Examining the cognitive model of caregiving – A structural equation modelling approach

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ABSTRACT

The study tests assumptions from the "cognitive model of caregiving" (Kuipers et al., 2010), which aims to inform interventions for carers of people with psychoses. The sample comprised 61 relatives of patients with schizophrenia. Standardized psychological assessments were conducted twice within 6 months including Involvement Evaluation Questionnaire (IEQ-EU), a short form of the Symptom Checklist 90-R (SCL K9), the Family Questionnaire (FQ), scales measuring control attributions of the Illness Perception Questionnaire for Schizophrenia (IPQS-R) and emotions toward the ill relative. Structural equation modelling was used to analyse data. We identified two pathways: (a) from "attributing control to relatives" to distress, intermediated by anxiety for the patient and emotional overinvolvement (EOI), and (b) from "attribution control to patient" to distress, intermediated by anger about the patient and criticism. The model provided a good fit to the data and was successfully replicated at a second point in time. We were able to find supporting evidence for a cognitive model of caregiving. Control attributions and emotions of informal caregivers are important when interventions are planned reducing expressed emotion and burden of caregivers.

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1. Introduction

The research on cognitive models plays an important role in the development of psychotherapeutic interventions. The current "cognitive model of caregiving" includes cognitive and affective variables leading to expressed emotion (EE) and burden of care (Kuipers et al., 2010). The model highlights the influence of appraisals like attributions and emotions such as fear and anger on the relationship between caregivers and the service user as well as on the burden of caregiving.

In the 1980s and 1990s, high expressed emotion (EE) was seen as responsible for relapses in psychoses (Butzlaff and Hooley, 1998) and more recent findings also indicate a causal influence of EE on relapse (Hooley, 2007). However, the majority of recent findings on the role of EE suggest rather an interactive than a causal interpretation of EE (King, 2000; van Os et al., 2001; Lobban et al., 2006). Increased stress and depression among relatives are associated with high EE (Kuipers et al., 2006). Family interventions initially were conceptualised to reduce EE (Lobban et al., 2013) but there is mixed evidence regarding the effects of family intervention on EE (Gleeson et al., 2010). In order to reduce relapse

decreasing EE and improving communication patterns are not necessary in all cases (Bellack et al., 2000; Lenior et al., 2002).

The deconstruction of EE and a cognitive view led to a better understanding of the role of psychosocial stress among the patients and their families (Barrowclough et al., 2003; Alvarez-Jimenez et al., 2010). The development and the consequences of marked criticism and emotional overinvolvement have different paths. One approach for understanding EE consists in an attributional view inspired by the theory of Weiner (1993). Attributions are cognitions about the perceived control of defined events or actions. One important conclusion of the attributional model of EE research is that relatives who judged patients to be responsible for their symptoms are more critical (Barrowclough and Hooley, 2003). Growing evidence suggests that critical comments (CC) are more predictive for the course of the illness than EOI (Marom et al., 2005). Furthermore, relatives with marked emotional over-involvement (EOI) attribute positive events more often to the patients (Grice et al., 2009), show more self blame (Peterson and Docherty, 2004) and have poorer health (Breitborde et al., 2010).

In contrast to the EE research, caregiver burden research usually refers to the stress-model of Lazarus as the theoretical frame-work (Lazarus and Folkman, 1984; Lazarus, 1991). Lazarus proposed a cognitive theory of emotions with appraisal and coping processes influencing emotions. A primary appraisal (e.g. to be concerned about psychotic symptoms) is correlated with burden (Quinn et al., 2003). In addition, secondary appraisals like attributions of control

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are correlated with negative emotions such as anxiety, anger and depression of relatives (Hazel et al., 2004; Fortune et al., 2005). The concept of attributions has clear implications for treatment as attributions have a close relation to emotions and can be influenced by interventions.

Some variables used in research of burden and EE but not highlighted in the "cognitive model of caregiving" (Kuipers et al., 2010) are not included in our model as illustrated in Fig. 1. These variables have either no reliable correlation to burden, or they cannot be changed by means of psychotherapy. Only few researchers use path models or structure equation models examining the burden of caregivers. Mostly hierarchical regressions are used and the included variables have only little relation to theory (e.g. Grandon et al., 2008). Socio-demography and psychopathology of service users are less important in models for family interventions, because they provide no new starting points for family interventions. Further, the explained variance for burden in studies using patient variables and socio-demographic variables from both relatives (Roick et al., 2006) and patients (Grandon et al., 2008) as predictors is rather small, so they can be excluded. Objective burdens such as financial loss are equally only minor predictors of subjective burden (Mory et al., 2002). In some studies the severity of symptoms is no predictor for distress of caregivers (Harvey et al., 2001). In addition, the diagnosis of the patient, regardless of whether he has an affective or a schizophrenic disorder, is not associated with increased burden (Ostman and Hansson, 2004). Hence psychopathology is not the key for understanding the burdens of caregiving. Secondary appraisals like attributions and coping are more powerful in explaining burden (Roick et al., 2006) and EE (Raune et al., 2004).

The aim of this study is to test assumptions derived from the cognitive model of caregiving (Kuipers et al. 2010) which integrates views of the attributional theory of Weiner (1993) and the stress theory of Lazarus (Lazarus and Folkman, 1984; Lazarus, 1991). For this purpose we propose a working model (Fig. 1) which includes empirically testable hypotheses on the relationship between burden of caregivers, expressed emotions, attributions and emotions.

2. Method

2.1. Subjects and procedure

The sample comprised 61 relatives of outpatients who participated in randomised controlled trial (RCT) for the treatment of negative symptoms with cognitive behavioural therapy in three German University Hospitals (TONES-study, ISRCTN25455020). The DSM-IV diagnosis of schizophrenia was confirmed by a structured clinical interview (SCID-I). The design and the characteristics of the patient sample of the TONES-study is described in detail elsewhere (Klingberg et al., 2009). In order to assess psychiatric symptomatology the Positive and Negative Syndrome Scale (PANSS) was used (Kay et al., 1987). The main inclusion criterion for the patients was

having a minimum negative symptoms measured with a modified version of the PANSS negative factor. The interview was conducted by trained raters.

The inclusion criteria for the relatives were (1) age over 18 years, (2) command of the German language sufficient to understand instructions and provide informed consent, and (3) at least 2 h face-to-face or telephone contact with the patient per week. Written informed consent, conforming to the local ethics committee guidelines, was obtained from all subjects. The protocol was approved by the local ethic committee (Project 289/2006).

The relatives were contacted by the study therapists of the service user. After the service user and the relatives had given informed consent they were asked to complete the questionnaire (t0) and to bring it to an assessment with the therapist. Six months later they were asked by phone to complete the questionnaire a second time and to return it by mail or to bring it to a second conversation (t1). Only participants with data for both assessments were included in the analysis. $N=75$ relatives entered the study at t0, in t1 $N=61$ relatives completed the second assessment, thus the loss to follow-up was 19%.

2.2. Measures

Distress was measured by two indicators with different scopes as a latent variable. The SCL K9 measures symptoms in relatives. It is a nine item short form of the Symptom Checklist 90R containing the most selective items of the 90 Item version. Its reliability in the general population is good and correlation to the original version is high (Klaghofer and Brähler, 2001). The Involvement Evaluation Questionnaire "IEQ-EU" is a self-report instrument measuring burden with proven psychometric properties in six European languages (van Wijngaarden et al., 2000). The characteristics of the German version are comparable to the other languages (Bernert et al., 2001). As proposed for research, the total burden of caregivers was calculated as the mean of the 27 core-items of the IEQ-EU.

EE was measured by the family questionnaire (FQ), the scales of which align well with the subcategories of the Camberwell Family Interview (Wiedemann et al., 2002). The reliability of the scales was good and the correlation of the two subscales was $R=0.19$.

Emotions are measured by three visual analogue scales per emotion. The relatives were asked what they feel by thinking of the ill relative. For anxiety about the patient the emotional words anxiety, worry and suspension built a scale with $\alpha=0.74$. For anger about the patient, anger, rage and wrath were chosen, the internal consistency of the scale being $\alpha=0.87$.

Attributions were measured with two five item scales extracted from the "illness perception questionnaire for schizophrenia – relatives version" (Lobban et al., 2005). The scales were translated, reversed items were replaced by positive formulations and an additional item was added to increase reliability. For example the item 'Nothing I do will affect their mental health problems at all' was replaced by, 'What I do will affect their mental Health problems' to avoid double negative. The item 'It is important not to criticize them, so that they don't relapse.' has been added to the 'control relative' scale. The internal consistency of the internal control attribution "control relative" scale was $\alpha=0.74$, and in the original version it had been 0.63. The external control attribution scale "control patient" has an internal consistency of $\alpha=0.68$, and in the original version it had been $\alpha=0.66$.

2.3. Statistics

Based on the theoretical assumptions outlined in Section 1, a structural equation model was created, focussing on the role of attributions and emotions in explaining burden and EE. In contrast to multiple regressions, structural equation modelling is not limited to a single outcome and can be used to evaluate relations among variables that are free of measurement error. With the exception of "burden/distress" we abstained from constructing latent variables in order to reduce complexity.
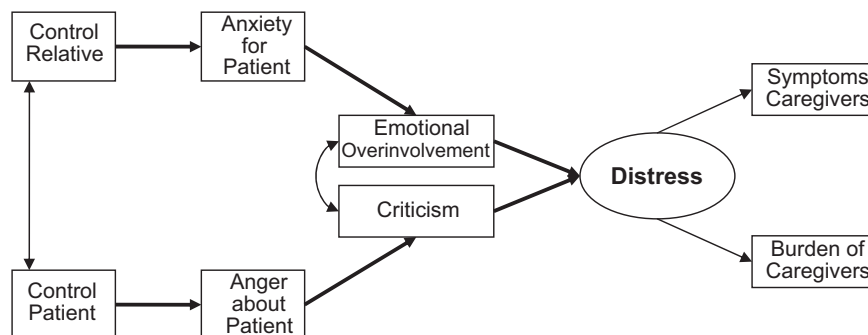

Fig. 1. Working model derived from the cognitive model of caregiving (Kuipers et al., 2010).