

Social Network and Social Support Deficits in Depressed Patients: A Result of Distorted Perception?

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Summary. Many studies have indicated that depressed individuals show deficits in social network/social support. However, little attention has been paid to the extent to which the illness itself causes these deficits that, owing to the distortion of perception of depressed patients, might be experienced subjectively, but do not necessarily exist objectively. To examine this question, a prospective study was conducted with hospitalized depressed patients. In accordance with the assumption that the duration of illness has a special impact on social resources, the sample was divided into two groups: individuals with single episodes of depression ($n=25$) and with recurrent depression ($n=25$). At the beginning of hospitalization both groups showed massive deficits in social network/social support. Depressed individuals with single episodes showed fewer deficits, the more the depression improved. In contrast, such a covariation of severity of depression and the amount of experienced deficits was not found among the individuals with recurrent depression.

Key words: Social network – Social support – Depression

Introduction

During the last few decades the notions of social support/social network have become increasingly important for the theories of aetiology and the course of several psychological disorders. A social network represents the social environment of an individual, described by structural characteristics such as persons from different domains (relatives, friends, work colleagues, etc.), and qualitative characteristics such as the quality of the contacts (intimate, emotionally close, loose, etc.), the frequency and the supportiveness of the contacts.

Especially in depression, the lack of supportive social ties seems to play an important role, and much effort has been made to study the interrelations between social network/social support and depression. In many studies

a strong relationship between these constructs and depression was found (e.g. Aneshensel and Huba 1984; Barnett and Gotlib 1988; Billings et al. 1983; Blöschl and Rossmann 1982; Brugha et al. 1982; Dean et al. 1981; Lewinsohn et al. 1988; Norris and Murrell 1984; Surtees 1980). Depressed individuals gain less social support and tend to have smaller social networks – especially, important and emotionally close relationships – as well as loose social ties. In addition to the reduction in the size of the social network and the amount of social support, a reduction in the frequency of the contacts between depressed individuals and the members of their social networks has been found (Billings et al. 1983; Blöschl 1976; Brugha et al. 1982).

Studies have emphasized the importance of a close and intimate relationship for depressed individuals. The lack of such relationships is regarded as an important risk factor for the occurrence of depression, and also has an influence on recovery. While intimate relationships characterized by unrestricted confidence are essential. Billings et al. (1983), Brugha et al. (1982), Hendersen et al. (1980) and Surtees (1980) have pointed out the implications of solely emotionally important persons.

All studies dealing with depression have shown that depressed individuals have smaller social networks, have reduced social contacts and receive less social support. An essential issue, however, appears to be the complex interrelation between depression and social resources.

It is widely assumed that there is a simple relationship between the variables of social support, social network and depression, with social support and social network being regarded as the independent variable and depression seen as the dependent one. However, this simplistic view can not be supported, since dependent and independent variables can hardly be isolated in such a complex system of interrelating variables. It is suggested that before the onset of depression, special personality traits, such as the lack of sociability or other desirable human characteristics (Brugha 1984) as well as special needs essential to the mobilization of social support may lead to a reduction of social resources. As a result of a

persisting depression the interaction between depressed individuals and their environment may additionally lead to a reduction of social network/social support, because of these individuals being unattractive for their surroundings (Coyne 1976; Kessler et al. 1985; Strack and Coyne 1983) or because of their social withdrawal (G.L. Klerman, unpublished work, 1978).

In this context, however, the distortion of perception in depressed individuals plays a crucial role. Several papers have described states of depression as causing problems in perceiving, accepting, remembering and anticipating reinforcement (Buchwald 1977; Lewinsohn et al. 1980; Lobitz and Post 1979). Mood in general seems to have an important impact on judgements (Schwartz 1988) and on the recall of memory contents for mood congruent topics (Blaney 1986; Lewinsohn and Hoberman 1982). In this context, Bargh and Tota (1988) found that depressed individuals choose more negative adjectives from a list to describe themselves, and more positive adjectives to describe another person, thus causing them to see themselves as distinctively different from others, and thus deepening the depressed persons' feelings of isolation and inferiority.

These cognitive aspects of depression, summarized by Beck et al. (1979) in his cognitive triad – a negative view of self, environment and future – have turned out to be concomitants or symptoms of depression. So far little evidence has been found that cognitive vulnerability is consistently found in depressed individuals (Barnet and Gotlib 1988; Silverman et al. 1984; Simons et al. 1984). These cognitive distortions disappear once the depression has diminished.

With regard to social network and social support, it is reasonable to assume that the cognitive style affects how social support offered by network members is being perceived, processed and experienced. As a hypothesis, people having a negative view of themselves and their experiences are thus likely to misperceive or underrate the social support provided to them – as explained by the balance theory of Heider (1946, 1958). This assumption has found much support (Henderson 1981, 1983; Bower 1981; Brown and Harris 1978; Vinokur et al. 1987). In most studies, a close relationship between social resources and depression was found (e.g. Billings and Moos 1984a, b; Bromet et al. 1984; Flaherty et al. 1983; Lewinsohn et al. 1988; Surtees 1980). It is not only possible to view social network as a dependent variable. The systematic distortion of perception – likely to become worse with increasing severity of depression – may cause increasing deficits in social network and social support. Numerous findings support this interrelation (e.g. Bower 1981; Brown and Harris 1978; Henderson 1981, 1983), but this relationship has never been directly tested. In this context prospective studies which continuously measure depression and social network/social support are of special interest. The existing prospective studies have generally shown a strong covariation between these two variables (e.g. Aneshensel and Frerichs 1982; Billings and Moos 1985b; Dean and Ensel 1982; Murrell and Norris 1984; Vinokur et al. 1987). Social network and social support increased and decreased simultane-

ously with the improvement and deterioration of depression.

Several studies deserve special attention. According to Billings and Moos (1985b), the extent of social resources at the beginning of treatment had no effect on treatment success, when the severity of depression was taken into account. The severity of depression was rather interrelated with the self-reports of stress and social resources. Lewinsohn et al. (1988) also described the quantity and quality of social relationships as state dependent and not causally linked to the development of depression. Studies on recovered depressed patients suggest that there is no difference between the former and the controls in social network and social support (Billings and Moos 1985b; Goering et al. 1983; Zeiss and Lewinsohn 1988). Blazer (1983) has demonstrated that 30 months after the end of treatment depressed patients showed stronger improvement in social support than controls.

Besides considering the severity of depression as an essential factor, the duration of depression must be taken into account when examining the relationship between depression and social network. Research results indicate that the duration of depression has a negative effect on social network and social support, as was mentioned earlier in the discussion of the interaction between depressed individuals and their environment. So far only Billings and Moos (1984b, 1985b) have paid attention to forms of recurrent depression in their prospective study. Initially, the authors (1984b) found that chronic and non-chronic patients did not differ in their social resources. At the 12-month follow-up (1985b), however, they found a strong covariation regarding the improvement of depression and the increase in social resources among non-chronic patients. This covariation did not appear within the chronic group. The definition of chronic depression as chosen by Billings and Moos – chronic patients were those treated during the year before the study – is a very unusual one, and, as the authors also admit, it is not the best with which to clarify the role of recurrences of depression. In order to test the influence of the illness duration former episodes of depression must be taken into account, as well as the duration of the present episode, with regard to recurrent and chronic depression. Chronic depression is generally defined as a persistence of symptoms for a period of 2 or more years (e.g. Cassano et al. 1983). Both recurrent and chronic depression are likely to influence the structure of the social network.

The aim of the present study was to investigate if and to what extent deficits in social network and social support of depressed individuals are objective or may be attributed to a state-dependent distortion of perception. The second essential question was, whether differences in the duration and chronicity of depression had special impact on this distortion.

It was crucial for the experimental design of this study to set a condition limiting any objective changes within the social network, so that any changes occurring within the social network/social support system could be traced to changes in the perception of the individual. An experimental condition satisfying these requirements was

set up by testing the depressed individual at regular intervals during his or her hospitalization – a period of limited social network contacts.

Subjects and Methods

Our sample was drawn from all 20- to 65-year-old admissions to the University Hospital of Psychiatry in Tübingen (FRG) during a period of 1 year (December 1986–December 1987). All patients suffering from a syndrome of depression at their admission were admitted to the study. Our data refer to those diagnosed at discharge as suffering from neurotic (ICD 9: 300.4) or endogenous depression (ICD 9: 296.1).

Out of a total of 70 patients, 6 refused to participate; 13 patients had to be excluded because of changed diagnoses, comorbidity, early ending of the treatment or early discharge. One patient committed suicide. Of the remaining 50 patients, 21 were diagnosed at discharge as suffering from neurotic and 29 from endogenous depression. The reliability of the diagnosis was not checked. Throughout the hospital stay under open and closed conditions, the subjects received the usual combination of pharmacological and psychotherapy.

The subjects were categorized into subgroups of patients with single episodes (EPI; $n = 25$) and patients with recurrent depression (REC, $n = 25$). The EPI group consisted of patients experiencing their first episode of depression, with a duration of no more than 2 years. The median of the duration was 30.5 weeks (range: 1 week–1.5 years). Five patients had already been hospitalized for psychiatric or psychosomatic treatment during their present illness. Both chronic depressed (persistence of symptoms for 2 or more years) and recurrent depressed (one or more recurrences) were assigned to the REC group. The median of duration of illness from the first episode of depression was 4.5 years (range: 2.5–20 years); the median of duration of the present episode was 18.5 weeks (range: 3 weeks–3 years); the median of the number of recurrent episodes was 2.5 (range: 0–17); and the median of the number of hospitalizations was 1 (range: 0–15). The distribution of both diagnostic categories does not differ in the two examination groups.

Design

Both groups were examined three times during the hospitalization. In each of the three examinations they were asked to describe their social contacts before hospitalization. The first examination (t_1) took place in the first days of hospitalization or as soon as the patients were able to be interviewed (until 2 weeks after hospitalization), the second examination (t_2) at about the mid-point of hospitalization (after 3–12 weeks). The time estimation of t_2 was made by the responsible psychiatrist and proved correct in most cases. The third examination (t_3) took place during the last days before discharge. The median of the duration of hospitalization in the primary group was 9 weeks (range: 6–21 weeks), in the relapsing group 7.5 weeks (range: 6–20 weeks).

Measures

At (t_1) the development of illness (number and duration of episodes, treatments, number and duration of hospitalizations) and certain sociodemographic variables (age, sex, occupation, size of residential town, personal status) were assessed. The Questionnaire of Social Network and Social Support (SONET) (Baumann et al. 1987; Laireiter and Baumann 1989; Reisenzein et al. 1989) was used for the assessment of social network and social support (reliability: $\bar{X} = 0.85$; range = 0.63–0.98). At each assessment the subjects were asked to describe their social resources as they had been before their hospitalization. The questionnaire assessed detailed information pertaining to different domains of social network and different dimensions of social support which they receive from each of their network members. The computing of the question-

naire yields an extensive list of results. However, a structural analysis shows that it is not convenient to extract fewer variables to reduce information.

The questionnaire comprised the following domains: – total: total number of members of social network; – relatives: relatives of frequent or rare contact; – neighbourhood: neighbours of frequent or rare contact; – job: colleagues of frequent or rare contact and general job contacts; – friends; – confidants; – close relationships; – club members; – leisure time: frequent and rare contacts; – professionals: contacts to helping professionals; – loose contacts; – average contacts: average number of contact persons in 1 weeks; – straining relationships: persons who you frequently have conflicts, persons who you mostly have conflicts, persons who you are in fear of or restrict your freedom, persons to worry about; dimensions of support (perceived potential support): support by means of talk: persons one can discuss problems with; support by means of appreciation: persons granting appreciation; support by means of information: persons providing information; support by means of feed-back: persons providing feed-back about personality and behaviour; support by means of money: persons providing financial support; support by means of work: persons who supply help by working

The Beck Depression Inventory (BDI) and the Hamilton Depression Scale (HAMD) were used for assessment of depression. The HAMD was filled in by the responsible psychiatrists, who were all trained.

Table 1. Sociodemographic variables

	EPI \bar{X} (range)	REC \bar{X} (range)	EPI/REC P
Age (years)	42.8 (22–60)	48.1 (26–64)	0.07
Size of town*	30600	58200	0.70
	Frequencies		P
Sex:			1.00
male	10	10	
female	15	15	
Personal status:			0.73
single	5	5	
married	15	17	
separated, divorced, widowed	5	3	
Education:			0.70
elementary school	6	11	
“Mittlere Reife” ^a	10	7	
technical college	4	2	
secondary school	5	5	
Professional education:			0.96
no education	5	7	
blue collar	2	3	
white collar, official	9	7	
skilled work	9	8	
Present job:			0.80
independent work	4	2	
white collar, official	6	5	
skilled work	5	4	
others	2	4	
out of work	8	10	

EPI, Single episodes of depression; REC, recurrent depression

* Tested by Mann-Whitney U test

^a Corresponds in the United States to a junior high school diploma, and in the United Kingdom to GCE Ordinary Level

Results

The sociodemographic variables were tested by chi-square and Mann-Whitney *U*-test. The results, presented in Table 1, show no significance.

While hospitalized, both groups significantly improved with regard to their depression (Table 2); therefore this sample allows the examination of the research questions. The recovery from depression developed in a very similar way in both groups from t_1 to t_2 . At t_3 there a weak but significant difference was found in depression between the two groups, indicating that the REC group did not seem to return completely to the same level of health as the patients in the EPI group.

The results of the testing at three separate time intervals (t_1 – t_2 – t_3) had been tested for differences in the course of the groups' single episodes (EPI) and recurrences (REC) by Friedman analysis of variance. The results, presented in Table 2, show a significant change

in the EPI group regarding the perception of social resources during the process of illness. If depression improves, as determined by decreasing levels of BDI and HAMD, the subjects report significantly more persons with whom they have contact in nearly all domains of social network. Seventeen domains of the 23 showed up as significant. An increase in persons in the EPI group can be seen in the increased averages (from t_1 to t_3) in all significant domains. Domains lacking such an increase are: straining relationships, general job contacts, confidants and close relations, club members, professionals and loose contacts. This group also indicated more potential social support from their network members with ongoing recovery.

Among the REC group, the results were quite different. The improvement in depression proved to have little effect on the perception of social network. Although a striking improvement of depression was taking place, there was no domain where a significant increase was ob-

Table 2. Results of the Questionnaire of Social Network and Social Support (SONET)

	EPI \bar{X}			REC \bar{X}			VA <i>P</i>		EPI/REC <i>P</i>		
	t_1	t_2	t_3	t_1	t_2	t_3	EPI	REC	t_1	t_2	t_3
Total	18.96	22.76	28.48	22.64	23.08	23.92	0.00***	0.28	0.41	0.28	0.03*
Relatives frequent	5.44	6.84	8.52	5.32	6.12	5.88	0.00***	0.31	0.43	0.27	0.03*
Relatives rare	7.72	8.72	13.64	6.40	6.16	6.64	0.00***	0.50	0.14	0.03*	0.00**
Neighbours frequent	1.56	2.20	2.92	2.12	2.48	2.48	0.03*	0.75	0.45	0.47	0.27
Neighbours rare	3.84	4.92	8.88	2.84	3.32	3.60	0.00***	0.08	0.08	0.01*	0.00**
Job frequent	4.17	5.44	6.39	5.47	5.53	5.93	0.00**	0.85	0.13	0.39	0.43
Job rare	7.44	6.89	12.00	8.53	9.00	8.73	0.03*	0.62	0.32	0.33	0.16
General job contacts	15.22	15.72	19.33	19.20	23.07	22.47	0.32	0.85	0.33	0.34	0.50
Friends	5.00	5.80	8.12	6.68	7.04	7.24	0.00***	0.77	0.32	0.34	0.10
Confidants	2.64	3.08	3.32	2.40	2.80	2.88	0.15	0.93	0.43	0.12	0.05*
Close relations	5.08	5.72	6.36	4.68	5.32	5.28	0.17	0.75	0.32	0.28	0.04*
Club members	1.31	1.46	1.54	1.50	1.50	1.50	0.07	0.88	0.12	0.12	0.02*
Leisure time frequent	0.76	1.64	2.96	1.24	0.88	1.32	0.01**	0.76	0.34	0.15	0.03*
Leisure time rare	0.92	1.52	4.28	3.32	3.92	3.32	0.03*	1.00	0.46	0.31	0.01*
Professionals	0.84	0.88	0.72	1.08	1.12	1.12	0.79	0.98	0.08	0.06	0.03*
Loose contacts	3.60	3.76	4.44	3.28	3.00	3.04	0.06	0.67	0.30	0.07	0.00**
Average contacts	5.40	5.80	6.28	5.40	5.36	5.44	0.00***	0.94	0.45	0.15	0.02*
Frequent conflicts ⁺	2.36	2.04	1.60	1.68	1.84	2.00	0.68	0.84	0.15	0.33	0.49
Mainly conflicts ⁺	0.44	0.56	0.48	0.16	0.24	0.16	0.73	0.97	0.31	0.12	0.08
Fear ⁺	0.60	0.56	0.48	0.64	0.60	0.72	0.94	0.97	0.48	0.32	0.32
Worry ⁺	0.92	0.60	0.52	0.72	0.64	0.56	0.39	0.97	0.30	0.46	0.36
Support talk	6.60	8.52	10.84	8.12	7.96	8.36	0.00***	0.35	0.30	0.30	0.01*
Support appreciation	8.96	10.48	13.68	8.56	8.64	9.44	0.00***	0.40	0.09	0.13	0.00**
Support information	7.24	10.56	15.36	8.80	7.96	9.24	0.00***	0.57	0.32	0.08	0.00**
Support feed-back	7.96	8.00	9.12	5.28	5.32	5.52	0.00**	0.34	0.28	0.09	0.01*
Support money	6.96	8.96	9.80	6.36	5.60	5.92	0.00**	0.59	0.33	0.14	0.03*
Support work	10.20	11.80	13.44	7.72	7.60	7.88	0.01**	0.99	0.09	0.03*	0.00***
Σ Significant domains except (+)							17	0	0	3	18
BDI	28.64	19.24	7.72	30.96	21.04	9.36	0.00***	0.00***	0.27	0.26	0.04*
HAMD	19.56	11.56	4.68	18.92	12.84	5.16	0.00***	0.00***	0.37	0.45	0.08

EPI, Single episodes of depression; REC, recurrent depression; VA, Friedman analysis of variance for t_1 – t_2 – t_3 ; * $p < 0.05$; ** $p < 0.01$;

*** $p < 0.001$

Table 3. Coefficients for the covariation of the differences between BDI and HAMD and SONET

	BDI				HAMD			
	EPI		REC		EPI		REC	
	t_1t_2	t_2t_3	t_1t_2	t_2t_3	t_1t_2	t_2t_3	t_1t_2	t_2t_3
Total	-0.33	-0.59***	0.12	-0.42*	-0.22	-0.58**	-0.15	-0.19
Relatives frequent	-0.12	-0.40*	0.29	-0.28	-0.11	-0.40*	0.11	0.20
Relatives rare	-0.29	-0.41*	-0.44*	0.04	-0.45*	-0.52*	0.03	0.01
Neighbours frequent	-0.40*	-0.31	0.13	-0.25	-0.48*	-0.36*	0.02	-0.26
Neighbours rare	-0.21	-0.41*	-0.53*	-0.22	-0.51*	-0.42*	-0.03	0.58**
Job frequent	-0.35	-0.42*	0.15	0.08	0.03	-0.25	-0.07	-0.35
Job rare	0.08	-0.43*	0.09	-0.44*	-0.15	-0.23	0.48*	-0.19
General job contacts	0.17	-0.19	-0.09	-0.35	-0.37*	-0.19	-0.06	0.09
Friends	-0.16	-0.18	-0.11	-0.24	-0.06	-0.29	-0.07	-0.22
Confidants	-0.11	-0.37*	-0.34	-0.26	0.02	-0.31	-0.22	0.09
Close contacts	0.29	-0.16	-0.33	-0.18	-0.04	-0.24	0.02	0.03
Club members	-0.10	-0.47*	-0.08	-0.89***	0.09	-0.11	0.06	-0.81***
Leisure time frequent	0.07	-0.42*	-0.16	0.51*	0.02	-0.24	0.21	0.17
Leisure time rare	-0.16	-0.08	0.00	0.00	-0.03	-0.21	0.00	0.00
Professionals	-0.36*	-0.29	-0.07	0.00	0.26	-0.08	-0.05	0.00
Loose contacts	-0.24	-0.36*	-0.04	-0.25	-0.41*	-0.13	-0.07	-0.29
Average contacts	-0.34	-0.44*	0.45*	0.08	-0.22	-0.52*	0.09	0.08
Frequent conflict ⁺	-0.22	0.15	-0.09	0.33	-0.30	0.19	-0.14	0.33
Mainly conflict ⁺	0.16	-0.08	0.36**	0.23	0.12	0.11	-0.30	0.23
Fear ⁺	0.04	0.06	0.18	0.58**	0.25	-0.28	-0.24	0.58*
Worry ⁺	-0.18	-0.27	0.35	-0.25	-0.01	-0.03	-0.25	-0.25
Support talk	-0.38*	-0.41*	0.24	0.27	-0.34	-0.46*	-0.16	0.00
Support appreciation	-0.19	-0.35	0.02	-0.29	-0.04	-0.63**	-0.08	-0.16
Support information	-0.16	-0.35	-0.02	0.21	-0.32	-0.36*	-0.08	0.11
Support feed-back	-0.10	-0.57*	0.04	0.11	-0.10	-0.55*	-0.26	-0.12
Support money	-0.13	-0.33	0.01	0.41*	-0.39*	-0.32	-0.19	-0.15
Support work	-0.38*	-0.56*	-0.11	-0.13	-0.56*	-0.47*	0.06	-0.29
Σ Significant domains except (+)	4	14	3	5	7	11	1	2

EPI, Single episodes of depression; REC, recurrent depression; BDI, Beck Depression Inventory; HAMD, Hamilton Depression Scale; * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

servable (0 significant domains of 23). The statements in the domains of social network remained fairly stable.

Comparison of the two groups at the different times of measurement (t_1 – t_2 – t_3) shows interesting results. The findings listed in Table 2 were tested by the Mann-Whitney U -test.

At t_1 no differences in the social network between the EPI and the REC group can be found (0 significant domains of 23). In contrast, the findings at t_2 already showed differences in the domains of relatives and neighbours of rare contact. The patients with single episodes reported more persons at their disposal (3 significant domain of 23). This group perceived more instrumental support. At t_3 the differences between the two research groups became more striking (18 significant domains of 23). The list of domains with significant differences proved to be extended by the total number of network members, relatives frequently contacted, confidants and close relationships, members of clubs, leisure-time contacts, professionals, loose and average contacts, all with more persons

in the EPI group. This group also perceived more social support in all dimensions. The domains of frequent contacted neighbours job contacts, friends and straining relationships showed no significant differences, whereas these straining relationships seemed to be more extended in the REC group.

The findings show a profound effect of the severity of depression to the perception of social network and social support. To deduce more refined statements on this relationship, we tried to prove the covariation between depression and the results of the SONET in more detail by choosing different testing procedures.

First, the differences between the values of t_1 and t_2 and t_3 were computed both for the values of depression and the values of social network and social support. Then these values were tested for their covariation by the product-moment correlation coefficient. The results are listed in Table 3.

The EPI patients showed more significant and in nearly all domains stronger negative covariation. The

Table 4. Medians of the coefficients of covariation between SONET and BDI and HAMD in the course of the three assessments (t_1 – t_2 – t_3)

	EPI		REC	
	BDI	HAMD	BDI	HAMD
Total	–0.97	–0.95	–0.23	–0.19
Relatives frequent	–0.98	–0.93	0.00	0.00
Relatives rare	–1.00	–0.89	0.00	0.00
Neighbours frequent	–0.77	–0.73	0.00	0.00
Neighbours rare	–0.90	–0.90	0.00	0.00
Job frequent	–0.94	–0.91	–0.41	–0.24
Job rare	–0.88	–0.92	0.00	0.00
General job contacts	–0.22	0.00	0.00	0.00
Friends	–0.93	–0.93	0.00	0.00
Confidants	–0.07	–0.06	0.00	0.00
Close relations	0.00	–0.22	0.00	0.00
Club members	0.00	0.00	0.00	0.00
Leisure time frequent	0.00	0.00	0.00	0.00
Leisure time rare	–0.53	–0.63	0.00	0.00
Professionals	0.00	0.00	0.00	0.00
Loose contacts	–0.63	–0.75	0.00	0.00
Average contacts	–0.88	–0.90	0.00	0.00
Frequent conflicts ⁺	0.00	0.00	0.00	0.00
Mainly conflicts ⁺	0.00	0.00	0.00	0.00
Fear ⁺	0.00	0.00	0.00	0.00
Worry ⁺	0.00	0.00	0.00	0.00
Support talk	–0.95	–0.99	–0.05	–0.05
Support appreciation	–0.96	–0.94	0.00	0.00
Support information	–0.91	–0.94	0.00	0.00
support feed-back	–0.91	–0.94	–0.35	–0.07
Support money	–0.66	–0.88	0.00	0.00
Support work	–0.98	–0.95	0.00	0.00
Σ coefficient < –0.50 except (+)	17	17	0	0

EPI, Single episodes of depression; REC, recurrent depression

total of significant correlations in this groups is 18 in BDI (t_1t_2 and t_2t_3) and 18 in HAMD (t_1t_2 and t_2t_3) too, as opposed to the totals of 8 (BDI) and 3 (HAMD) in the REC group. The change from t_2 to t_3 shows the strongest covariation; totals of 14 (BDI) and 11 (HAMD) significant domains in the patients with single episodes. Stronger covariation is also found, when depression is measured by self-rating of BDI, in contrast to the external rating of HAMD.

These results can be attributed to the fact that, on the one hand, in numerous cases the main improvement in depression takes place either in the first period (t_1 to t_2) or in the second period (t_2 to t_3) and, therefore, the results to some extent cancel each other. On the other hand, there is only little variance of the data.

Therefore another somewhat unusual but more appropriate method was chosen, one that examines the similarity of the profiles of the values of depression and social resources in the form of their course. The covariations of the three values (t_1 – t_2 – t_3) of depression and social

network and social support are computed by the product-moment correlation coefficient to prove the parallelism of the two profiles. Then the coefficients are combined to medians for each research group, all listed in Table 4.

This method leads to a somewhat more consistent pattern of results, showing a striking difference between the two groups in their covariation of depression and the social resources. The correlations of both BDI and HAMD in the single episode group show 17 coefficients below –0.50 in contrast to 0 in the recurrent group. In the EPI group, with the exception of the domains of general job contacts, confidants, close relationships, club members, frequent leisure-time contacts and professionals, the recovery in depression goes hand in hand with an increase in the number of persons. In the REC group such a covariation cannot be found. Only weak covariation can be seen in the domains of the total number of network members and frequent job contacts.

Discussion

The findings of this study demonstrate the importance of a discriminating consideration and examination of social network and social support of depressed individuals. Depression and the perception of the patients' social resources are shown to be closely connected. This had been already indicated by previous findings, showing an interrelation between severity of depression and the extent of deficits in social network and social support. These findings, however, led to suggestions that subjects suffering from serious depression will really have less social contact and social support at their disposal, and that they do not perceive this deficit (Billings and Moos 1984b, 1985a, b; Brugha 1984; Dean and Ensel 1982; Holohan and Moos 1982; Lin and Ensel 1984; Mitchell and Moos 1984; Murrell and Norris 1984; Schwartz et al. 1987; Surtees 1980). The design of this study attributes this interrelation to the negative distortion of perception in depressed individuals, which simultaneously diminishes with the recovery from depression. Owing to the hospitalization of the subjects throughout the study, the contacts with their social networks were only possible on a very reduced level: indeed a really "objective" change in social network and social support can nearly be excluded.

Those domains where no objective criteria and no help was offered to answer the questions (e.g. with how many relatives have had you contact in the last 2 weeks.) were most susceptible to the distortion of perception. These domains are mainly all dimensions of social support, friends and average contacts, where the level of significance is especially high (e.g. friends: $p = 0.00009$; support by talk: $p = 0.00004$). Schwartz and colleagues (Schwartz 1988; Schwartz et al. 1987) have already ascertained that mood-influenced judgements will be intensified, when this leads to a simplification of an otherwise very complex process of judgement. This implies that the more concrete the question, the less complex the process of judgement, and therefore the lesser the danger that distortion of perception will take place.

The special aim of the construction of the SONET, which assesses the social network and social support as concretely as possible, turned out to be correct according to these findings. The assessment of the social resources of individuals with different psychological disorders – not only depression – will give rise to subjective distortion and invalidity by using instruments with very general criteria and no concrete help for the users.

A further important finding was that the distortion of perception only takes place in the group of primary depressed patients. Only assumptions can be made as to the cause of this occurrence. The findings prove that persons who have their first episode of depression indeed do show deficits in their social resources in comparison with the control group (Amann, in preparation). But the extent of these deficits is not at all comparable with those of patients with chronic and recurrent depression. Patients with single episodes of depression are confronted with the negative cognitions and schemata caused by depression for the first time. It can be assumed that this new and unclassifiable experience allows the distortion of perception to take place entirely. Depressed patients, on the other hand, having experienced the come-and-go of such a negative view once or several times before, might have learned through the history of their illness to cope better with the distortion of perception. As a result they might hold a more realistic view of their social ties and resources in acute depression, too. On the other hand, if the duration of depression is longer, a tremendous reduction in social resources is possible. This is due to aversive interaction with the environment and social withdrawal. It can reach the level of the absolute essential minimum until the distortion of perception operates no more.

A decision as to which dynamics will emerge seems to be impossible at the moment; however, it is possible that both will play a special role.

One issue in this study remains questionable. The subjects were asked to describe their social network as it was in the period before their hospitalization – until 5 months before. Owing to this long period weakened memory can distort the delineation of the social resources, too. If non-depressed controls were examined in the same design, it would be possible to prove whether an illusion of the social ties will take place with a longer period of time to the matters that should be remembered. But it would be very difficult to find non-depressed controls having contacts to their social network on such a reduced level as hospitalized patients. Such a control study would make it possible to attribute changes in the perception of social ties to the glorification of them. In this study the problem of controls is solved to a great extent by the examination of two different research groups. It can be supposed that if effects of memory distort the perception, this will take place in both research groups in the same way. The results point away from these assumptions, so that effects of memory can be disregarded.

All results and arguments discussed illustrate the essential importance of a discriminative consideration and examination of social network and social support of depressed individuals. The consideration of the duration of

illness proved to be of striking importance for studying this context; nevertheless the timing of the examination in the course of depression turned out to have the greatest impact.

The conclusion for further research is as follows. If the structure of social network and social support of depressed individuals is to be described as it really is, it has to be examined in the period of symptom-free remission. All studies up to now have not paid attention to this fact in any way, so the validity of all these findings on social resources of depressed patients should be questioned.

In order to shed more light on the interrelationship between social resources and depression, more long-term studies must be undertaken.

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