Multivariate prediction of relatives’ stress outcome one year after first hospitalization of schizophrenic and depressed patients

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Abstract  Objective The present study presents the 1-year follow-up findings of the Munich 5-year follow-up study on relatives of first hospitalized patients with schizophrenia or depression. The aim of the study was to determine which factors moderate the impact of the patient's illness on the stress experienced by his key relative in different dimensions. Method Of the relatives who had participated in the baseline assessment, 90% could be reassessed (n = 69) with respect to their objective and subjective burden, well-being, self-rated symptoms and subjective quality of life as well as different personal dispositions and resources. Results Data demonstrate a considerable level of burden in most of the relatives at 1-year follow-up. Compared to baseline, a significant reduction in objective and subjective burden as well as significant improvements in well-being, self-rated symptoms and subjective quality of life as well as different personal dispositions and resources occurred. Although stress reduction was significantly associated with patients' residual symptoms on the bivariate level, no main effects on relatives' stress outcome at 1-year follow-up could be observed under multivariate conditions. In multivariate linear regression models for each stress indicator, different combinations of predictors resulted, explaining up to 75% of the total variance of the stress indicators. The most relevant predictors were relatives' expressed emotion and neuroticism, their generalized negative stress response and life stressors, having significant direct and indirect effects on relatives' stress outcome. Stress reduction was mainly caused by an interaction of relatives' generalized positive stress response and patients' residual symptoms.

Conclusion Findings support the transactional character of the stress process in caring for a patient with a severe mental disease. A multidimensional approach is necessary to identify the most important predictors of burden in order to improve family intervention strategies which aim to reduce burden.

Key words relatives' burden · expressed emotion · negative stress response · schizophrenia · depression

Introduction

Although caregiver-burden studies have become more differentiated in the last years due to the implementation of stress models, insight into relatives' burden has remained limited because of several methodological weaknesses. Among these, one weakness is the lack of studies with longitudinal designs looking at time-related changes in burden and coping with burden. There are only a few studies [Ray et al. 1991; Jones 1996; Cornwall and Scott 1996; Boye et al. 2001; Scazufca and Kuipers 1998; Brown and Birtwistle 1990; Magliano et al. 2000; Jungbauer et al. 2003; The Scottish Schizophrenia Research Group 1992], offering inconsistent findings.

While burden was found to be lower at 6-month follow-up in relatives of schizophrenic patients with predominantly positive symptoms, it was found to be stable among those of patients with predominantly negative symptoms [Ray et al. 1991]. During a 5-year follow-up period, high distress of the relatives of first-admission patients was related to poor outcome of the patients (The Scottish Schizophrenia Research Group 1992). Relatives' burden was found to be stable at a 15-year follow-up in a sample of relatives who had not received any specific intervention (Brown and Birtwistle 1990) as well as in a 1-year follow-up (Magliano et al. 2000). In sum, no consistent pattern in burden experienced across time emerged. Additionally, factors other than the patient's psychopathology that might be related to caregiver bur-
den and development of burden have often not been evaluated, so that it remains unclear which factors increase or reduce burden. There are only a few hints from the literature which suggest that – beside the symptomatology of the patient – the expressed emotion (EE) level of the relatives influences the level of perceived burden (Boye et al. 2001; Szczufa and Kuipers 1988). Magliano et al. (2000) found that burden decreases at 1-year follow-up only under the condition that relatives adopt less emotion-focused coping strategies and receive social support from their networks. Similar results were reported by Joyce et al. (2003).

One main problem in analysing burden in a stress-coping framework is that the underlying stress models have been heterogenous and often reduced to one or two potential predictors of burden, whereas other predictors and their interrelations have been neglected. This is especially true for longitudinal studies. Thus, most designs have failed to address caregiver burden in a broader context of social and individual determinants, mediating influences and outcomes, cross-sectionally as well as longitudinally. However, a multidimensional approach seems to be necessary to identify the most important predictors of burden in order to develop effective strategies to reduce burden.

Empirical evidence for using a comprehensive stress model has recently been given by the baseline results of the Munich 5-year follow-up study on relatives of first hospitalized patients with schizophrenia or depression (Möller-Leimkühler 2004). Relatives’ stress outcome was measured within a transactional stress model 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. While relatives’ stress outcome was independent of the objective stressors (severity of the illness, kind of symptoms, level of psychosocial functioning at first admission), it 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 were the most relevant predictors of burden.

This paper presents the results of the 1-year follow-up assessment of the same Munich 5-year follow-up study with regard to the following research questions:
1. Do stress outcome experienced by the relatives and their illness-related coping strategies change during one year after first admission of the patient?
2. If changes do occur, are they related to changes in patients’ symptoms?
3. Will expressed emotion, emotion-focused coping strategies, and generalized negative stress response, which have been found to be the most relevant predictors of burden at first admission of the patient, prove to be stable predictors at 1-year follow-up?

### Material and methods

#### Caregivers’ variables

**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, even exceeding 28 % in this study. This is the reason why the Family Questionnaire was preferred in data analysis at baseline and follow-ups. 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 cut-off 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 meaning, evaluations and problems were addressed. This was also the basis for the follow-up interviews in which changes of the situation were picked out as a central theme.

**Illness-related 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 3 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 is this for you?” 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, one time with regard to each life domain and one time 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 through number of items) are transferred to percentage by multiplication by 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 in alpha = 0.92.

**Life stressors**

Qualitative interview data were used to assess an additional dimension of burden independent of the psychiatric disorder of the patient: ‘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 4-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).

**Generalized stress-response**

The German questionnaire ‘Stressverarbeitungsbo gen’ (SVF) (Janke and Erdmann 1997) was chosen to measure general coping strategies.