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ORIGINAL PAPER

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Burden of relatives and predictors of burden. Baseline results from the Munich 5-year-follow-up study on relatives of first hospitalized patients with schizophrenia or depression

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■ **Abstract** In the present study, part of the Munich 5-year follow-up study on key relatives of first-hospitalized schizophrenic and depressive patients, baseline results with respect to relatives' burden and predictors of burden are presented. Basing on a transactional stress model the following hypothesis was tested: the impact of the patients' illness on their relatives' stress outcome is moderated by the psychosocial resources of the relatives. Stress outcome was measured in terms of objective and subjective burden, well-being, self-rated symptoms and global satisfaction with life. Potential moderating variables included age and gender, generalized stress response and illness-related coping strategies, beliefs of control, perceived social support, personality factors, expressed emotion and life stressors. A total of 83 relatives, whose ill family members had been hospitalized in the Department of Psychiatry of the Ludwig-Maximilians-University of Munich for the first time, participated in the study. Findings did not entirely support the hypothesis. On the one hand, relatives' stress outcome was independent of the objective stressors (severity of the illness, kind of symptoms, level of psychosocial functioning at admission). On the other hand, burden was significantly associated with several psychosocial resources and dispositions of the relatives. Multivariate linear regression analyses indicated that expressed emotion, emotion-focused coping strategies and generalized negative stress response are the most relevant predictors of burden. It is argued that a multidimensional approach in burden assessment is necessary and has relevant implications for improving family intervention strategies.

■ **Key words** relatives' burden · expressed emotion · psychosocial resources · schizophrenia · depression

Introduction

Since deinstitutionalisation of the mentally ill, their relatives have been faced with numerous and long lasting caring demands due to the complex needs and problems especially of the chronic ill. With the exception of early descriptive studies in the US and other countries (Canada, United Kingdom, The Netherlands), the burden associated with caring for a mentally ill person had largely been neglected by psychiatry until a few years ago. One reason for this was that the interest of family centered research had mainly focussed on the course of illness with the aim to identify social and situational predictors of patients' relapse, namely the emotional attitudes of the relatives. In this context the concept of Expressed Emotion (EE) has been developed which has gained substantial support as a predictor of relapse, not for first manifestation but for the course of several psychiatric disorders (Kavanagh 1992). However, despite the long history of research in EE, understanding of the nature of the concept or the mechanisms involved is still incomplete.

As a separate line of research caregiver-burden studies have induced a certain shift of interest towards the consequences of severe mental illness with regard to the patients' relatives during the last 10 to 15 years. Results revealed high burden for the relatives in different life domains: reduction of subjective health (Vaddadi et al. 1997; Angermeyer et al. 1997; Wittmund et al. 2002), restrictions in leisure time, daily routine and social contacts, problems in working life, coping with the patients' symptoms and emotional problems (Kuipers 1993; Provencher 1996).

Important theoretical progress in this field has been

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made by differentiating objective and subjective burden of the caregivers (Hoenig and Hamilton 1966) as well as by implementing stress-models which include risk factors and psychosocial resources independent from the patients' disorder but influencing the relatives' experience of burden and their coping behaviour. Due to this background, the interrelations of burden, coping strategies, coping resources, expressed emotion and illness parameters have been investigated with different aims (Birchwood and Cochrane 1990; Jackson et al. 1990; Smith et al. 1993; Scazufca and Kuipers 1996; Barrowclough and Parle 1997; Budd et al. 1998; Tennakoon et al. 2000).

As most studies are concerned with caregivers of schizophrenic patients, systematic comparisons between diagnostic groups (schizophrenia vs. depression) are lacking. Findings on predictors of burden are inconsistent: some studies suggest no impact of diagnosis, symptoms or severity of disorder (Solomon and Draine 1995 a, b; Magliano et al. 1998; Scazufca and Kuipers 1999; Harvey et al. 2001; Boye et al. 2001; Heikkilä et al. 2002), others do not (as review: Baronet 1999). This may be due to methodological factors, particularly the fact that in burden analyses predominantly only one single potential stress predictor has been considered (e. g. emotional coping or self-efficacy or EE index) while the potential impact of other moderators and their interaction has been neglected. However, applying a multidimensional model is necessary to estimate the relative impact of potential predictors on relatives' burden.

Another critical limitation in understanding the burden-coping relationship of caregivers and its modification over time is that most studies are cross-sectional with a few exceptions (Cornwall and Scott 1996; Boye et al. 2001; Scazufca and Kuipers 1998; Magliano et al. 2000). These studies suggest that a reduction of the patients' symptoms is not necessarily associated with a reduction in relatives' burden, but that burden and coping strategies seem to be rather stable. The stability of burden has been also observed by a 5-year and a 15-year follow-up study (The Scottish Schizophrenia Research Group 1992; Brown and Birtwistle 1998).

Although caregiver studies have become more differentiated in methods and concepts, there are a variety of open questions mainly due to methodological problems:

- Definitions and operationalisation of the term 'caregiver burden' are heterogenous.
- Most instruments for assessing burden have been developed with regard to caregivers of schizophrenic patients, thus limiting comparative studies across psychiatric disorders.
- Psychometric validation is often lacking, and there is no questionnaire being referred to as a standard.
- Patient samples are often not homogenous because of different duration of disorder; studies on first-episode patients are rare.
- Caregiver samples are often small and selected, e. g. recruited from groups or organisations not being representative for the population of caregivers as a whole.
- Multidimensional study designs in which risk factors and protective factors are investigated at the same time, are lacking.
- Longitudinal studies are rare, therefore information about how cross-sectional findings may change over time are needed.
- Qualitative data to reconstruct the caregivers' subjective perspective and evaluation are lacking as well.

Aim of study

The Munich 5-year follow-up study aims to avoid some of the weaknesses mentioned above by using a multifactorial design as well as combining standardised and qualitative data assessment and analysis. The objective of the study is to identify burden and predictors of burden of caregivers of first-hospitalised patients with schizophrenia and depression within a period of 5 years. The study aims to include a systematic comparison of burden and its predictors in relation to both diagnosis as well as an analysis of the development of the stress-coping relationship in the psychosocial context of the relatives.

The theoretical background of the study refers to the transactional stress model of Lazarus and Folkman (1984) and their assumption that stress results from an interaction between situational demands and individual coping capacity. This means that the impact of objective stressors on experiencing stress is moderated by individual resources. Thus, in this study burden is defined as stress outcome being potentially modified by illness-related coping strategies of the caregivers, the coping strategies they are generally using, their expressed emotion, personality, beliefs of control, perceived social support, additional burden not being related to the illness of their relative and sociodemographic data (Fig. 1). Burden is operationalised by an objective and subjective assessment, two measures of well-being (cognitive-emotional and self-rated symptoms) and global satisfaction with life.

To our knowledge this is the first study, in which such a comprehensive assessment of stress outcome and predictors of stress outcome has been performed. A careful analysis of the data will answer the question, whether this multiscale/multidimensional approach leads to a more precise description or might be to a certain degree redundant.

In this paper the baseline results are presented with regard to burden and predictors of burden. As mentioned before, there are no consistent findings concerning the question, which predictors are most important for relatives' burden, and whether predictors interact with patients' illness characteristics. Indeed, there is generally great evidence for self-efficacy, neuroticism, assertiveness or perceived social support having direct as well as indirect effects on stress outcome, but there are also findings showing neither main nor moderator effects of relatives' resources on their stress experience

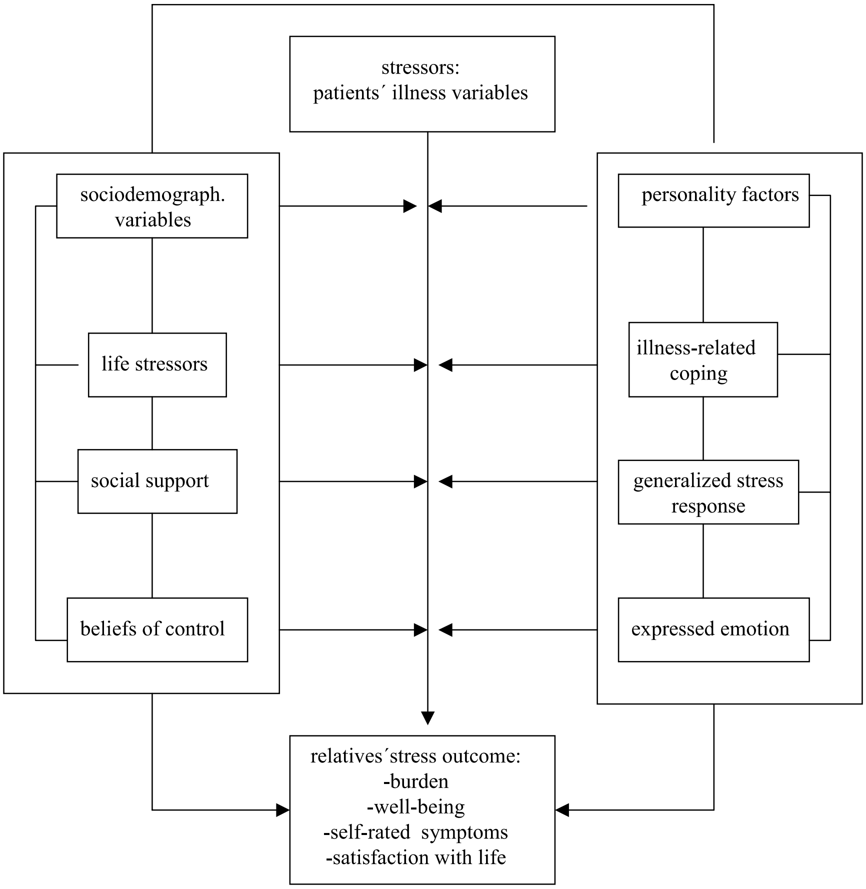

Fig. 1 Transactional stress model according to Lazarus and Folkman (1984)

(Pruchno and Resch 1989; Pot et al. 2000). Thus, it is of considerable interest to further analyse this question by testing the hypothesis that the impact of patients' illness characteristics on relatives' stress outcome is influenced by coping styles and psychosocial resources of the relatives.

Methods

Assessment

Caregivers

Expressed Emotion. The *Five Minute Speech Sample* (FMSS) (Magana et al. 1986) was used as well as the *Family Questionnaire* (Wiedemann et al. 2002). Although the FMSS shows a high concurrent reliability with the Camberwell Family Interview and a high interrater reliability, a systematic underassessment of high EE relatives has been observed, which goes even beyond 28 % in this study. This is the reason why the Family Questionnaire was preferred in the present data analysis. Relatives were rated as high EE, if their sum score on the scale "criticism" and/or their sum score on the scale "emotional overinvolvement" exceed the cutoff points.

Stress-coping relationship. Contacting the caregivers and creating a motivational basis for further participation in the study was based on a *semi-structural biographical interview* lasting for about 2 hours. In this interview life situation, development of the illness, perception of the patient's behaviour and own response patterns as well as subjective perspective, evaluations and problems were addressed.

Burden. Burden was measured with the *Family Burden Questionnaire* (FBQ), which was adapted by the author from the semi-structural interview of Pai and Kapur (1981). This instrument is psychometrically tested and applicable to relatives of schizophrenic as well as depressive patients. With regard to several life domains (daily living, family atmosphere, leisure, financial aspects and well-being), objective and subjective aspects of burden are assessed with 29 items for the last three months. Objective burden is defined as observable changes in routine arrangements and is bipolarly assessed by the relative (e. g. "Does his/her behaviour disturb daily routine?" The answer is yes or no). Subjective burden refers to each item of objective burden with the question, how burdensome this is for the relative. The answer consists of a three-point scale: not at all/moderate/very burdensome.

While Pai and Kapur offer only one global score of subjective burden, the author has constructed several scores for objective and subjective burden, once with regard to each life domain and once with regard to a global measure of the objective and subjective dimension of burden. To make the scores more perceptual, the quotients (sums of item values are divided by number of items) are transferred to percentage by multiplication with 100.

Reliability test (n = 83) for the global percentage of objective burden resulted in alpha = 0.83, for the global percentage of subjective burden in alpha = 0.88, and for the entire scale alpha was 0.92.

Qualitative interview data were used to assess an additional dimension of burden independent of the psychiatric disorder of the relative: *"life stressors"*. Life stressors were defined to include either chronic everyday burden (e. g. financial problems, own disorders of the caregiver, job strain, marital strain, family conflicts, caring for small children and/or other chronically ill family members) or several life events in the last 6 months (e. g. moving, loss of a job, birth of a child, accident). The occurrence and the degree of subjective burden with regard to these life stressors was assessed by the author on a four-point-scale (0 = no additional life stressors, 4 = several strong life stressors with a degree of burden comparable to the manifestation of the psychiatric disorder).

Coping. The German questionnaire *"Stressverarbeitungsbogen"* (SVF) (Janke and Erdmann 1997) was chosen to measure general coping strategies of the caregivers. Strategies aimed to cope with typical symptoms/events of the illness were assessed with the German version *"Skala zur Erfassung des Bewältigungsverhaltens"* (SEBV) (Ferring and Filipp 1989) of the 'Ways of Coping Checklist' (Folkman and Lazarus 1980), which differentiates two scales: problem focused and emotion focused coping.

Subjective beliefs of competence and control. General beliefs about one's competence to solve problems and one's control over the environment represent an important coping resource and were measured with the *"Fragebogen zu Kompetenz- und Kontrollüberzeugungen"* (FKK) (Krampen 1991). The questionnaire consists of four scales, two of them related to internality and two of them related to externality. These four scales are summed up into two secondary scales "general self-efficacy" and "general externality of control beliefs".

Personality. In order to assess the influence of further personality dimensions on the caregivers' burden, the German Version of the *"NEO Five-Factor Inventory"* (NEO-FFI) (Borkenau and Ostendorf 1993; adapted from Costa and McCrae 1989) was used. The five personality descriptors are: neuroticism, extraversion, openness to experience, sociability and conscientiousness. They are self-rated on a five-point scale.

Perceived social support. Perceived social support represents an important dimension of social resources, being measured with the short form of the German *"Fragebogen zur Sozialen Unterstützung"* (SOZU) (Sommer and Frydrich 1991), including 22 items and a five-point rating scale.

Subjective well-being. In order to assess the current subjective well-being of the caregivers, the German *"Befindlichkeitsskala"* (Bf-S) (von Zerssen 1976) was used, which includes a broad scope of bipolar structured cognitive-emotional states. Occurrence and degree of current symptoms were also self-rated by the caregivers by using the *"Symptom-Checklist-90-R"* (SCL-90) (Derogatis 1977).

Subjective quality of life. was assessed with a German adaptation of the *"Lancashire Quality of Life Profile"* (LQLP) (Oliver 1991) by Priebe et al. (1995). Questions ask for objective conditions in different life domains, for subjective satisfaction with these domains and for global satisfaction with life, which is rated on a 7-point-scale (1 = totally dissatisfied to 7 = totally satisfied).

Patients

Patients' data were assessed by psychiatrists being involved in naturalistic follow-up studies of schizophrenic and depressive patients, which are part of the German Research Networks of Schizophrenia and Depression/Suicidality[1]. Patients were diagnosed according to ICD-10 (F 20–29 and F 30–39). For the caregiver study, the following variables were selected:

Severity of disorder. The severity of depression at admission was assessed with the *"Hamilton Depression Scale"* (HAMD) (Hamilton 1960), the severity of schizophrenia with the *"Positive and Negative Syndrome Scale"* (PANSS) (Kay et al. 1987).

Global functioning. Global functioning of the patients was measured using the "Global Assessment of Functioning Scale" (GAF) (APA 1987) including a range from 1 to 100. Scores represent the sum of psychopathological symptoms and disturbances of psychosocial adjustment. Lower scores indicate a higher level of disturbance, higher scores a lower level of disturbance.

Subjects

In-patients first hospitalized for a schizophrenic or depressive episode were recruited within the Research Networks of Schizophrenia and Depression. Patients who lived with a relative or had a facial contact of at least 15 hours per week (condition for measuring expressed emotion) were informed of the caregiver study and asked to name the person to whom they have the closest contact. After obtaining informed consent from the patient the relative was contacted and, if he/she agreed to participate in the study, he/she was interviewed by the author about three weeks after first hospitalisation of the patient. The index-interview was audiotaped, and a protocol was written by the author adapting to the wording of the caregiver. The questionnaires were filled out by the caregivers at home.

At baseline 87 caregivers participated in the study. Of these, two participants refused to complete the questionnaires and any further participation because of older age. In addition, two other participants who were interviewed did not complete the questionnaires in spite of repeated reminders. Thus, full standardized data files of 83 caregivers were available at baseline. The analyses focussed on these 83 data sets.

Statistical analysis

Descriptive statistics were used to describe the sample characteristics and the results from each scale. Differences between groups (EE status, diagnosis, gender) were identified with Student's t-test or Chi^2 test. Correlation analyses were performed using either Pearson's correlation coefficient or Spearman's Rho depending on the distribution of the variables. Multiple linear regression analyses were separately calculated for each stress indicator.

Analyses were performed with SPSS 11.5 for Windows.

Results

Of the patients' relatives, 77.8 % were spouses, 21 % were parents and one relative was a brother, most of them living together with the patient (84.5 %). The mean age was 46.8 years (SD 11.5), the percentage of male relatives was 55.4 %, the percentage of relatives of depressed patients predominated with 59 % (without differences in mean age compared to the relatives of schizophrenic patients). A total of 44.6 % of the relatives had a fulltime job; 23.8 % were housemakers.

Objective and subjective burden, well-being, self-rated symptoms and satisfaction with life

Table 1 presents the mean scores of the caregivers' stress outcome. The mean percent scores of the theoretical maximum of the global scores of objective and subjective burden seems to be rather low; however, this is firstly due to a methodological matter: Both percentages are reduced by the fact that caregivers reported little objective and subjective burden in financial aspects and these aspects included the greatest number of items. Looking at objective burden in other life domains, daily living and leisure are mostly disturbed by the behaviour of the patients, with 71 % of the relatives reporting disturbances in their daily routine and 64 % reporting restrictions of their leisure activities. These are those illness-related

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[1] The author would like to thank Dr. Ronald Bottlender and his research group for placing the patients' data at the author's disposal.

Table 1 Stress indicators of caregivers (n = 83). Mean, SD and norm values

Stress indicator	mean	SD	norm
FBQ-OB (%)	30	19	–
FBQ-SB (%)	21	17	–
Bf-S (t-values)	57.75*	13.85	50 (10)
SCL-90-R (GSI)	0.50*	0.50	0.31 (0.31)
LS (global item)	4.64**	1.60	5.30 (0.73)

* $p < 0.01$ ** $p < 0.0001$

FBQ-OB percent score of the theoretical maximum of the global score of objective burden (Family Burden Questionnaire); *FBQ-SB* percent score of the theoretical maximum of the global score of subjective burden (Family Burden Questionnaire); *Bf-S* well-being, t-values of the sum score (lower scores reflecting better well-being); *SCL-90-R (GSI)* self-rated symptoms, global symptom index (lower scores reflecting less symptoms); *LS* global satisfaction with life (LQLP) (1 = totally dissatisfied to 7 = totally satisfied)

changes which are at the same time most burdensome for the relatives (67.5 % and 64 %). In addition, the belief that they are able to master the illness-related problems causes subjective burden in 67.5 % of the relatives.

Caregivers' well-being, self-rated symptoms (especially depression scores) and global satisfaction with life differed significantly from the population norms (for life satiscation see Schumacher et al. 1995) and suggest a considerably higher psychosocial impairment of the carers. Patients' diagnosis did not differentiate significantly between relatives' stress outcome, although those of schizophrenic patients report higher objective burden (34 % ± 22 % vs 28 % ± 19 %), higher subjective burden (24 % ± 20 % vs 19 % ± 14 %), and less satisfaction with life (4.50 ± 1.69 vs. 4.73 ± 1.55).

Patients' psychopathology and relatives' stress outcome

To test the first part of the hypothesis the correlations of the patients' illness-related variables (objective stressors) and their relatives' stress outcome were tested. As can be seen in Table 2 severity of illness, kind of symptoms and patients' psychosocial functioning at first admission had no impact neither on objective burden nor on the other stress indicators.

Moderator variables and relatives' stress outcome

Due to the fact that no relationship between patients' psychopathology at first admission and relatives' stress outcome could be observed moderator effects of their psychosocial resources and individual dispositions could not be detected. Instead, main effects could be observed: How caregivers' stress outcome is influenced by their EE status, their illness-related as well as generalised coping, their perceived social support, their beliefs of control, their personality, life stressors and age, is shown in Table 3. Correlation analysis revealed moderate to low, but significant relationships between stress outcome and relatives' EE, emotion-focused and generalised negative coping, beliefs of external control, neuroticism, life stressors and perceived social support.

Table 2 Correlations of patients' illness variables (HAMD, PANSS, GAF) at first admission and caregivers' stress outcome (Pearson's r und Spearman's Rho)

	FBQ-OB	FBQ-SB	Bf-S	SCL-90-R-GSI	LS
HAMD	−0.11	−0.09	0.00	−0.06	−0.07
PANSS-Glob	0.06	0.02	0.07	−0.06	−0.13
PANSS-Neg	0.02	0.02	0.05	0.07	−0.07
PANSS-Pos	0.05	0.12	0.03	0.04	0.21
GAF	0.09	0.04	−0.15	−0.08	0.01

HAMD Hamilton Depression Scale, sum score; *PANSS-Glob* Positive and Negative Syndrome Scale, global score; *PANSS-Neg* subscale "negative symptoms" of the PANSS, sum score; *PANSS-Pos* subscale "positive symptoms" of the PANSS, sum score; *GAF* Global Assessment of Functioning, sum score (lower scores reflecting more disturbance); *FBQ-OB* percent score of the theoretical maximum of the global score of objective burden (Family Burden Questionnaire); *FBQ-SB* percent score of the theoretical maximum of the global score of subjective burden (Family Burden Questionnaire); *Bf-S* well-being, t-values of the sum score (lower scores reflecting better well-being); *SCL-90-R; GSI* self-rated symptoms, global symptom index (lower scores reflecting less symptoms); *LS* global satisfaction with life (LQLP) (1 = totally dissatisfied to 7 = totally satisfied)

Relatives' EE status appeared to be the most prominent predictor for each stress indicator. If relatives are high in EE, they also tend to feel more externally controlled (Rho = 0.29; $p < 0.01$), generally use more negative coping strategies (e. g. flight, social isolation, resignation, self pity, ruminating) (Rho = 0.25; $p < 0.01$) and report more life stressors (Rho = 0.22; $p < 0.01$). These factors lead to significantly more illness-related objective and subjective burden, reduced well-being, more self-rated symptoms and lower satisfaction with life.

There were no effects of problem-focused coping, generalised positive coping strategies, the other personality factors, age and gender (not included in Table 3) on stress outcome. When comparing the prediction of each stress indicator, the associations found for objective and subjective burden, which present the primary stress indicators, are – with the exception of EE – considerably lower than for well-being, self-rated symptoms and satisfaction with life.

To summarise at this point, the above developed hypothesis is not fully confirmed by the present data: As there is no correlation between patients' psychopathology at first admission and relatives' burden, relatives' resources and dispositions are directly associated with their levels of burden.

In order to answer the question, which of the investigated predictors are most important for relatives' burden, the simultaneous impact of all predictors that have been significant correlates of relatives' stress outcome on the bivariate level was assessed by calculating multiple linear regression analysis for each stress indicator separately (as the intercorrelations of the moderators were lower than 0.60, the criterion for multilinearity was realised).

Table 3 Correlations between moderators and stress outcome of the relatives (n = 83)

	FBQ-OB	FBQ-SB	Bf-S	SCL-90-R-GSI	LS
EE index[1]	0.45**	0.44**	0.42**	0.51**	–0.36**
emotion-focused coping	0.18	0.31**	0.48**	0.53**	0.40**
problem-focused coping	–0.02	–0.01	–0.06	–0.04	0.10
SVF-positive strategies	–0.06	0.01	–0.12	–0.12	0.18
SVF-negative strategies	0.27*	0.29**	0.52**	0.54**	–0.46**
social support	0.01	–0.03	–0.24*	–0.34**	0.38**
FKK-selfefficacy	–0.10	–0.19	–0.44**	–0.42**	0.33**
FKK-externality	0.23*	0.32**	0.39**	0.42**	–0.32**
NEO-FFI-neuroticism	0.13	0.30**	0.36**	0.51**	–0.45**
NEO-FFI-extraversion	–0.06	0.05	–0.27*	–0.21	0.28
NEO-FFI-openness	0.20	0.08	–0.06	0.06	–0.15
NEO-FFI-sociability	–0.07	–0.22	–0.26*	–0.27*	0.16
NEO-FFI-conscientiousness	–0.12	–0.05	–0.13	–0.14	0.41**
life stressors	0.23*	0.29**	0.46**	0.47**	–0.43**
age	–0.12	–0.04	–0.13	–0.02	0.09

*p < 0.05 **p < 0.01

[1] EE is defined as ordinal variable (1 = low, 2 = high) depending on the sum scores of the criticism and emotional overinvolvement scale of the Family Questionnaire (Wiedemann et al. 2002)

Table 4 summarizes the results showing different combinations of predictors for different stress indicators. The EE index remains most relevant for all stress indicators but satisfaction with life, being followed by emotion-focused coping and generalised negative stress response patterns. Compared to the measures of illness-related burden, relatives' well-being, their self-rated symptoms and global satisfaction with life can be explained by the predictors used in this study to a considerably greater extent.

Discussion

The present study aims at identifying relatives' burden and predictors of burden at first hospitalisation of schizophrenic and depressive patients. Data demonstrate that relatives' stress outcome is statistically not influenced by the clinical ratings of patients' severity of illness, kind of symptoms and psychosocial functioning at first admission. This is in line with findings of Haley et al. (1987); Solomon and Draine (1995 a, b); Magliano et al. (1998): Scazufca and Kuipers (1999); Hinrichsen and Lieberman (1999); Harvey et al. (2001) as well as Boye et al. (2001). There are at least two possible explanations for this finding: On the one hand, cross-sectional clinical ratings of psychopathology may not give sufficient insight into the extent of symptoms and behaviours experienced by the relatives (disturbing behaviours like shouting, aggressivity, neglected selfcare etc. might not be apparent during admission; discrepancy between objective and subjective rating). On the other hand, the symptom profile of the disorder itself may not be so important for family burden, at least not in first hospitalised patients. Possibly, other patient characteristics like history of illness (e. g. acute vs. insidious onset of symptoms, short vs. long duration of symptoms) may be more relevant.

While there is no direct association between illness variables investigated in the present study and relatives' stress outcome, highly significant direct effects can be observed from several predictors on stress outcome, in particular relatives' expressed emotion, the extent of their illness-related emotion-focused coping and their generally used negative stress response. These findings support the transactional nature of relatives' stress response, indicating that the perception of stress depends rather on its appraisal (subjective burden) and the perceived subjective coping competence than on the objective stressors themselves.

The relatively low levels of global objective and subjective burden[2] caused by the patients' illness can be due to different causes. Firstly, they are produced by the construction of the questionnaire (FBQ) and the sum scores: Because of the relatively high number of items relating to financial aspects with low burden in the present sample, percentages of objective and subjective burden appear to be rather low, while the percentages of reported burden are often much higher when regarding single items. In addition, the global level of objective and subjective burden may be due to relatives' relief because of patients' hospitalisation and/or effects of medication, and they may also be due to response bias because of denial, obligation or feelings of debt and shame. Reporting low subjective burden may also be explained by the so-

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[2] Both dimensions appeared to be highly correlated (Rho = 0.82; p < 0.01). On the one hand, this is due to the kind of assessment, on the other hand reporting higher objective burden might be confounded by a higher subjective stress vulnerability. Nevertheless, the association between both dimensions varies when looking at different life domains (e. g. in the domain 'daily living' Rho = 0.5).

Table 4 Multivariate prediction of relatives' stress outcome by multiple linear regression analyses

Predictors	Stress indicators	Beta	F	p	Explained variance R^2 (%)
EE status	objective burden (FBQ-OB)	0.45	20.25	0.000	20
EE status Emotion-focused coping	subjective burden (FBQ-SB)	0.30 0.27	10.20	0.000	25
EE status Emotion-focused coping	well-being (Bf-S)	0.42 0.41	20.90	0.000	60
Extraversion Social support		–0.25 –0.20			
SVF-negative strategies EE status Emotion-focused coping	self-rated symptoms (SCL-90-R (GSI))	0.41 0.26 0.25	18.21	0.000	49
SVF-negative strategies Conscientiousness	global satisfaction with life (LS)	0.46 –0.22	15.24	0.000	34

cietal expectation that families are able to cope with such unexpected life events by mobilising latent resources ("energised family", Pratt 1976). On the other hand, clinical experience points to the fact that relatives often fail to correctly assess their own load capacity: Their efforts to perfectly manage the rising difficulties may result in physical and psychic overload which they do not perceive (Schulze-Mönking 2003) and which may have indirect consequences on their well-being. This explanation is supported by the finding that the participants of this study report relevant burden on questions and domains which are not directly related to the disease of their family member: relatives' general well-being (measured by Bf-S and SCL-90-R) and their global satisfaction with life appear to be significantly reduced compared to norm values. In addition, considerably more variance of these stress indicators could be explained compared to objective and subjective burden. Similar to the results of Hinrichsen and Lieberman (1999), who also found a mild to moderate level of burden, 8.3% of the caregivers reach the symptom level of psychiatric out-patients, particularly if they are the caregivers of schizophrenic patients (11.6% vs. 6.4% caregivers of depressed patients). This might be due to a higher level of burden, but might also be explained by a genetic disposition in case of being the parent of a patient (Maier et al. 2003).

Relatives' EE status, the most relevant predictor of burden in this study, appeared to be independent of the patient's illness characteristics, which is consistent with several findings from the literature (Leff 1976; Miklowitz et al. 1983; Scazufca, Kuipers 1998; Wuerker et al. 2002; Heikkilä et al. 2002). Data indicate that EE is obviously rather a consequence of relatives' characteristics, particularly dependent on their extent of external beliefs of control (low EE = 42.15 ± 9.06 vs. high EE = 48.20 ± 10.43; $p = 0.008$), generalised negative stress response (low EE = 46.06 ± 14.16 vs. high EE = 52.51 ± 11.34; $p = 0.026$) and general life stressors (low EE = 1.24 ± 1.30 vs. high EE = 1.88 ± 1.45; $p = 0.042$), than it is a response to the manifestation of the patients' disorder.

If caregivers tend to report higher levels of generalised negative stress response, they also tend to report higher levels of emotion-focused coping strategies as response to illness-related behaviour of the patient ($r = 0.54$; $p < 0.01$). In spite of their association, both coping responses, illness-specific and unspecific, are independent predictors of relatives' stress outcome as data have demonstrated. Although emotion-focused coping can basically not be interpreted as bad strategies, related findings suggest that emotion-focused coping, if it is predominantly used, correlates significantly with distress and depressiveness (Nakano 1991; Grossi 1999).

Conclusion

Data analysis has shown that measuring different dimensions of stress outcome as well as a considerable number of predictors give a more adequate insight into the complexity of the stress process rather than being redundant. Relatives' burden and predictors of burden have to be analysed multifactorially and multidimensionally to gain evidence-based information about factors being associated with high levels of burden. This information is necessary to further develop focussed strategies for family intervention aiming to improve the caregivers' capacity to cope with their burden caused by the illness of their family member. Interventions should already be offered at first admission of the patient and aim at a balance of situational demands and personal resources to avoid increasing helplessness and depression under conditions of ongoing caring efforts.

First hospitalisation of the patients seems to be a critical point of time, where there is a particularly high need of information and support for the relatives, so that a combination of psychoeducation and coping-focused training for high-burden carers might be more successful than during the further course of illness.

In the present study the main predictors of burden have been identified by multivariate analyses: relatives' high EE, emotion-focused coping and ineffective patterns of their generalised stress response. As these factors contribute most in explaining the amount of burden, they should be treated in psychoeducational interventions without blaming the relatives. As data have shown, these predictors appear to be more relevant for burden than the clinically rated psychopathology of the patients at first admission. However, it is possible that not the cross-sectional clinical ratings psychopathology at admission but different aspects of the disease history might be more important for relatives' burden.

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