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BRIEF COMMUNICATION

Quality of life in first-admitted schizophrenia patients: a follow-up study

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ABSTRACT

Background. While most studies of quality of life (QoL) in schizophrenia have investigated long-term patients, relatively little is known about QoL early in the illness and how it changes over time. This study was conducted to investigate objective and subjective quality of life in first-admitted schizophrenia patients as compared to patients with long-term schizophrenia, changes between first admission and 9-month follow-up and predictors of changes.

Method. Eighty-six patients were examined after first admission and 51 were re-interviewed at follow-up. Results were compared with samples of in-patients and out-patients with long-term schizophrenia. QoL was assessed using a German version of the Lancashire Quality of Life Profile.

Results. Although some objective QoL data were more favourable in first-admitted patients, subjective QoL was lower than in each of the other two groups, even when psychopathology and age were controlled for. On a group level, patients showed a slight improvement in subjective QoL, which was not statistically significant. Individual changes over time were not predicted by initial data, but were correlated with changes in anxiety/depression.

Conclusion. Subjective QoL appears to be lower in first-admitted schizophrenics than in groups with long-term illness and, on a group level, it changes little within 9 months. On an individual level, changes in depressive symptoms need to be considered when interpreting changes in satisfaction with life.

INTRODUCTION

In the last decade the concept of quality of life (QoL) has become increasingly relevant in schizophrenia research, and there is a growing amount of literature on the subject. Although there is no generally accepted operational definition of QoL in patients with schizophrenia, there is broad agreement that patients' statements on satisfaction with life in general and with various life domains, are indicators of subjective QoL. Most authors also obtain objective data on patients' living conditions as criteria of objective QoL.

Empirical studies of QoL in patients with schizophrenia have mainly investigated long-term in- and out-patients, rarely acute patients. Subjective QoL in these groups appears to be lower than in the general population, but the difference is rather small. There is a substantial overlap between the scores for patient samples and for samples from the general population. Yet, subjective QoL seems to have a discriminate validity for some care settings. In several naturalistic studies, significant differences between schizophrenia patients in different care settings have been demonstrated (Lehman *et al.*

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1986; Kaiser *et al*. 1996, 1997; Priebe *et al*. 1998).

While the correlation between objective and subjective indicators has been found to be, at best, moderate, a consistent association between satisfaction ratings and psychopathology has been reported. Patients with a higher degree of psychopathology, in particular depressive symptoms, tend to express a lower subjective QoL (Kaiser *et al*. 1996, 1997). Subjective QoL is widely regarded as a concept that is related to, but distinct from clinical syndromes such as depression and anxiety (Lehman, 1984, 1996). This conclusion, however, is based on findings from cross-sectional studies. Little is known about the association between change in psychopathology and subjective QoL over time. There are only a few studies that have used a pre-test–post-test design to obtain change scores of subjective QoL directly (Barry & Crosby, 1996; Barry & Zissi, 1997).

In order to interpret QoL findings in evaluation studies, it would be useful to be informed about QoL in patients at the initial stage of schizophrenia, and how it changes during the course of illness in naturalistic studies. In particular, information is needed on how patients arrive at the lower QoL that is found in long-term samples, i.e. whether this is a result of a slow and continuous deterioration, or whether more complex and inconsistent processes have to be assumed (Strack *et al*. 1991). Moreover, factors that influence individual changes in subjective QoL at different stages of the illness should be understood, so that they can be systematically assessed and considered in research.

The present study, therefore, investigated QoL in first admitted patients with schizophrenia and addressed three questions: (*a*) How is QoL in first-admitted patients as compared to long-term in-patients and long-term out-patients?; (*b*) How does QoL in first-admitted patients change on a group level within a 9 month follow-up period?; and (*c*) How can individual changes in subjective QoL during that time be predicted?

METHOD

Eighty-six patients who met the diagnostic criteria for schizophrenia or schizophreniform disorder according to ICD-10 (F20 and F23), and who were admitted to a psychiatric hospital for the first time in their life, were examined (i.e. first admission sample). Patients were recruited from eight psychiatric hospital departments in Berlin and Potsdam, Germany. In all patients, the diagnosis was first made by the responsible consultant psychiatrist, and then confirmed by an independent research psychiatrist who interviewed all patients. Initial interviews were conducted between the second and fourth week of hospital treatment. Follow-up assessments were made after 9 months. QoL was assessed on the Berliner Lebensqualitätsprofil, a German version of the Lancashire Quality of Life Profile (Priebe *et al*. 1995; Oliver *et al*. 1997). The instrument originated from Lehman's work in the US (Lehman, 1996). It collects objective QoL data and uses seven-point satisfaction scales for assessing subjective QoL in nine different life domains including satisfaction with life in general (from 1 = 'terrible' to 7 = 'delighted'). Psychopathology was observer rated using the 18-item version of the Brief Psychiatric Rating Scale (Overall & Gorham, 1962).

Initial QoL scores were compared with two other groups of schizophrenia patients. One group was recruited in the Berlin Deinstitutionalization Study (Priebe *et al*. 1996; Hoffmann *et al*. 1997), and consisted of all patients and schizophrenia from a catchment area of 550 000 inhabitants, in Berlin, who had been continuously hospitalized for a minimum of 6 months, and a maximum of 2 years (i.e. long-stay sample). The second comparison group consisted of 143 out-patients with schizophrenia from two community mental health units (Kaiser *et al*. 1997) in the same catchment area in Berlin (i.e. community sample). Both samples were assessed with the same instruments.

Sociodemographic, BPRS and objective QoL data were compared by *t* tests and chi-square statistics. Subjective QoL differences were tested by multivariate analyses of variance (MANOVAs): in a first step using a one factorial design with different settings as single factor, in a second step with gender as second factor and age and BPRS total score as covariates. Change in QoL between measure points was tested by a multivariate procedure (Hotelling's T^2 test) as well. These analyses were also controlled in a second run for the influence of overall change in psychopathology (change in BPRS total score as

covariate). Subsequent univariate F tests show the contribution of differences in single domains to overall differences. For analysing changes in objective QoL data McNemar's chi-square tests were used. Correlation coefficients (Pearson's r) were calculated as a measure of stability over time for subjective QoL and BPRS ratings. These test–retest coefficients do not reflect the stability in absolute terms, but the degree to which individuals maintain their relative position in the distribution of scores. Correlation coefficients between potential predictor variables and changes in subjective QoL were used for testing whether changes in subjective QoL could be predicted. In the case of dichotomized variables, contingency coefficients were calculated.

RESULTS

Description of sample and comparison with other groups

The sociodemographic data, BPRS total score, objective and subjective QoL data of the 86 first admission sample as well as comparisons with the two groups of long-term patients are shown in Table 1. Patients in the first admission sample were on average younger and more likely to have a job than the other two groups. They had a higher degree of psychopathology than the community patients, but not a significantly higher one than long-stay patients. On other objective QoL variables, first admission patients differ more from community patients than from the long-stay group.

Multivariate MANOVAs with all subjective QoL scores as dependent variables demonstrate significant main effects for first admission patients differing from the long-stay sample ($F = 2{\cdot}23$, $P < 0{\cdot}05$) and from the community sample ($F = 5{\cdot}16$, $P < 0{\cdot}001$). Subsequent univariate tests reveal that the first admission sample differed significantly from the long-stay patients in the domain safety, and from community patients in the domains finances, living situation, safety, mental health, and satisfaction with life in general (see Table 1).

When age, BPRS total score and gender were controlled, overall differences between the first admission group and both the long-stay sample ($F = 3{\cdot}44$, $P < 0{\cdot}01$), and the community patient sample ($F = 2{\cdot}23$, $P < 0{\cdot}05$), remain statistically significant in multivariate analyses. In subsequent univariate F tests, however, safety is the only domain in which differences are still significant (first admission sample *versus* long-stay sample, $F = 7{\cdot}92$, $P < 0{\cdot}01$; *versus* community patients, $F = 9{\cdot}15$, $P < 0{\cdot}01$). Differences

Table 1. *Age, gender, BPRS-total-scores, years since first admission, some objective QoL data and subjective QoL scores in first admission patients, long-stay patients and community patients*

Variable	A First admission sample ($N = 86$)	B Long-stay sample ($N = 76$)	C Community sample ($N = 143$)	Group comparisons A *v.* B	Group comparisons A *v.* C
Age: years†	30·4 ± 10·2	43·4 ± 13·3	45·7 ± 11·4	$t = -7{\cdot}01$***	$t = -10{\cdot}36$***
Sex: female	66%	47%	43%	$\chi^2 = 5{\cdot}90$*	$\chi^2 = 12{\cdot}00$***
Years since first admission†	(2–4 weeks)	23·5 (11·9)	17·0 (10·7)	NS	NS
BPRS total-score	48·0 ± 10·5	45·3 ± 17·1	38·2 ± 13·0	NS	$t = 6{\cdot}24$***
No job	37%	84%	72%	$\chi^2 = 37{\cdot}14$***	$\chi^2 = 27{\cdot}26$***
Personal contacts with friends a week†	1·7 ± 2·2	1·9 ± 2·9	2·9 ± 3·1	NS	$t = -3{\cdot}19$**
Last year					
Accused of a crime	16%	14%	4%	NS	$\chi^2 = 10{\cdot}69$**
Victim of a crime	28%	26%	11%	NS	$\chi^2 = 10{\cdot}36$**
Satisfaction with					
Life in general	3·99 ± 1·62	4·53 ± 1·96	5·02 ± 1·63	NS	$F = 14{\cdot}24$***
Leisure	4·85 ± 1·43	4·93 ± 1·09	4·99 ± 1·19	NS	NS
Finances	4·13 ± 1·75	4·17 ± 2·12	4·85 ± 1·89	NS	$F = 4{\cdot}01$*
Living situation	4·50 ± 1·84	4·26 ± 1·91	5·54 ± 1·67	NS	$F = 13{\cdot}04$***
Safety	4·48 ± 1·48	4·96 ± 1·26	5·04 ± 1·15	$F = 4{\cdot}91$*	$F = 10{\cdot}05$**
Social relations	4·94 ± 1·12	4·73 ± 1·32	5·08 ± 1·06	NS	NS
Mental health	4·26 ± 1·78	4·00 ± 1·83	5·05 ± 1·29	NS	$F = 15{\cdot}21$***

† Mean ± S.D.
* $P < 0{\cdot}05$; ** $P < 0{\cdot}01$; *** $P < 0{\cdot}001$.

Table 2. *Change and stability in BPRS scores and in some objective QoL data with 9 month follow-up period* (N = 51)

Variables	Initial examination	Follow-up	Statistics	*P*	Stability
BPRS†					
Total score	46·2 ± 10·3	32·4 ± 7·6	$t = 8{\cdot}47$	***	0·18
Subscores					
Anxiety/depression	10·8 ± 3·2	8·8 ± 2·7	$t = 4{\cdot}12$	***	0·30‡
Anergia	10·4 ± 3·3	8·5 ± 3·6	$t = 3{\cdot}29$	**	0·30‡
Thought disorder	10·0 ± 3·7	5·7 ± 1·6	$t = 7{\cdot}61$	***	−0·04
Activation	6·5 ± 2·7	4·0 ± 1·6	$t = 6{\cdot}26$	***	0·17
Hostility	8·5 ± 3·4	5·4 ± 2·1	$t = 6{\cdot}05$	***	0·17
No job	39%	49%	—	NS	0·41§
Personal contacts with a friend a week†	1·8 ± 2·3	1·9 ± 1·8	—	NS	0·38§
Last year/last 9 mths					
Accused of crime	24%	0%	$\chi^2 = 12{\cdot}0$	***	—
Victim of crime	31%	12%	$\chi^2 = 6{\cdot}25$	*	0·15

† Mean ± S.D.
‡ Pearson's $r < 0{\cdot}05$.
§ Pearson's $r < 0{\cdot}01$.
* $P < 0{\cdot}05$; ** $P < 0{\cdot}01$; *** $P < 0{\cdot}001$.

in other life domains fail to reach statistical significance when the influence of gender, age and psychopathology is controlled for. Values for the second factor gender and two-way-interactions (group by gender) are not significant.

Changes over time

Fifty-one patients out of the original sample of 86 were re-interviewed after the 9 months follow-up period. At the time of the second interview, 46 of them were in out-patient treatment, and five were still in hospital or attending a day-hospital. Twenty-nine patients were receiving neuroleptic medication and one was receiving anti-depressant medication.

The 51 patients who were re-assessed did not differ significantly from the 35 drop-outs on any of the reported sociodemographic or QoL data obtained at the first assessment. Table 2 summarizes differences and stability over time in BPRS total and subscores as well as in some objective QoL data between the first and second interview for those patients who were examined twice.

At follow-up, patients had markedly lower psychopathology scores. BPRS subscores anxiety/depression and anergia were more stable over time than the other subscores. After 9 months, patients reported that they were accused of a crime and were a victim of a crime less often. These two questions referred to the last year in the initial interview, and to the 9 months between first and second interview at follow-up. Differences in other objective QoL data between the first and second examination were not statistically significant.

The mean score of all subjective QoL ratings changed from 4·58 ± 0·74 to 4·68 ± 0·72 (NS). Satisfaction with single life domains showed little change over time. Seven out of nine ratings were slightly more positive at follow-up (greatest difference 0·37). In multivariate analysis with all subjective QoL scores, however, the difference did not reach statistical significance, even when the influence of BPRS total score is controlled for.

Although mean scores on a group level did not show significant change over time, individual scores did change. Stability scores vary between $r = -0{\cdot}01$ and $r = +0{\cdot}31$, and demonstrate only little relationship between individual's initial and follow-up ratings.

Prediction of changes

Individual changes in subjective QoL were not predicted by any variable that had been obtained in the first interview, other than initial subjective ratings themselves. Thus, data assessed in the second to fourth week after first admission had no predictive value for changes in subjective QoL within the following 9 months period.

In the next step, we tested changes between first and second examination in other variables for their predictive value in relation to changes in subjective QoL. The correlation between changes in BPRS total score and the mean score of satisfaction ratings with all life domains including life in general was $r = -0{\cdot}27$. The coefficient was not statistically significant. If the influence of the subscale anxiety/depression was controlled for in a partial correlation analysis, the correlation coefficient between changes in BPRS total score and subjective QoL mean score was reduced to $r = -0{\cdot}01$. A reduction in BPRS subscale anxiety/depression, however, was significantly correlated with a positive change in subjective QoL mean scores ($r = -0{\cdot}44$, $P < 0{\cdot}01$). In a multiple regression analysis, the predictive power of changes in anxiety/depression on changes in subjective QoL was not improved by including other variables as predictors in the equation.

DISCUSSION

The group of first-admitted patients examined in this study was, on average, 10 years younger than the samples of long-term in- and out-patients. Their objective QoL data are in some respects more favourable than those of the other samples, with the exception of safety which seems to be a life domain of special relevance in first-admitted patients with schizophrenia. The first admission patients reported more often that they were accused of a crime or were a victim of a crime than the two comparison groups and more often at first than at second assessment 9 months later. Some patients might have been actually involved in criminal events – either actively or passively – due to certain symptoms of the acute illness such as agitation, aggressiveness or lack of inhibition. In other patients, the reports of involvement in crime might have been a sign of paranoid delusions in the acute stage of illness. However, a significant correlation between these reports and paranoid symptoms as assessed on BPRS has not been found.

Despite the overall more positive objective situation in the first admission patients, their subjective QoL is significantly lower than in both, long-stay patients and community patients, and overall differences remain significant when psychopathology is controlled for. The findings suggest that the lower subjective QoL in chronic groups as compared with the general population is not due to a slow and consistent deterioration over many years. In first admission patients, subjective QoL is particularly low and may improve over time as a result of adaptation. Yet, if such adaptation processes lead to an improvement of subjective QoL in patients with schizophrenia, they appear to take longer than 9 months in most patients. In the present study, within the first 9 months following first admission no significant improvement was found on a group level whereas such adaptation has been demonstrated in patients with severe physical handicaps following an accident (Brickman *et al.* 1978). In patients with schizophrenia, adaptation and significant improvement in subjective QoL may be assumed to occur at a later stage of illness. The fact, however, that mean scores of subjective QoL hardly changed within the follow-up period does not necessarily mean that the low satisfaction at the two points of time is a result of identical factors and cognitive processes.

In this study, changes in subjective QoL and in anxiety/depression are correlated. Patients becoming less depressed over time tended to make a more positive appraisal of life and vice versa. This association, however, has been found only on an individual level. On a group level, subjective QoL did not change despite a marked and statistically significant improvement in psychopathology including anxiety/depression. This might indicate that subjective QoL is not a mere epiphenomenon of depressive mood. Subjective QoL seems to be distinctive from mood, although it is influenced by mood and by mood changes on an individual level. A low satisfaction with life might, in part, share underlying cognitive processes with depressive symptoms. In any case, mood symptoms seem to be a major influential factor for subjective QoL in cross-sectional as well as in longitudinal analyses and should be controlled for when changes in subjective QoL are investigated in patients with schizophrenia.

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