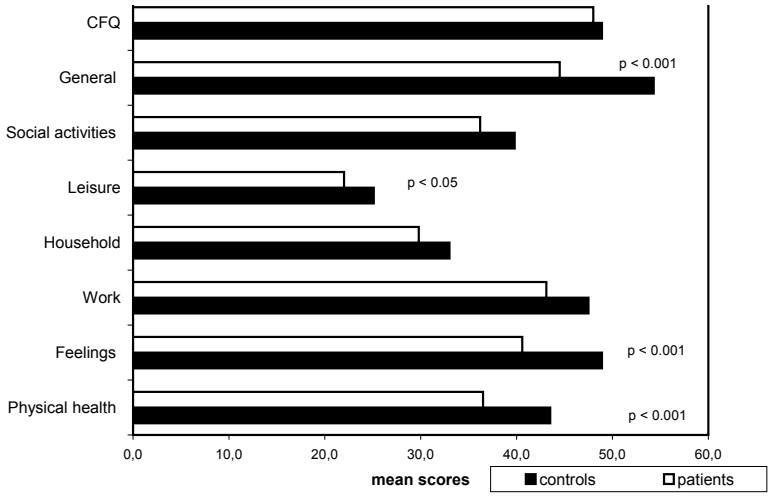

Fig. 1. CFQ and domains of Q-LES-Q, comparison of the patients and controls.

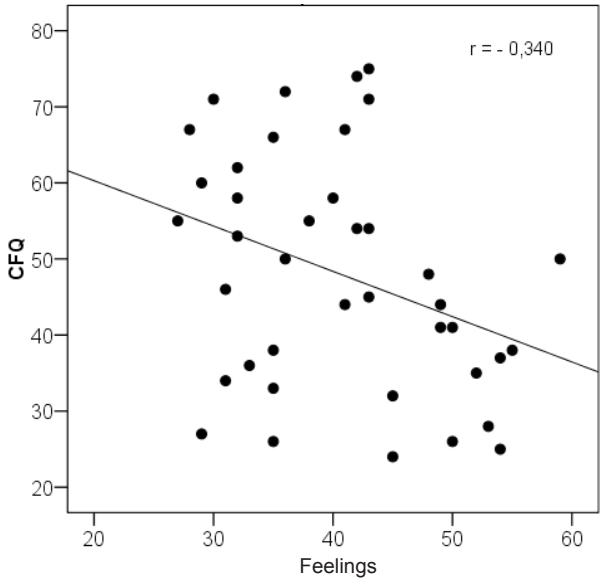

Fig. 2. Linear regression between domain feelings of Q-LES-Q and CFQ.

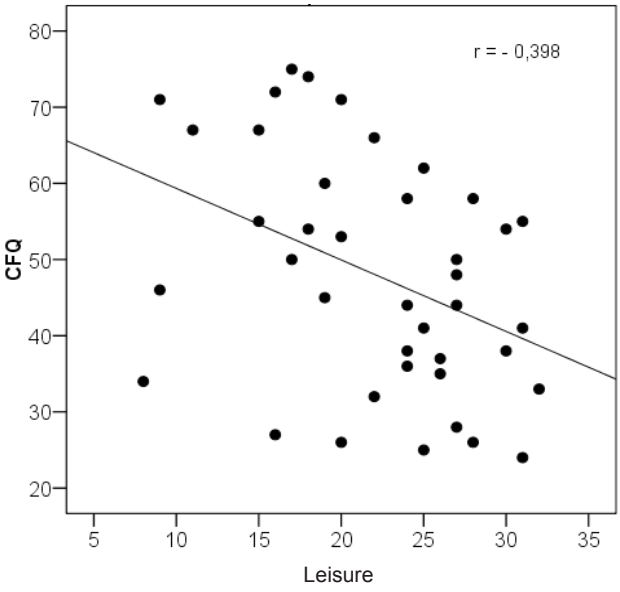

Fig. 3. Linear regression between domain leisure of Q-LES-Q and CFQ.

a need for methodology to be standardized in further investigations into the relationship between cognitive function and subjective QoL. Our study measured subjective evaluation of cognitive functioning. We can speculate that as the disorder progresses, patients with schizophrenia might become acclimated to their condition and may not be subjectively troubled by their QoL. Yamauchi et al.[24], however, reported a non-significant correlation between the psychosocial conditions of the QoL and the duration of illness, therefore further investigations are necessary to clarify this aspect.

The present study had several limitations. First, the subjects were mostly unemployed long term schizophrenic patients who were not in acute exacerbation. We used subjective self-rating measurements, with unknown reliability in this population. Therefore it is difficult to assume that these results can be generalized to schizophrenia patients as a group. If possible, future investigations should examine subject groups that include the severely and acutely ill. QoL in our study was measured with the Quality of Life Enjoyment and Satisfaction (Q-LES-Q) which is not a QoL questionnaire specific to schizophrenia. But for comparison with healthy volunteers it is necessary to use the instrument appropriate for each group. We also used the subjective questionnaire for assessment of cognitive dysfunction which is more about how the patient feels about his cognitive dysfunction than how his cognitive functioning really is. On the other hand, when both instru-

ments are "subjective", they are more comparable than if one is "objective" and the second "subjective".

In conclusion, our results suggest a:

- Lower level of life quality of life in patients suffering with schizophrenia than healthy controls in the domains feeling, leisure and in general;
- Negative correlation between subjective measured quality of life and subjective cognitive functioning.

In the future, longitudinal research is needed to focus on how psychopathological symptoms and cognitive function affect subjective QoL.

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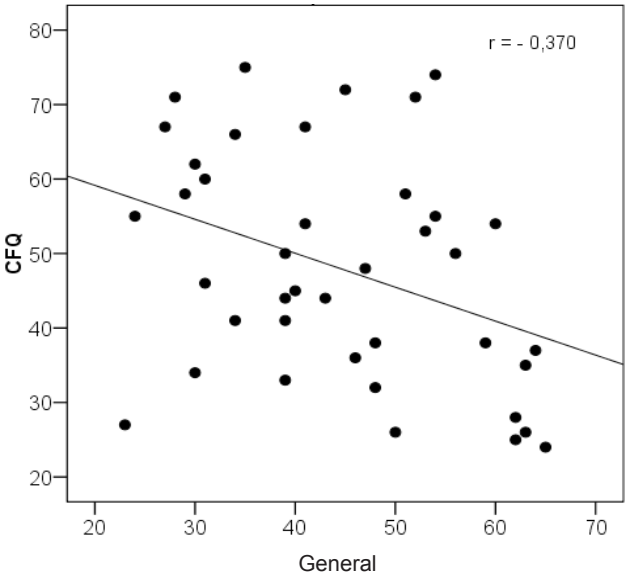

Fig. 4. Linear regression between domain general of Q-LES-Q and CFQ.

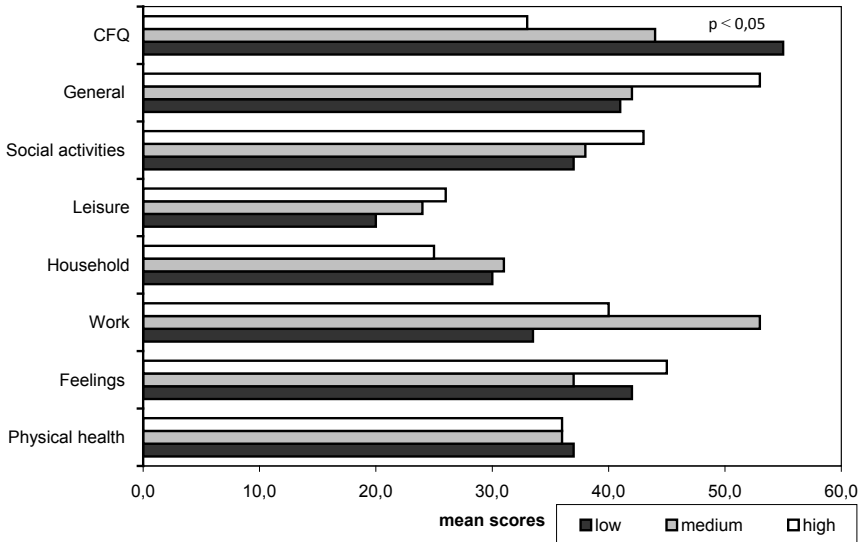

Fig. 5. CFQ and domains of Q-LES-Q, comparison of the patient's subgroups according family economical level.

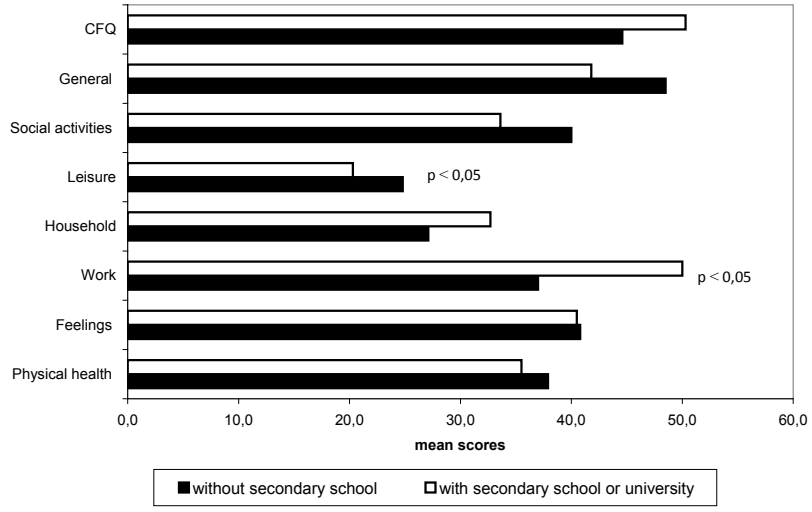

Fig. 6. CFQ and domains of Q-LES-Q, comparison of the patient's subgroups according the educational level.

Table 4. Q-LES-Q according the level of education in controls and patients.

			Somatic	Feelings	Work	Household	School	Leisure	Social	General	Summa	CFQ
Lower education	Controls	mean	41.2	48.07	47.83	33.79	28.5	24.27	37.67	49.8	274.6	52.2
		SD	7.012	8.013	8.922	7.738	2.121	4.559	8.533	6.689	43.99	16.46
	Patients	mean	35.5	40.5	50	32.73	28	20.29	33.58	41.79	204.5	50.25
		SD	12.99	9.478	11.61	8.344	0	6.531	13.97	12.58	79.22	15.35
Statistics: unpair t-test			ns	p<0.05	ns	ns		p<0.05	ns	p<0.05	p<0.01	ns
Higher education	Controls	mean	44.88	49.36	47.35	32.52	32.6	25.64	41	57	289.6	46.88
		SD	5.925	8.46	6.651	8.201	3.578	4.281	6.85	7.467	33.28	13.54
	Patients	mean	37.88	40.81	37	27.08	30	24.75	40	48.5	234.9	44.63
		SD	8.563	7.85	9.341	6.868	0	5.675	10.18	11.52	49.14	15.22
Statistics: unpair t-test			p<0.005	p<0.005	p<0.005	ns		ns	ns	p<0.01	p<0.0001	ns

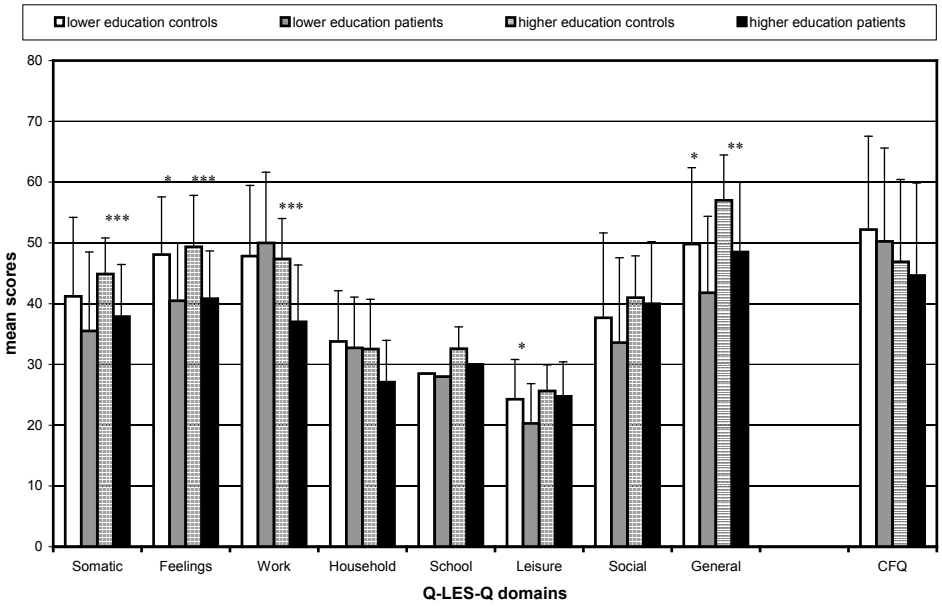

Fig. 7. Mean scores of quality of life according the level of education in controls and patients.

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