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Do Different Subjective Evaluation Criteria Reflect Distinct Constructs?

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Abstract

Four subjective evaluation criteria-self-rated symptoms, subjective quality of life, self-rated needs, and patients' assessment of treatment-were examined to determine whether they reflect distinct constructs and to what extent they are correlated. The four criteria were assessed in 90 newly admitted schizophrenia patients, 170 long-term-hospitalized schizophrenia patients, 154 patients with alcoholism admitted for the short term, and 68 patients with alcoholism in long-term rehabilitation, using identical instruments. The four criteria show substantial intercorrelations, except for assessment of treatment in the two acute treatment groups. One general factor explains between 43% and 55% of the variance in each group. Factor scores are associated with observer-rated psychopathology and objective data. The four criteria overlap in different patient groups, except in the assessment of treatment in acute groups. The use of more than one subjective criterion should occur only with specific hypotheses. A better theoretical

framework is needed to explain the differences between and interrelationships of subjective evaluation criteria.

In the evaluation of psychiatric care, various criteria have been used to assess treatment outcome. Some evaluation criteria may be classified as subjective because they directly reflect the patient's own views, judgments, or feelings. Over the last two decades, such subjective evaluation criteria have become increasingly important, in part due to the changing role of patients from passive subjects of treatment to active consumers of services and partners of professional care providers in therapy and rehabilitation.

Several subjective criteria are used frequently in evaluative research in psychiatry and have a distinct theoretical foundation and a research tradition of their own. Particularly common criteria are: self-rated symptoms, subjective quality of life, self-rated needs, and assessment of or satisfaction with treatment. Psychiatric care aims to minimize the degree of self-rated symptoms and the number of needs, to maximize subjective quality of life, and to make (or keep) patients' assessment of treatment as positive as possible.

In the evaluation of psychotherapeutic and psychopharmacological interventions, self-ratings of specific or nonspecific symptoms are widely used (Faravelli et al., 1986). Numerous scales have been developed for self-rating of symptoms, mainly of anxiety and depression but also of schizophrenia and other psychiatric disorders (Hamera et al., 1996). There is extensive literature on the subjective quality of life of mentally ill people. The most widely accepted approach is based on Lehman's original work: patients' satisfaction with life in general and in major life domains is regarded as subjective quality of life. In most questionnaires, this satisfaction is assessed on 7-point rating scales. Subjective quality of life is known to be influenced by several factors, including the degree of observer-rated psychopathology. The correlations, however, are weak, so that subjective quality of life is regarded as a separate criterion (Corrigan and Buican, 1995; Kaiser et al., 1996, 1997; Lehman, 1983, 1996; Lehman et al., 1982; Oliver et al., 1996; Priebe et al., in press; Warner and Huxley, 1993).

The concept of self-rated needs as an evaluation criterion in psychiatric care is a more recent development and is less clear, in spite of a substantial amount of psychological, sociological, and philosophical literature on needs written this century. If the complex field of needs is restricted to a need for care, this criterion may be used to evaluate the outcome of psychiatric treatment and care. A distinction between the total number of needs for care and the number of those existing needs which are not met by current psychiatric care has repeatedly been suggested. While psychiatric care should improve the patient's condition and social functioning so that the total number of needs for care diminishes over time, it should also meet those needs that continue to exist because of a chronic illness (Brewin and Wing, 1993; Brewin et al., 1987; Heinze and Priebe, 1995; Wing, 1990). Recently, instruments have been published that specifically assess self-rated needs for care in addition to observer-rated needs (Hansson et al., 1995; Phelan et al., 1995; Priebe et al., 1995).

How patients assess psychiatric treatment has been investigated in numerous studies in the last 40 years. Because of several methodological problems, a standardized and widely accepted method of measuring patients' assessment of treatment and satisfaction with it has not yet been

established. Nevertheless, there is sufficient empirical evidence in support of the overall finding that most patients assess their treatment positively and express a high level of global satisfaction with it; a lower degree of satisfaction is usually associated with a higher degree of observer-rated psychopathology (Corrigan, 1990; Gruyters & Priebe, 1994; Lebow, 1982; Ruggeri, 1994). Small but statistically significant differences in patients' satisfaction with different treatment settings have been found in randomized controlled studies. In inpatient and outpatient samples, the variation in patients' assessment of treatment has been shown to be of value in the prediction of outcome; patients with a more positive assessment of treatment tend to have a more favorable outcome (Bröker et al., 1995; Priebe and Gruyters, 1994, 1995a, 1995b).

For each of the four subjective evaluation criteria, there is an objective or observer-rated counterpart: observer-rated symptoms, objective quality of life or standard of living, observer-rated needs, and clinical audits. The correlations between objective data or observer ratings on the one hand and self-ratings of the same criterion on the other are often surprisingly low. For instance, the shared variance of observer ratings and self-ratings of psychopathology varies between zero and approximately 65%, depending on which sample is investigated and which scales are used (Deluty et al., 1986; Faravelli et al., 1986; Fava et al., 1986; Prusoff et al., 1972). Objective data on quality of life and patients' satisfaction with life have been found to be weakly associated in a number of studies (Oliver et al., 1996, 1997; Skantze et al., 1992). Early findings show that most correlations between observer-rated and self-rated needs for care are low to moderate (Hoffmann and Priebe, 1996; Slade et al., 1996). The association between patients' assessment of treatment and experts' audits of the same treatment has not yet been systematically researched. Thus, subjective evaluation criteria do not primarily reflect their objective counterparts, but must be taken as criteria of their own.

Because the four subjective evaluation criteria are usually studied independently of one another, the question arises of whether they reflect distinct constructs and whether variables representing these criteria are empirically independent of each other. In this article, the extent to which these four subjective evaluation criteria are correlated and the extent to which they all may be measuring the same underlying dimension are examined.

Methods

The same instruments assessing the four types of subjective ratings were used in four different samples in Germany (total $N = 482$). Sample A consisted of 90 schizophrenia patients admitted for the first time to psychiatric hospitals or departments at general hospitals in Berlin and Potsdam. Sample B was composed of 170 long-term-hospitalized schizophrenia patients from three districts in Berlin (catchment area of 550,000 inhabitants). Sample C consisted of 154 patients with alcoholism admitted short term to hospitals in Berlin, Greifswald, and Stralsund (the latter two are small cities in northeastern Germany). Sample D comprised 68 hospitalized patients in an alcoholism inpatient rehabilitation program in a psychiatric hospital in Berlin (the program lasts between 6 and 18 months).

The interviews for samples A and C were undertaken 1 or 2 weeks after patients were admitted. Samples B and D are subgroups from the Berlin Deinstitutionalisation Study (Priebe et al., 1996); all patients had been hospitalized continuously for at least 6 months at the time of the interview. Diagnoses and treatment settings, *i.e.*, short-term versus long-term hospitalization, were shared by two of the four groups. These samples were selected to increase the reliability of results regarding consistencies or differences of findings across the diagnostic groups and settings examined.

For self-rating of symptoms, a scale assessing mainly unspecific symptoms, the 29-item-version of the Von Zerssen Complaints Checklist (Von Zerssen, 1986), was used because patients with a range of different psychiatric disorders were investigated. This questionnaire has been applied in epidemiological and clinical studies. Each complaint is rated between 0 (not existent) and 3 (severe). In this study, the sum score of all symptoms was used.

Subjective quality of life was assessed using the German version (Berliner Lebensqualitätsprofil) of the Lancashire Quality of Life Profile, which was developed by Oliver from Lehman's original instrument (Oliver, 1991; Oliver et al., 1997; Priebe et al., 1995). Subjective ratings are taken on 7-point scales for global well-being and in eight life domains (1 = couldn't be worse; 7 = couldn't be better). The means of global well-being and satisfaction with six domains (the family and work domains were excluded because too many patients had no contact with their family or didn't work) were taken as indicators for subjective quality of life. Psychometric properties of this mean score have been shown to be satisfactory (Kaiser and Priebe, in press; Kaiser et al., 1997).

Subjective needs were assessed on the Berlin Needs Assessment Schedule (Berliner Bedürfnis-Inventar). This schedule assesses the patients' view of their need for help or support in 16 areas (dichotomous ratings for each area; 0 = no need, 1 = need exists) rather than all their general needs (Hoffmann and Priebe, 1996; Priebe et al., 1995). It produces two scores: one is a summary of the total number of needs for care (needs total), and the other is the number of unmet needs (unmet needs). For both scores, the sum scores of 15 items were used (the area of housework was excluded because it is not relevant for hospitalized patients).

Patients assessed several aspects of their treatment on a seven-item questionnaire (Klientenbogen zur Behandlungsbewertung; Priebe et al., 1995). Each aspect is rated on an 11-point rating scale (0 = negative extreme, 10 = positive extreme). In this study, the mean of two items that applied to all settings and patients ("Is the treatment you currently receive right for you?" and "Has the treatment so far been helpful?") was used. These items have been found to be of predictive validity for treatment outcome in several studies (Bröker et al., 1995; Priebe and Gruyters 1994, 1995a, 1995b).

All diagnoses were made according to ICD 10 (World Health Organization, 1992). Psychopathology was observer-rated using the Brief Psychiatric Rating Scale (BPRS; Overall and Gorham, 1962). The interviewers were not involved in the patients' treatment.

Two main statistical analyses were undertaken:

A. Scores from each instrument were correlated (using Spearman's *r* because of the lack of normal distribution in all criteria except the quality-of-life score). Partial correlations were calculated to control the impact of the BPRS total score and the BPRS subscore for anxiety/depression, which has been found in previous studies to be correlated with subjective evaluation criteria to a greater extent than the other BPRS subscales (Kaiser et al., 1996, 1997; Priebe et al., 1995).

B. A principle-components factor analysis was undertaken and factor scores were computed; factor scores were also tested for their correlation with items of interest.

Results

Table 1 shows some of the sociodemographic and clinical characteristics of the samples. They differ significantly in gender, age, number of previous hospitalizations, and BPRS total score. The percentage of patients who were able to be interviewed and refused was rather low for all settings (1% to 5%). All interviews were completed successfully. Table 1 also summarizes mean scores of the subjective evaluation criteria in the four groups. For each criterion, there were significant differences among the groups. The degree of self-rated symptoms was highest in newly admitted schizophrenia patients and in patients in alcoholism rehabilitation. Subjective quality of life was highest in long-term-hospitalized schizophrenia patients. Needs total was lowest in patients with alcoholism admitted for the short term, and unmet needs were highest in the newly admitted schizophrenia patients. A more positive assessment of treatment distinguishes both samples with alcoholism from the schizophrenia groups.

	A Newly Admitted Schizophrenia Patients (N = 90)	B Long-Term- Hospitalized Schizophrenia Patients (N = 170)	C Short-Term- Admitted Patients with Alcoholism (N = 154)	D Inpatient Rehabilitation Patients with Alcoholism (N = 68)	Statistics (df)	p
Women	67%	45%	57%	19%	$\chi^2 (3) = 40.87$	<.001
Age	30.3 ± 10.0	48.1 ± 15.2	41.4 ± 9.3	46.5 ± 9.7	$F (3) = 47.0$	<.001 ¹
No. of previous hospitalizations	0	9.8 ± 9.9	4.3 ± 9.3	6.5 ± 9.6	$F (2) = 5.7$	<.01 ²
BPRS total score	48.2 ± 10.5	47.0 ± 16.3	34.2 ± 7.1	33.3 ± 10.0	$F (3) = 49.8$	<.001 ³
Self-rated symptoms	23.2 ± 11.8	17.7 ± 13.1	17.0 ± 10.1	23.1 ± 13.3	$F (3) = 7.0$	<.001 ⁴
Subjective quality of life	4.4 ± 0.9	4.8 ± 1.0	4.3 ± 0.9	4.3 ± 1.0	$F (3) = 8.8$	<.001 ⁵
Needs/total	4.6 ± 2.0	4.4 ± 2.9	3.4 ± 1.9	3.8 ± 2.6	$F (3) = 5.9$	<.001 ⁶
Needs/unmet	2.3 ± 1.6	1.1 ± 1.5	1.4 ± 1.3	0.7 ± 1.0	$F (3) = 19.7$	<.001 ⁷
Assessment of treatment	6.6 ± 3.0	6.5 ± 2.9	8.3 ± 2.0	8.1 ± 1.7	$F (3) = 18.0$	<.001 ⁸

¹Bonferroni adjusted post hoc multiple mean comparisons. Mean differences at least $p < .05$: ¹groups B, C, D vs. A, groups B, D vs. C; ²groups B vs. C; ³groups A, B vs. C, groups A, B vs. D; ⁴groups A, D vs. B, groups A, D vs. C; ⁵group A vs. B, group B vs. C, group B vs. D; ⁶groups A, B vs. C; ⁷groups A, C vs. D, group A vs. B, group A vs. C, group A vs. D; ⁸group A vs. C, D, group B vs. C, D.

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TABLE 1 Gender, Age, Previous Hospitalizations, BPRS Total Scores, and Subjective Evaluation Criteria in the Four Samples

Table 2 shows the intercorrelations between the scores from each subjective evaluation criterion in the four samples. Directions of correlation were the same in each sample, but they varied in

strength between and within the groups. In samples A and C, assessment of treatment shows, with one exception, no significant correlations with the other criteria. In sample C, the correlation between unmet needs and self-rated symptoms, and in sample D, the correlation between needs total and assessment of treatment, fails to reach statistical significance. All other coefficients were statistically significant. Partial correlations, in which the influence of BPRS total score and that of BPRS anxiety/depression subscore were extracted, were slightly lower but still statistically significant in most cases. Six of 31 significant correlations (see Table 2) failed to reach significance when they were controlled for the influence of observer-rated psychopathology.

Corresponding Variables	Assessment of Treatment	Self-rated Symptoms	Subjective Quality of Life	Needs Total
Group A: newly admitted schizophrenia patients (<i>N</i> = 90)				
Self-rated symptoms	NS			
Subjective quality of life	NS	-.42***		
Needs/total	NS	.37***	-.35** ^a	
Needs/unmet	-.37***	.28** ^b	-.31**	.71***
Group B: long-term-hospitalized schizophrenia patients (<i>N</i> = 170)				
Self-rated symptoms	-.36***			
Subjective quality of life	.39***	-.56***		
Needs/total	-.22** ^b	.49***	-.43***	
Needs/unmet	-.35***	.43***	-.39***	.55***
Group C: short-term-admitted patients with alcoholism (<i>N</i> = 154)				
Self-rated symptoms	NS			
Subjective quality of life	NS	-.30** ^b		
Needs/total	NS	.31**	.34***	
Needs/unmet	NS	NS	-.21**	.60***
Group D: inpatient rehabilitation patients with alcoholism (<i>N</i> = 68)				
Self-rated symptoms	-.32**			
Subjective quality of life	.46***	-.63***		
Needs/total	NS	.53***	-.55***	
Needs/unmet	-.28** ^b	.30** ^b	-.41**	.52***

^aSpearman correlation coefficients (two-tailed): NS, not significant; **p* < .05; ***p* < .01; ****p* < .001.

^bValues remain no longer significant if controlled for BPRS total score and BPRS anxiety/depression subscore.

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TABLE 2 Intercorrelations Between Subjective Evaluation Criteria

Table 3A shows the results of the factor analysis (principal-components analysis with listwise deletion) in the four samples. Except in sample C, a single factor solution was found with an amount of explained variance around 50%. For the alcoholism patients admitted for the short term, another factor with an additionally explained variance of 23% (first factor, 43%) was found. This second factor in sample C was dominated by a positive loading of assessment of treatment (70% of the eigenvalue of that factor).

	A Newly Admitted Schizophrenia Patients (N = 90)	B Long-Term-Hospitalized Schizophrenia Patients (N = 170)	C Short-Term- Admitted Patients with Alcoholism (N = 154)		D Inpatient Rehabilitation Patients with Alcoholism (N = 68)
Factor	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>
Self-rated symptoms	.67	.81	.55		.79
Subjective quality of life	-.64	-.73	-.67		-.87
Needs/total	.80	.76	.88		.79
Needs/unmet	.84	.77	.77		.62
Assessment of treatment	-.43	-.63		.89	-.50
Eigenvalue	2.4	2.8	2.1	1.1	2.6
Percentage of variance	47.8%	55.0%	42.5%	22.8%	52.5%
<i>3B Correlations between Factor Scores and BPRS Scores</i>					
Anxiety/depression	.45***	.68***	.33**		.61***
Anergia	.30**	NS	.23*		.25*
Thought disturbance	.38***	.23**	NS		NS
Activation	NS	.18*	NS		NS
Hostile-suspiciousness	.24*	.26**	NS		.33**
Total score	.51***	.38***	.33**		.51***

*Only factor loadings > .50 are shown. Spearman correlation (two-tailed): NS, not significant; * $p < .05$; ** $p < .01$; *** $p < .001$

TABLE 3A Factor Analyses of Subjective Evaluation Criteria

The factor loadings of the first or global factor differed slightly in their rank order, but all were equal in their direction: positive loadings of self-rated symptoms, needs total, and unmet needs, and negative loadings of subjective quality of life and assessment of treatment. Thus, this first factor represents both dissatisfaction with life and a negative assessment of treatment (except in sample C) as well as a higher number of self-rated symptoms, of needs for care in general, and of unmet needs for care.

In a next step, factor scores were computed for each sample and tested for their correlation with objective variables and with observer-rated psychopathology. No significant correlation (point biserial) was found between the factor scores and gender in any group. Scores were negatively correlated with age (*i.e.*, older people had a more positive subjective quality of life and assessment of treatment and fewer symptoms and needs) in sample A ($r = -.25, p < 0.05$), sample B ($r = -.24, p < 0.01$), and sample C ($r = -.28, p < 0.01$). Negative correlations with factor scores were also found for monthly net income in samples A ($r = -.39, p < 0.001$) and C ($r = -.27, p > 0.001$). Only in sample B was the number of previous hospitalizations significantly associated with factor scores ($r = .28, p > 0.001$), which indicates that patients with more hospitalizations rated subjective quality of life and treatment more positively and expressed fewer symptoms and needs.

Correlations between scores of the first factor and BPRS total scores were all statistically significant. Most of the correlations with BPRS subscales were also significant. The highest coefficients were found for the correlations with the BPRS anxiety/depression subscale. The results are summarized in Table 3B.

Discussion

Single correlations between the four examined subjective evaluation criteria varied in the four samples that were studied. Most of them were, however, significant and in the same plausible direction: more self-rated symptoms, a lower satisfaction with life, a higher number of self-rated needs for care in general and of unmet needs, and a more negative assessment of treatment were all associated with each other. When observer-rated psychopathology was controlled, correlations were just partly affected and most coefficients remained significant. The lowest correlations were found between patients' assessment of treatment and the other criteria in the newly admitted groups. It may be assumed that current inpatient treatment was new to these groups and was not part of their usual life experience, as it was in the other groups. Their assessment of treatment, therefore, may be influenced more by single events or situational factors than in the long-term-hospitalized groups.

The results of the intercorrelations are underscored by the factor analysis. In three samples, there was a single factor solution accounting for 48% to 55% of the variance. The first factor in patients with alcoholism admitted for the first time also accounted for 43% of the variance, and a second factor accounted for an additional 23%. In this group, unlike in the other samples, the assessment of treatment criterion seems to be somewhat independent from the other three subjective evaluation criteria. This may be because treatment for these patients means acute withdrawal with many negative side effects and not as much conventional treatment in terms of support as it does in the other samples. This treatment was assessed rather positively by the patients, but the assessment seems to be relatively independent of the way they view other aspects of life. The results resemble findings from a diagnostically heterogeneous sample of community care patients in Berlin. In 138 patients, 39% of the variance of subjective quality of life, self-rated needs, and patients' assessment of treatment, which were assessed with instruments similar to those used in this study, was explained by one global factor (Priebe et al., 1995). Because a similar factor solution was found in all samples, the result seems fairly reliable.

The four subjective evaluation criteria that we investigated in this study show a considerable overlap, and there is a single general factor that underlies all of the assessments. The fact that the assessments overlap and share this general factor might explain the low association between the subjective evaluation criteria and their objective counterparts. Some of these counterparts, such as observer-rated psychopathology, objective living situation, and clinical audit of current treatment, may be assumed to be more specific and more independent of each other than the subjective criteria have been found to be in this study. Correlations between more specific objective data and a rather general subjective appraisal, therefore, cannot be high overall.

The association between factor scores and anxiety/depression suggests that the general factor was influenced by affect. Anxiety/depression had a shared variance of between 28% and 40% with the general factor in the four groups. However, between 60% and 72% of the variance of the general factor in each group was not shared with anxiety/depression, as assessed in this study, and the partial correlation analysis showed that observer-rated psychopathology and particularly anxiety/depression were not responsible for the majority of the associations among the four tested criteria. Although psychopathology is likely to have a substantial influence on subjective evaluation and subsequently on the general factor, the fact that the four criteria were

significantly correlated cannot solely be attributed to a similar influence of psychopathology on each criterion. Therefore, the general factor of subjective evaluation should not be regarded as a mere epiphenomenon of psychopathology.

In interpreting the data, it should be taken into account that only inpatients were examined. It remains unclear to what extent the findings can be generalized to other settings, particularly to ambulatory ones, and to groups with diagnoses other than schizophrenia and alcoholism.

If one is interested in using only subjective scales to demonstrate patient improvement or deterioration in a different service, then it should be sufficient to assess this factor with one preferably newly constructed scale rather than to go on applying several different instruments. Having only one score makes statistical analysis much more straightforward. If more than one subjective evaluation criterion is tested, there should be a specific hypothesis to justify the application of several criteria. Otherwise, a Bonferroni adjustment of the results would have to be made not just within each criterion but also across different subjective criteria. This would make the detection of statistically significant results very difficult. The construction of such a new scale, however, should not be based only on cross-sectional analyses, as was done in this study. Longitudinal studies investigating the criteria in the same samples repeatedly over time are needed to examine how change in different criteria is correlated, and how sensitive to change each criterion is.

While the general factor explains approximately half of the variance, the other half remains to be explained. It might be accounted for by error variation and by the specific features of each construct. In any further development of the constructs, work should focus on increasing the amount of specific variance and our understanding of it. Otherwise, interpretation of apparently contradictory differences between groups may be difficult. For example, in Table 1 the patients in alcoholism rehabilitation had a worse subjective quality of life and more self-rated symptoms than long-term-hospitalized schizophrenia patients but a more positive assessment of treatment (all of these differences were significant even after the Bonferroni adjustment).

According to our data, a separate application is justified only for patients' assessment of treatment in some groups with a shorter experience of current treatment. However, if one is to make use of these subjective assessments for the planning and delivery for care and treatment, then one has to continue to use different instruments. They must be consistently different and have an understandable theoretical relationship so that one is not assessing the same thing with different instruments under different labels. The theoretical foundation for each construct should be reconsidered. A more precise theoretical model should be able to explain the relationship of subjective evaluation criteria and the nature of the general subjective factor that was found in this study. The general subjective factor appears to be present in different samples, although the structure of the relationships between the instruments can differ. The factor may not represent a purely subjective dimension. Factor scores are associated with objective data, such as age and income (in two groups, there was no significant correlation with income because income in long-term-hospitalized patients in Germany is very low and hardly varies). Overall, the subjective factor shows similar correlations with other variables as each subjective criterion does. Older patients and patients with a lower degree of psychopathology are likely to express more positive subjective statements.

The findings could be interpreted to suggest that a concurrent validity for the four instruments has been demonstrated. On the other hand, it appears that the four criteria do not reflect distinct constructs, and the relationship between the constructs is unclear. It may be concluded that the state of the art in subjective evaluation in psychiatric care is unsatisfactory and that better theoretical models are needed to explain the data. No matter what model is used, there should be a clear rationale for the use of more than one subjective evaluation criterion. If only one is used, there should be a rationale for which criterion is selected and which criteria are omitted.

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