

Quality of Life and Social Support as Outcome Characteristics of a Psychiatric Day Hospital

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Abstract

Background: In addition to improving symptoms, another aim of psychiatric therapy is to raise the patient's quality of life and social support. The present study investigates whether quality of life and social support are suitable characteristics for measuring the outcome of a psychiatric day hospital. *Methods:* In a naturalistic, prospective, longitudinal study, we investigated patients consecutively admitted to the psychiatric day hospital of the Hannover Medical School over a 3½-year period. *Results:* The extent of psychopathology (GAF) decreased with high effect size. The general psychological distress (GSI) decreased and the quality of life (PLC) improved - both with medium effect size. Concerning social support (F-SozU) improvement was only found in some subscales with low effect size. The areas of quality of life correlated significantly with the extent of psychopathology and the general psychological distress. *Conclusions:* Quality of life proved to be a more suitable characteristic for determining the outcome of patients in a psychiatric day hospital than perceived social support (*German J Psychiatry* 2007; 10: 58–68).

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Introduction

When it comes to assessing the quality of outcome, quality assurance concepts in psychiatry are generally limited to evaluating symptoms, complaints, social adaptation, compliance, undesired side effects, severe complications and incidents. Some quality assurance concepts also suggest assessing outcome based on explicit psychosocial characteristics, such as evaluating quality of life (Berger, 1995) and social support (Laireiter et al., 1994; Röhrle, 1994). In this manner we are better able to take the patient's perspective into account when evaluating the outcome of treatment. In addition to improving psychopathology, psychiatric therapy also aims to improve the quality of life and social support, which in turn can exert an influence on the further course of the psychiatric treatment. The

treatment in a day hospital provides a special opportunity to study these influencing factors since the patients spend two-thirds of the day and weekends and holidays in their familiar social surroundings, and as a consequence are not predominantly in an artificial environment, such as an inpatient psychiatric ward.

Quality of life

The term "quality of life" is by no means a standardized construct. Pukrop speaks in this context of a Babylonian plurality of constructs (Pukrop, 2003) and calls attention to various areas of contention such as the different research traditions in the social sciences and medicine, the indeterminate definition and heterogeneity of the operationalization of the construct, not to mention that the term has also been confounded with others such as the construct of depressive

mood. Nevertheless, the present research results speak for the heuristic fruitfulness of the concept in the realm of psychiatric research (Lauer, 1998).

Quality of life comprises both objective (standard of living) and subjective (satisfaction with life) characteristics. In the health sciences, the term "quality of life" refers to the health-related aspect of personal well-being or, when expanded to encompass the psychosocial aspects, a subjective perception of health (Böhmer and Ravens-Sieberer, 2005). Psychiatric research employs quality of life as a discriminating, predictive and evaluating indicator (Pukrop, 2003).

The quality of life of mentally ill patients is generally lower than that of the general population and the chronically physically ill (Lauer, 1997; Lauer, 1998). Based on the quality of life, we can distinguish between individual psychological disorders and symptom complexes (Bechdolf et al., 2003; Brieger et al., 2004; Franz et al., 2002; Jabs et al., 2004; Resnick et al., 2004; Roick et al., 2004; Rudolf, 2000). A strongly negative correlation exists between depression and quality of life (Brieger et al., 2004; Franz et al., 2002; Heindl et al., 2002; Hinz et al., 2005; Resnick et al., 2004; Rudolf, 2000). This is true not only for affective disorders but also of schizophrenic disorders (Bechdolf et al., 2003). Furthermore, improvements in the quality of life through psychiatric and psychotherapeutic interventions and through the influence of the treatment setting could be demonstrated (Kemmler et al., 1999; Lauer, 1997; Lauer, 1998; Leiß and Kallert, 2000; Lenz and Demal, 2000) – this also applies to therapy in day hospitals (Bramsfeld et al., 2001; Kallert et al., 2004; Piper et al., 1993; Sledge et al., 1996; Wormstall et al., 2001).

Social support

Social support is hardly a uniform or finished concept itself (Knoll and Schwarzer, 2005; Laireiter et al., 1994; Röhrle, 1994; Schwarzer et al., 2004). The term "social support" is used to signify a field of research that is concerned with both the subjective assessment and the objective quantification of social support. The general term "social support" encompasses social networks as well as social support in the narrow sense. Today, consensus has largely been reached that it is useful to distinguish between three aspects of social support, namely social integration, perceived support and the support received. Social integration is understood as being embedded in a social network, for which we can draw upon various indicators, such as marital status, number of relatives and friends, as well as frequency and form of contact to them. The social network is characterised by morphological features (size, density, accessibility, centrality, cluster, sectors) and relational features (strength of the bond, frequency of contact, latent vs. current relationships, duration, reciprocity, homogeneity, multiplex vs. uniplex relationships, egocentricity vs. altruism, accessibility) (Röhrle, 1994).

When we examine social support in the narrow sense, the qualitative and functional aspects of relationships are at the core. It entails the interaction between two or more individuals in which a problem situation exists that is causing one of the persons involved to suffer. The aim is to change the situation or at least render the situation easier to bear (Schwarzer, 2004). The perceived support has to do with one

person's belief about the potential availability of the support. Perceived social support can therefore be regarded as a cognitive characteristic of a person (Klauer, 2000).

In the case of received support, we are concerned with how often and how effectively helpful actions are performed, taking into account both the observed events and the subjective assessment (Schwarzer, 2004). As a general rule, the perceived and received social support correlate only minimally with one another (Klauer, 2005). For both the perceived and received support we can differentiate between emotional, informational and instrumental aid.

Since the 1970's, there has been an enormous increase in empirical research into the connections between social integration or social support and health or illness (Röhrle, 1994). These studies primarily considered two theoretical perspectives: the stress-coping perspective and the health-behaviour perspective (Knoll and Schwarzer, 2005). The research has demonstrated, among other things, that social integration and social support can have both a positive and negative effect on health. It also shows that the effects can be dependent on the relationship to the helper, that the type of stressor is of importance and that age-related and sex-related factors play a role (Coventry et al., 2004; Knoll and Schwarzer, 2005; Laireiter et al., 1994; Röhrle, 1994; Schwarzer, 2004). Social support was predominantly shown to exert a positive influence on the emotional well-being (Beck, 1976), the general well-being (Schwarzer and Leppin, 1994), the course of psychological illnesses (Holahan et al., 1995; Reis and Meyer-Probst, 1995; Sarason et al., 2001) and dealing with the illness (Hessel et al., 2000; Vossler et al., 2001). Unsolicited help, on the other hand, can, for instance, have a negative effect on a person's self-esteem (Knoll and Schwarzer, 2005). Perceived social support, in particular, is linked to health variables (Fydrich and Sommer, 2003). Characteristics of social networks have been discussed as factors in the aetiology of psychological disorders, however some findings suggest that social networks change as a consequence of psychological illnesses. In comparison with healthy individuals, the social networks of mentally ill persons (among persons with schizophrenia, depression, anxiety and dependency disorders, among others) are generally smaller and closer. They have a higher proportion of family caregivers and fellow patients in their networks. The social relationships are frequently experienced as less supportive, are more frequently asymmetrical and aversive. The diversity of role relationships is usually reduced (see Röhrle, 1994).

A series of empirical findings also exist on the interaction of social support and psychiatric/psychotherapeutic treatment. Thus, social backing and social support can have a negative effect on a patient's willingness to seek out psychotherapy or can be connected with a patient breaking off psychotherapy (Klauer, 2005).

Overall we can state that social support has a positive effect on the process and outcome of psychotherapy and psychiatric treatment, provided the treatment is taken up and sustained (Bankoff, 1996; Billings and Moos, 1985; Klauer, 2005).

In terms of the value of the social support existing at the outset of treatment in predicting the outcome of patients in a day hospital, there are various findings. While Plotkin and Wells found the initially existing social support to have a positive influence on the day hospital treatment of psychiat-

rically ill older persons (Plotkin and Wells, 1993), an evaluation of a general psychiatric day hospital by Potvin et al. showed the social support existing at the start of treatment to have no predictive value whatsoever (Potvin et al., 2000). Gutknecht demonstrated a link between the search for social support and the outcome of treatment at a general psychiatric day hospital (Gutknecht, 2004).

Previously only little data existed on the relationship between quality of life and social support among patients in a psychiatric day hospital and whether quality of life and social support – independent of or parallel to the symptoms – contributes to patients' improvement.

In the present study, we pursued the following questions in order to evaluate the possible use of quality of life and social support as characteristics for determining the outcome of treatment in a psychiatric day hospital:

- What is the level of quality of life and social support and what are the psychopathological characteristics at the start of day hospital treatment?
- What changes in quality of life, social support and psychopathological characteristics emerge over the course of treatment?
- Are the changes in quality of life and social support independent of changes in psychopathology?

Methods

In a naturalistic, prospective, longitudinal study, we investigated over a period of 3 ½ years (1 July 2000 to 31 December 2003) 311 consecutively admitted patients from the psychiatric day hospital of the Hannover Medical School. The research project had been previously approved by the ethics commission. Within the framework of ongoing quality management, a battery of test instruments was compiled that could be routinely administered during daily treatment at the day hospital. The tests take into account both the therapist's perspective on the outcome of treatment as well as that of the patients.

The psychiatric day hospital of the Hannover Medical School resembles in structure and therapy modules other general psychiatric day hospitals for adults in Germany. A team of multiple professionals collaborates. Treatment is administered primarily as group therapy (e.g. topic-centred group sessions, socio-therapeutic and occupational therapy groups, concentrative movement therapy, social competence training, psychoeducation, among others). Moreover, single, couple and family sessions also take place. Concerning psychotherapy cognitive-behavioural, systemical and psychodynamic elements are integrated. Psychopharmacological treatment depends on the diagnosis and is orientated with regard to guidelines. The single therapeutic elements are individually adapted. Apart from patients with primary dependency disorders or specific gerontopsychiatric disorders, we treat patients from the entire spectrum of psychological disorders.

Patients frequently did not fill out or only incompletely filled out the self-assessment questionnaire, particularly at the conclusion of treatment. As it is possible that the group of

patients who filled out the battery of questionnaires in their entirety differed from those who did not, we conducted a comparison of these patient groups (see Table 1). In the socio-demographic characteristics we merely found a significant difference between these patient groups in terms of marital status (Fisher's exact test $p < 0.05$). Twice the number of patients in the group of complete data sets were divorced (Chi-squared test $p < 0.05$) and widowed patients were only present in the group with incomplete data sets. The duration of stay of patient with a complete data set was, at 73 days, longer than patients with an incomplete data set who stayed an average of 56 days (Kaplan-Meier analysis $p < 0.05$). Those patients with incomplete data sets also ended treatment significantly more frequently (Fisher's exact test $p < 0.001$) by breaking it off or avoiding treatment. 18 % of patients with incomplete data sets, as opposed to 3% of patients with complete data sets, broke off the treatment. If we exclude from the Kaplan-Meier analysis the duration of stay of the patients who prematurely ended their treatment, then the duration of stay no longer differs significantly between these two patient groups.

The following data only applies in terms of the psychopathological and psychosocial characteristics for those patients who filled out the questionnaires completely. Therefore, conclusions drawn for this group cannot be generalized to the entire group.

In addition to diagnostics made according to the ICD-10 and basic documentation of socio-demographic characteristics, the following instruments were implemented, with patients filling them out at the start and conclusion of treatment:

The psychological level of functioning was measured using the Global Assessment of Functioning Scale (GAF) (Saß et al., 1998). At the start and conclusion of treatment, the therapist used the GAF score as a measure to estimate the severity of the disorder on a scale from 0-100, although in the present study the GAF score refers only to the psychological level of functioning.

Psychopathological distress was measured using the Symptom Checklist of Derogatis (SCL-90-R) (Derogatis, 1977; Franke, 1995): This self-assessment scale, filled out by patients at the start and finish of therapy, comprises 90 items that map the subjective impairment through physical and psychological complaints. The assessment is made based on five choices ranging from "not at all = 0" to "very strongly = 4". The instrument encompasses the scales Somatization, Compulsion, Insecurity with Social Contact, Depression, Anxiety, Aggression/Hostility, Phobic Anxiety, Paranoid Thoughts and Psychoticism. The global score GSI measures the general psychopathological distress.

The quality of life was operationalised by means of the Quality of Life with Chronic Disease questionnaire (PLC) (Siegrist et al., 1996). The PLC serves to assess the quality of life in the chronically ill, dependent on the course of an illness and/or its treatment. The core module encompasses 40 five-tiered Likert-scaled items that form six scales ("performance level", "ability to enjoy and relax", "positive mood", "negative mood", "ability to make contact", "feeling of belonging"). The aim of the application is to quantitatively measure changes over the course of time. The measurement is highly sensitive to change. In our investigation, patients only filled out the scales on "performance level", "ability to enjoy and

relax” and “ability to make contact” at the start and finish of therapy. We did without the remaining three scales of the PLC, since we assumed that they overlapped in content with the scales of the SCL-90-R and F-SozU.

Social support was assessed using the Questionnaire for Social Support (F-SozU) (Sommer and Fydrich, 1989). The F-SozU operationalizes social support as perceived support from the social surroundings. It assesses the subjective belief of receiving support from others in the event of need as well as the assessment of being able to fall back on resources from the social environment.

With 54 items, the questionnaire covers the scales Emotional Support, Practical Support, Social Integration, Distress from the Social Network, and the supplementary scales Reciprocity, Availability of a Confidant, and Satisfaction with Social Support.

The items are presented as a statement (e.g. “I have friends/relatives who are good listeners when I need to talk about what’s bothering me”). The test persons report their degree of agreement with the statement on a five-tiered Likert scale. At the start and conclusion of therapy, patients fill out the F-SozU.

Patients fill out and submit their questionnaires anonymously to guard against responses influenced by social desirability.

Statistical analyses

Statistical analysis was carried out using the software SPSS 13.0. We performed frequency calculations along with parametric and non-parametric test procedures. In the case of multiple tests, we performed a Bonferroni correction. With regard to effect size (Cohen’s d) [$ES (d) = M2 - M1 / ((SD2 - SD1) / 2)$], we classified scores between 0.2 and 0.5 as small, 0.5 to 0.8 as medium, and scores higher than 0.8 as large.

Independency of two values was tested for discrete or nominal values with Fisher’s exact test or Chi-squared test and for ordinal scaled values with Spearman’s rank correlation coefficient. Differences of paired samples (e.g. a trait’s comparison between beginning and end of a treatment) were tested with Wilcoxon signed-rank test with regard to significance. Differences of two independent samples were tested via the Mann-Whitney U test concerning significance. Because of the ordinal scale level these non-parametric tests were chosen.

The procedure “Kaplan-Meier” (Product Limit Estimator) is a method to estimate models in the presence of censored cases which announce the timespan until an event occurs. In this study the procedure was used to investigate the treatment span of different patient groups considering those patients which terminated prematurely (censored cases).

Results

Changes in psychopathological and psychosocial characteristics over the course of treatment

Table 2 shows the psychopathological and psychosocial characteristics of patients with complete data sets at the start of treatment and at the end. In order to compare the various diagnostic groups, we examined the three most frequent disorder categories separately, namely schizophrenic disorders (ICD-10: F2), affective disorders (ICD-10: F3) and neurotic, stress and somatoform disorders (ICD-10: F4) (see Tables 3 and 4).

With regard to psychopathology from the therapist’s perspective there was a significant increase in the GAF score with high effect size from the start of treatment to the end, corresponding to an improvement in symptoms. The changes in the GAF differed significantly between the diagnostic groups. Patients with an affective disorder achieved the greatest reduction in the magnitude of psychopathology. The least change occurred in patients with a schizophrenic disorder (see Table 3). The effect size in patients with a schizophrenic disorder fell within the medium range, in patients with an affective disorder or F4 diagnosis within the high range (see Table 4).

The general psychopathological distress (GSI) of the patients decreased significantly over the course of therapy in the presence of a medium effect size (see Table 2). Effect size on the scales Somatization, Anxiety, Aggression/Hostility, Phobic Anxiety, Paranoid Thinking, and Psychoticism was in the lower range; there was a medium effect size for Compulsion, Insecurity in Social Contact, and Depression. The three diagnostic groups under investigation differed significantly in terms of general psychopathological distress at the start of treatment, not however in terms of the change in distress. Patients with neurotic, stress, and somatoform disorders subjectively experienced the greatest psychopathological distress at the start of treatment. The least change occurred in patients with schizophrenic disorders. The effect size of the change fell within the medium range for all diagnostic groups (see Tables 3 and 4).

In the three areas of quality of life under investigation, i.e. performance level, ability to enjoy and relax, and ability to make contact, significant changes emerged with a medium effect size between the start and conclusion of therapy (see Table 2). The most pronounced improvement occurred in the subjectively experienced performance level, the least in the ability to make contact. At the start of treatment, the diagnostic groups showed a significant difference in terms of the ability to make contact, a significant difference regarding performance level, and a significant difference regarding the ability to enjoy and relax. The changes in the individual areas of quality of life differed significantly between the diagnostic groups only on the scale ability to make contact. The patients with a schizophrenic disorder only showed significant improvement in the area of performance level, with a medium effect size. Patients with an affective disorder im

Table 1: Socio-demographic and illness-related characteristics of the entire sample and from patients with complete and incomplete data sets.

[n=number; F0 = organic, including symptomatic, mental disorders; F1 = mental and behavioural disorders due to psychoactive substance use; F2 = schizophrenia, schizotypal and delusional disorders; F3 = mood (affective) disorders; F4 = neurotic, stress-related and somatoform disorders; F5 = behavioural syndromes associated with physiological disturbances and physical factors; F6 = disorders of adult personality and behavioural; * p < 0.05 (Fisher's exact test. 2-sided);

*** p < 0.001 (Fisher's exact test. 2-sided) ; † p < 0.05 (Kaplan-Meier analysis)]

Characteristic	Incomplete data set n = 178	Complete data set n = 133	Entire sample N = 311
Sex (%)			
Female	58	67	62
male	42	33	38
Age (mean)	38	39	38
Marital status (%)*			
Single	67	60	64
Married	23	23	23
Divorced	8	16	11
Widowed	3	0	2
Unknown	0	1	0.3
Education level (%)			
Less than Secondary Level I	11	8	9
At least Secondary Level I	25	32	28
At least Secondary Level II	32	35	33
At least university entrance level exam	32	26	29
Occupation/Training (%)			
Unskilled or skilled	38	37	37
Full apprenticeship	50	52	50
Vocational/Master craftsman school exam	2	4	3
Associate college or college degree	10	8	9
Employment situation at time of admission (%)			
Employed full-time	24	30	27
Employed part-time	9	5	7
Housework for the family	3	5	4
Pupil or vocational training	5	8	6
Military duty/civilian service	1	0	0.3
Protected employment, occupational therapy, rehabilitation	5	3	4
Not employed	54	50	52
Financial situation at time of admission (%)			
Own income	37	37	37
Through unemployment office	14	13	14
Federal pension	18	10	14
Retirement pension or pension payment	4	6	5
Partner or relatives	13	18	15
Welfare	15	17	15
Living situation (%)			
Living alone in own dwelling.	53	49	51
Own dwelling with partner or family members	43	50	46
Supported living	2	0	1
(Longterm) therapeutic hostel	1	1	1
No stable residence, homeless shelter	1	0	1
Diagnostic groups (%)			
F0	1	0	1
F1	3	1	2
F2	21	24	23
F3	38	41	39
F4	19	21	20
F5	1	2	1
F6	17	11	15
Duration of stay in days (mean)†	56	73	63
Type of discharge (%)***			
Regular discharge or transfer	82	97	88
Avoided/ Unplanned discharge	18	3	11
Discharge against therapist's advice	1	0	0.3

Table 2: Psychopathological and psychosocial characteristics of patients with complete data sets (n = 133) at the start (pre) of treatment and at the end (post)

[sd = standard deviation, ES (d) effect size; GAF = Global Assessment of Functioning Scale; SCL-90-R = Symptom Checklist of Derogatis; PLC = Quality of Life with Chronic Disease questionnaire; F-SozU = Questionnaire for Social Support; * $p < 0.05$ (Wilcoxon test, 2-sided; after Bonferroni correction); ** $p < 0.01$ (Wilcoxon test, 2-sided; after Bonferroni correction) ; *** $p < 0.001$ (Wilcoxon test, 2-sided; after Bonferroni correction)]

Characteristic	Pre, mean (sd)	Post, mean (sd)	ES (d)
GAF	52.8 (7.1)	60.83 (9.7)***	0.96
SCL-90-R			
Somatization	0.96 (0.76)	0.74 (0.65)***	0.32
Compulsion	1.58 (0.82)	1.18 (0.76)***	0.52
Insecurity with Social Contact	1.45 (0.80)	1.05 (0.76)***	0.51
Depression	1.78 (0.79)	1.22 (0.82)***	0.70
Anxiety	1.28 (0.80)	0.92 (0.75)***	0.47
Aggression/Hostility	0.88 (0.78)	0.72 (0.76)*	0.20
Phobic anxiety	1.12 (0.97)	0.78 (0.78)***	0.39
Paranoid thoughts	1.17 (0.88)	0.92 (0.77)***	0.31
Psychoticism	0.83 (0.61)	0.65 (0.60)**	0.30
GSI	1.27 (0.63)	0.94 (0.61)***	0.53
PLC			
Performance level	1.52 (0.61)	1.92 (0.75)***	0.59
Ability to enjoy and relax	1.86 (0.62)	2.20 (0.63)***	0.55
Ability to make contact	1.83 (0.69)	2.19 (0.70)***	0.51
F-SozU			
Emotional support	3.61 (0.93)	3.67 (0.90)	0.06
Practical support	3.28 (1.01)	3.48 (0.98)**	0.20
Social integration	2.93 (0.91)	3.23 (0.87)***	0.34
Social stress	2.63 (0.93)	2.40 (0.92)**	0.25
Reciprocity	3.11 (1.04)	3.25 (1.04)	0.13
Confidants	3.75 (1.28)	3.95 (1.10)	0.17
Satisfaction with social support	2.78 (1.03)	2.97 (1.00)	0.19
Perceived social support	3.30 (0.86)	3.47 (0.82)**	0.20

proved significantly in all three areas of quality of life. The effect size with regard to change in the performance level was in the mid range, changes in the ability to enjoy and relax and ability to make contact were in the high range. Patients with neurotic, stress, and somatoform disorders showed significant improvements in terms of ability to enjoy and relax and ability to make contact at a low effect size, while demonstrating significant improvements in performance level with a medium effect size. The patients with a schizophrenic disorder only improved their performance level significantly, with a medium effect size.

The perceived social support increased significantly in the patients, with a small effect size (Wilcoxon test, $p < 0.01$). In terms of emotional support, the presence of confidants, reciprocity and satisfaction with the social support, no effects emerged (see Table 2). Regarding the practical support and social stress, there were significant changes, both increases and decreases, with a small effect size. The greatest effect size (ES = 0.34) was achieved for social integration (Wilcoxon test, $p < 0.001$). Between the diagnostic groups, there were no significant differences in perceived social support (see Table 3). Only patients with an affective disorder changed significantly in their perception of social support, with a small effect size. Correlations between changes in psychosocial and psychopathological characteristics

To address the question of whether the psychosocial characteristics change independently of the psychopathological

ones, we carried out correlation analyses with the corresponding scales (see Table 5).

The areas of quality of life correlated significantly but rather low with the extent of psychopathology (GAF) and the general psychopathological distress (GSI). The strongest correlation occurred between the change in ability to enjoy and relax and the change in general psychopathological distress (Spearman $r = -0.58$).

Regarding the scales of social support, the correlation analysis with the extent of psychopathology only demonstrated a significant result for social integration (Spearman $r = 0.24$). Changes in the general psychopathological distress correlated significantly with the social integration and reciprocity of social support, and significantly with the perceived social support (see Table 5).

Discussion

This study is a naturalistic investigation, which has its limitations because of methodological reasons. As it is an open uncontrolled study psychopathological and psychosocial changes shown cannot be solely ascribed to the day hospital treatment, as the spontaneous course of illness and placebo effects can also induce such changes. For methodological reasons, we cannot make any statements about the effectiveness and efficiency of day hospital treatment based on our

Table 3: Comparison of psychopathological and psychosocial characteristics of patients from the ICD-10 diagnostic groups F2, F3 and F4

[n = number; sd = standard division, GAF = Global Assessment of Functioning Scale; GSI = Global Severity Index; PLC = Quality of Life with Chronic Disease questionnaire; F-SozU = Questionnaire for Social Support; F2 = schizophrenia, schizotypal and delusional disorders; F3 = mood (affective) disorders; F4 = neurotic, stress-related and somatoform disorders; * p < 0.05 (Kruskal-Wallis test); ** p < 0.01 (Kruskal-Wallis test); *** p < 0.001 (Kruskal-Wallis test); + p < 0.05 (Wilcoxon test); ++ p < 0.01 (Wilcoxon test); +++ p < 0.001 (Wilcoxon test)]

Characteristics	F2 (n = 32) mean (sd)	F3 (n = 54) mean (sd)	F4 (n = 28) mean (sd)
GAF (pre)	50.06 (10.36)	53.54 (5.48)	54.71 (5.82)
Change in GAF *	5.75 (11.28) ⁺⁺	10.52 (9.30) ⁺⁺⁺	6.46 (7.80) ⁺⁺⁺
GSI (pre) **	0.91 (0.51)	1.27 (0.65)	1.48 (0.62)
Change in GSI	-0.26 (0.37) ⁺⁺	-0.37 (0.52) ⁺⁺⁺	-0.43 (0.62) ⁺⁺
PLC			
Performance level (pre) **	1.82 (0.65)	1.46 (0.57)	1.37 (0.63)
Change in performance level	0.38 (0.61) ⁺⁺	0.42 (0.68) ⁺⁺⁺	0.44 (0.54) ⁺⁺
Ability to enjoy and relax (pre) ***	2.32 (0.58)	1.64 (0.57)	1.89 (0.64)
Change in ability to enjoy and relax	0.20 (0.58)	0.55 (0.71) ⁺⁺⁺	0.31 (0.68) ⁺
Ability to make contact (pre) *	2.00 (0.70)	1.64 (0.68)	2.02 (0.64)
Change in ability to make contact*	0.22 (0.72)	0.54 (0.70) ⁺⁺⁺	0.33 (0.65) ⁺
F-SozU			
Perceived social support	3.17 (0.85)	3.36 (0.82)	3.52 (0.78)
Change in the perceived social support	0.15 (0.43)	0.24 (0.54) ⁺⁺	0.12 (0.48)

findings. This would require a comparison with an outpatient or inpatient treatment program which takes into account psychosocial and psychopathological characteristics within the framework of a randomized controlled trial. With regard to the effect sizes of changes of psychopathological and –social characteristics shown in our study it has to be considered that these are generally higher in open studies than in placebo-controlled ones.

While the therapist’s rating in our investigation was completed for nearly all patients, we had high dropout rates in the patients’ self-assessment, which limits the interpretation of the results. The high dropout rate might be linked to the volume of the battery of questionnaires.

A less extensive battery of questionnaires would have been more advantageous for continuous quality assessment. The use of short forms of the related questionnaires, for instance that exist for the SCL-90-R (Franke, 2000) and the F-SozU (Fydrich et al., 1987), could also have had a positive effect on patient’s willingness to respond, with the disadvantage, however of the results having less explanatory power due to the poorer test data.

The practice in our investigation of filling out the questionnaires anonymously has the advantage of holding the influence of social desirability on the response behaviour to a minimum. At the same time, this leads to a reduction in the patient’s commitment and motivation to fill out the comprehensive questionnaires. Furthermore, by keeping the processes anonymous, this restricts the individual use of the patient’s self-assessment in therapy. As a consequence, it should be considered whether to do without anonymity in favour of a higher rate of filling out the questionnaires and better integration of the results in the diagnostic and therapeutic process.

A comparison of patients who filled out the questionnaires completely with those who did not showed that apart from a significantly higher rate of divorcees in the group with complete forms, no significant differences arose regarding the

socio-demographic characteristics. The duration of stay in the day hospital was shorter among patients with incomplete data sets. This might be attributable to the higher proportion of therapy dropouts in the group with incomplete data sets. The self-assessment at the end of treatment is often missing among patients who broke off treatment.

Our results are only valid for those who filled out the questionnaires completely due to the differences in the disorder-related characteristics, and therefore cannot be generalised for the entire group. The moderate return and the incompleteness of responses to the self-assessment compared to the nearly complete assessment by the therapists demonstrates the great importance of the outsider’s perspective in quality assessment if all patients are to be included. On the other hand, we cannot forego the patient’s perspective when studying the quality of life nor the perceived social support as characteristics of quality of outcome.

Both in terms of the psychopathological characteristics and the psychosocial ones, distinct improvement was made over the course of treatment. The changes in the psychosocial measurements were not independent of psychopathological ones. The highest correlation existed between the subjectively perceived general psychopathological distress and the quality of life. This speaks for a partial confounding of the corresponding constructs. Correlation between the extent of psychopathology (GAF) and quality of life (PLC) is smaller. The reason may be that quality of life was rated by patients and extent of psychopathology by therapists.

Considering the psychopathological distress (GSI), if we set a cut off value at 0.57, the range below this marking the normal range and the value for a clinically relevant change of > 0.42 (Agarwalla and Küchenhoff, 2004; Schauenburg and Strack, 1998) in difference from the start of therapy to the end, then of the patient sample with complete data sets, merely 14% fell within the normal range of general psychopathological distress at the start of treatment, while this

Table 4: Comparison of effect size of changes in psychopathological and psychosocial characteristics of patients from the ICD-10 diagnostic groups F2, F3 and F4

[n = number; GAF = Global Assessment of Functioning Scale; GSI = Global Severity Index; PLC = Quality of Life with Chronic Disease questionnaire; F-SozU = Questionnaire for Social Support; F2 = schizophrenia, schizotypal and delusional disorders; F3 = mood (affective) disorders; F4 = neurotic, stress-related and somatoform disorders; * $p < 0.05$ (Kruskal-Wallis-test)]

Characteristic (effect size)	F2 (n = 32)	F3 (n = 54)	F4 (n = 28)
Change in GAF*	0.51	1.47	0.97
Change in GSI	0.52	0.61	0.66
PLC			
Change in performance level	0.58	0.62	0.62
Change in ability to enjoy and relax	0.34	0.92	0.49
Change in ability to make contact *	0.31	0.84	0.5
F-SozU			
Change in the perceived social support	0.19	0.28	0.16

reached 38% at the conclusion of treatment. Clinically relevant improvement was achieved in 36% of the patients.

An increase in quality of life within the framework of day hospital treatment has been described repeatedly by different authors (Bramesfeld et al., 2001; Piper et al., 1993; Wormstall et al., 2001). Compared to data from a representative sample of the general population (Laubach et al., 2001) and to clinical samples of patients with organic disorders such as hypertension or cardiomyopathy (Siegrist et al., 1996), the mean values of our sample were distinctly lower on the scales performance level, ability to enjoy and relax, and ability to make contact at the outset of treatment. Over the course of treatment, patients experienced significant improvements in their quality of life – the level of the norm sample, however, was not reached on any of the scales.

In our sample, we determined a discriminating value in the individual areas of quality of life when distinguishing between the various diagnostic groups. The greatest impairments were found at the start of treatment in patients with affective disorders. This patient group also showed the clear-

est improvements in the various areas of quality of life over the course of treatment. The close connection between depression and quality of life has been described previously in numerous instances (Bechdolf et al., 2003; Brieger et al., 2004; Franz et al., 2002; Heindl et al., 2002; Hinz et al., 2005; Jabs et al., 2004; Pukrop, 2003; Resnick et al., 2004; Rudolf, 2000). Our results indicate a partial confounding between the concepts of depression and quality of life. Due to its sensitivity to change, quality of life is a suitable outcome parameter in clinical studies.

The mean values for perceived social support in the patients from our sample and all of the sub-scales fell well below those of a representative sample from the general population (Fydrich et al., 1999). The differences were especially pronounced for the scales “social integration”, “reciprocity”, and “practical support”.

The perceived social support increased significantly in the group of patients with complete data sets, with small effect size. Yet when analysing individual patient groups, the change in perceived social support only reached a level of

Table 5: Correlations between changes in psychosocial and psychopathological characteristics of patients with complete data sets (n = 133)

GAF = Global Assessment of Functioning Scale; GSI = Global Severity Index; PLC = Quality of Life with Chronic Disease questionnaire; F-SozU = Questionnaire for Social Support; * $p < 0.05$ (Spearman correlation. 2-sided, after Bonferroni correction);

** $p < 0.01$ (Spearman correlation. 2-sided, after Bonferroni correction); *** $p < 0.001$ (Spearman correlation. 2-sided, after Bonferroni correction)]

Characteristic (mean)	Change in GAF	Change in GSI
Change in PLC		
Performance level	0.31***	-0.48***
Ability to enjoy and relax	0.34***	-0.58***
Ability to make contact	0.33***	-0.33***
Change F-SozU		
Emotional support	0.15	-0.21
Practical support	-0.01	-0.14
Social integration	0.24*	-0.29**
Social distress	-0.09	0.12
Reciprocity	0.14	-0.321**
Confidants	0.09	-0.04
Satisfaction with the social support	0.15	-0.19
Perceived social support	0.15	-0.24*

significance among patients with an affective disorder. The low effect sizes might be linked to the fact that perceived social support has to do with a person's belief in the potential availability of support. Perceived social support can therefore be conceived of as a cognitive characteristic of an individual (Klauer, 2000) that is less sensitive to change than, for instance, the social support actually received (Fydrich and Sommer, 2003; Knoll and Schwarzer, 2005). Thus, perceived social support only has limited suitability as a characteristic of outcome.

Day hospital treatment, as opposed to inpatient care, offers the advantage of patients remaining fully integrated in their social sphere. The area of social support that we found to have the greatest effect in our study was social integration. This speaks for day hospital treatment strengthening patients' social integration. In contrast, a decrease in the perceived social support (F-SozU) was found in inpatient psychotherapy without interventions focused on loneliness (Förtsch et al., 2003).

Numerous studies have described the positive influence of social support on the course of psychotherapy and on the stability of therapy effects (Bankoff, 1996; Billings and Moos, 1985; Klauer, 2005). Studies on the predictive value of social support for day hospital treatment have arrived at different findings. While researchers describe a positive influence of social support or seeking social support on the course of treatment (Gutknecht, 2004; Plotkin and Wells, 1993), Potvin et al. (Potvin et al., 2000) found them to be without predictive value as in our study. Despite the meaning of perceived social support for mental health, its value is limited as a characteristic of the outcome of day hospital treatment.

In summary, we can say that it is useful and necessary to take into account psychosocial characteristics from the patient's perspective when assessing the outcome of day hospital treatment. In this regard, quality of life is a more reliable characteristic than perceived social support. In terms of outcome, it might be useful to evaluate the received social support instead of the perceived support as the former has a higher sensitivity to change. In order to achieve complete assessment of all patients, the battery of questionnaires implemented should not be too large.

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