Self-efficacy and empowerment as outcomes of self-stigmatizing and coping in schizophrenia

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Abstract

The concept of internalized stigma or self-stigma is central to the understanding of the psychological harm caused by stigma. In this study, we aim to demonstrate how the evaluative dimension of self-concept (self-efficacy and empowerment) mediates the psychological effects of self-stigmatizing and coping with stigma. As important examples of psychological effects, depression and quality of life were focussed on. In 172 outpatients with DSM-IV schizophrenia, measures of self-stigma and devaluation, coping with stigma, self-efficacy, empowerment, quality of life and depression were assessed. It was hypothesized that withdrawal and secrecy as important coping strategies yielded to higher levels of anticipatory anxiety of future stigmatizing. Higher levels of perceived discrimination and devaluation were hypothesised to undermine self-efficacy and illness-related empowerment. Lowering of empowerment was supposed to enhance depression and reduce quality of life. This hypothesis was tested by Structural Equation Modeling as a method of data analysis. The results supported the hypothesized model; i.e., 46% of depression and 58% of quality of life reduction could be explained by eroded empowerment. Moreover, 51% of the empowerment reduction was explained by reduction in self-efficacy at a more general level by dysfunctional coping and higher levels of anticipated stigma. Taken together, our data suggest an avoidant coping style as a risk factor for anticipated stigma, which erodes self-efficacy and empowerment. These data have implications for cognitive behavioral approaches, which should focus on anticipated stigma to improve recovery in schizophrenia.

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1. Introduction

The experience of schizophrenia is not limited to the symptoms of the illness. It is accompanied by what is called a “second illness”, the reactions of the social environment to the stigma associated with the disorder (Schulze and Angermeyer, 2003). Schizophrenia has been found to be one of the most stigmatizing conditions.
(Angermeyer and Schulze, 2001). Stigma has been distinguished into self-stigma and public stigma. Public stigma is the status loss and discrimination triggered by negative stereotypes about people labeled as “mentally ill” (Link and Phelan, 2002). Self-stigma is internalized stigma. To date, few data have been collected on the self-stigma of people with schizophrenia. The present study attempts to understand how self-efficacy and empowerment mediate the psychological effects of self-stigmatizing and coping with stigma. As examples of important psychological effects, depression and quality of life were selected.

With few exceptions (Schulze and Angermeyer, 2003; Ritsher et al., 2003; Dinos et al., 2004), most research on stigma has examined public stigma toward people with mental illness (Byrne, 1977; Bhugra, 1989; Ritchie, 1994; Wolff et al., 1996). Public stigma is a social construction that defines people in terms of a distinguishing characteristic or mark and devalues them as a consequence (Jones et al., 1984; Crocker et al., 1998; Biernat and Dovidio, 2000; Dovidio et al., 2000). Public stigma reflects the status loss and discrimination triggered by negative stereotypes about people labeled as “mentally ill” (Link and Phelan, 2002). Although it may not be possible for people to conceal mental illness, managing information about their condition can be a potent source of stress, anxiety and further feelings of stigma even in the absence of any direct discrimination. The concept of self-stigma (e.g. agreement with negative prejudice like character weakness or incompetence) is central to the stigma of people with schizophrenia. The present study distinguished into self-stigma and public stigma.

Public stigma is the status loss and discrimination triggered by negative stereotypes about people labeled as “mentally ill” (Link and Phelan, 2002). Self-stigma is internalized stigma. To date, few data have been collected on the self-stigma of people with schizophrenia. The present study attempts to understand how self-efficacy and empowerment mediate the psychological effects of self-stigmatizing and coping with stigma. As examples of important psychological effects, depression and quality of life were selected.

According to the modified version of labeling theory (Link et al., 1989), stigma affects persons with schizophrenia by undermining the evaluative dimension of self-concept. Two concepts in this domain discussed in the context of self-stigmatizing are self-efficacy and empowerment. We view self-efficacy as a more generalized dimension of control expectation and empowerment as more related to the experience of severe mental illness. Diminished self-efficacy has been shown to undermine personal empowerment (Ritsher et al., 2003; Kleim et al., submitted for publication). Reduced empowerment has been found to result in higher levels of depression (Link et al., 1997; Hall et al., 1999; Link and Phelan, 2002) and lower levels of subjective quality of life (Rogers et al., 1997b; Corrigan and Penn, 1999; Sirey et al., 1999). More defensive coping strategies such as secrecy and withdrawal have been found to be associated with higher levels of self-stigma (Link et al., 1989; Wright et al., 2000; Link and Phelan, 2001; Perlack et al., 2001). Defensive coping may function as a kind of avoidance behavior to prevent (anticipated) negative reactions to mental illness. We supposed that more defensive coping strategies might act as avoidance behavior maintaining anxiety.

The psychological harm associated with perceived discrimination and devaluation seems not to be directly influenced by perceived discrimination, as Hayward et al. (2002) demonstrated that perceived discrimination is relatively independent of depressive mood in bipolar and schizoaffective disorder. Accordingly, we developed the following hypothesis: Secrecy and withdrawal as defensive coping strategies result in higher degrees of perceived stigma. Psychological effects of perceived stigma (e.g. depression, quality of life) are hypothesized to be mediated by the evaluative dimension of self-concept (self-efficacy and empowerment). Higher degrees of anticipated stigma should result in lowered self-efficacy and in reductions of personal empowerment. General self-efficacy aims at a broad and stable sense of personal competence to deal effectively with a variety of stressful situations (Schwarzer and Jerusalem, 1995). Beyond self-efficacy and self-worth, empowerment comprises actual personal power, righteous anger and community activism in the context of mental illness (Rogers et al., 1997a). Reduced empowerment was expected to enhance depression and diminish subjective quality of life. According to recent research, we also expected higher degrees of depression resulting in lower levels of quality of life (Dickerson et al., 1998; Priebe et al., 2000; Huppert et al., 2001; Bechdolf et al., 2003; Reine et al., 2003; Fitzgerald et al., 2003).

2. Methods

2.1. Subjects

Patients (N=172) with a DSM-IV diagnosis of schizophrenia were recruited through local psychiatrists in private practice. The diagnosis of schizophrenia was confirmed by the Structured Clinical Interview for DSM-IV Axis I Disorders (First et al., 1996; Wittchen et al., 1997; Kleim et al., submitted for publication), which was administered by two trained and reliable research psychologists.
2.2.2. Self-stigma

Self-stigma was assessed with the 12-item “Perceived Devaluation–Discrimination Scale” (PDD; Link, 1987; Link et al., 1991). Link’s PDD scale measures the respondent’s agreement with statements indicating that most people devalue current or former psychiatric patients by perceiving them as failures, as less intelligent than other persons, and as individuals whose opinions need not be taken seriously (Link, 1982; Link et al., 1991). The measure captures the extent to which a person believes that other people will devalue or discriminate against someone with a mental illness. A high score reflects a strong perception of devaluation–discrimination. The scale is constructed by summing the items and dividing by 12 to produce a scale score that varies from 1 to 4 (1=strongly disagree, 4=strongly agree). Link et al. (1991) showed the measure to have high reliability: Cronbach’s alpha coefficients for the PDD scale were 0.88, 0.86, and 0.88 at baseline and at the 6- and 24-month follow-ups, respectively.

2.2.3. Self-efficacy

Self-efficacy is commonly understood as being domain-specific; that is, one can have more or less firm self-beliefs in different domains or particular situations of functioning. But some researchers (e.g. Schwarzer and Jerusalem, 1995) have also conceptualized a generalized sense of self-efficacy that refers to a global confidence in one’s coping ability across a wide range of demanding or novel situations. General self-efficacy aims at a broad and stable sense of personal competence to deal effectively with a variety of stressful situations. Self-efficacy levels can enhance or impede motivation. People with high self-efficacy choose to perform more challenging tasks. Self-efficacy was assessed with the 10-item Generalized Perceived Self-efficacy Scale (Schwarzer and Jerusalem, 1995). Typical items are: “Thanks to my resourcefulness, I know how to handle unforeseen situations” and “When I am confronted with a problem, I can usually find several solutions.” Respondents indicated agreement with the items on a Likert-type scale (1=strongly disagree, 4=strongly agree). Higher scores reflect perceptions of high levels of self-efficacy. The scale has been used in numerous research projects, where it has typically yielded internal consistencies between 0.75 and 0.91. Its stability has been examined in several longitudinal studies, resulting in ranging from 0.47 to 0.75. Principal component analysis confirmed the unidimensionality of the scale (Schwarzer et al., 1997).

2.2.4. Personal empowerment

Most existing definitions of empowerment in mental health are not solely focused on psychiatric treatment, but also include the process by which people with severe and persistent mental illness become integrated into the community and gain access to employment, education and other valued resources. Nevertheless, psychiatric treatment is regarded as a central aspect of living with a mental illness, and so most definitions of empowerment include increased control over the targets, the content, and the outcome of the treatment. Particularly, mental health consumers emphasize that empowerment implies that the individual in the treatment process feels accepted as a human being and an individual, rather than as an object of medical intervention (Chamberlin, 1997; Fisher, 1994). Moreover, it has also been stressed by mental health consumers as a basic condition of empowerment that psychiatric treatment should give the consumer a reasonable hope for recovery from mental illness. The Empowerment Scale (Rogers et al., 1997b) operationalizes the construct of personal empowerment from the person’s perspective. The instrument comprises 28 statements about empowerment, which respondents answer on a four-point
agreement scale (4 = strongly agree). Typical items are: “I feel I have a number of good qualities”, “People have more power if they join together as a group”, and “I feel powerless most of the time”. A high score on the Empowerment Scale represents a low endorsement of the variable. The total score was used in this study, a procedure that is also recommended by the author (Rogers, personal communication). Rogers et al. (1997b) and Wowra and McCarter (1999) found a high internal consistency for the scale as a whole: Cronbach’s alpha coefficients were 0.85 (N=264) and 0.86, (N=261), respectively.

2.2.5. Depression
Depression and lowered self-esteem due to self-stigma was operationalized by a German adapted shortened 14-item version (Hautzinger and Bailer, 1993) of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a self-report measure that asks a person how often during the previous week he or she experienced each symptom. Subjects are asked to rate each item on a scale from 0 to 3 on the basis of “how often you have felt this way during the past week”: 0 = rarely or none of the time (less than 1 day), 1 = some or a little of the time (1–2 days), 2 = occasionally or a moderate amount of time (3–4 days), and 4 = most or all of the time (5–7 days). Typical items are: “I thought my life had been a failure”, and “I felt depressed”. Possible scores on this scale range from 0 to 42, with higher scores indicating a greater number of and more frequently experienced depressive symptoms. Cronbach’s alpha coefficient was found to be 0.83 (Hautzinger and Bailer, 1993).

2.2.6. Quality of life
Subjective quality of life was assessed with the German short version (Kaiser et al., 1996; Oliver et al., 1997; Kaiser et al., 1999) of the Lancashire Quality of Life Profile (LQOLP; Berlin Life Quality Profile, short version/BeLP-KF). This self-report instrument asks participants how they feel about their lives in nine life domains (work/occupation, leisure, financial situation, housing, safety, family, partnership, friends, physical health and mental health). Responses are scored on a 7-point rating scale ranging from completely dissatisfied (1) to completely satisfied (7). The higher the total score, the better the quality of life. The total score was calculated based on the average of scores of these items/domains and varies from 1 to 7. Cronbach’s alpha was found to be 0.83. Intercorrelations between the short and long forms varied between 0.58 and 0.91 depending on domain and sample (Kaiser et al., 1999).

2.2.7. Psychopathology
To characterize the sample’s psychopathology, the Positive and Negative Syndrome Scale (PANSS; Kay and Sandyk, 1991; Kay, 1991) was administered. The PANSS interviewers had been trained previously to a minimum intraclass correlation (ICC; Shout and Fleiss, 1979) of 0.80 based on consensus ratings at our research unit.

2.2.8. Data analysis
Based on the theoretical assumptions outlined in the introduction, a structural equation model was created. Focussing on the mediating role of empowerment and self-efficacy, it was aimed to investigate the series of relationships between the variables simultaneously. In contrast to multiple regression, structural equation modeling 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 “coping”, two randomly generated split-half “subtests” were used to allow for an estimation of underlying latent information (Rock et al., 1977; Bollen, 1989; Arbuckle and Wothke, 1995, p. 126; Kline, 2005). Variables were assessed as follows:

1) The construct “self-stigma” was understood as a latent variable underlying the two randomly generated ‘subscales’ of Link’s PDD Scale (comprising 12 items). Split-half reliability for the respective subscales ranged from 0.73 to 0.76 and demonstrated sufficient validity of the splitting procedure.

2) The construct “empowerment” was measured by two randomly selected ‘subscales’ of Roger’s Empowerment Scale. Split-half reliability for the respective subscales was 0.71 and 0.72.

3) “Depression” was assessed using two randomly selected ‘subscales’ of the short form of the German version (ADS-K) of Radloff’s Center for Epidemiologic Studies-Depression Scale CED-S. Split-half reliability for the respective subscales was 0.79 and 0.76.

4) The construct “self-efficacy” was measured by the Generalized Perceived Self-efficacy Scale. The two randomly selected ‘subscales’ comprised items 1, 2, 3, 4, and 9 versus items 5, 6, 7, 8, and 10; split-half reliability values for the respective subscales were 0.78 and 0.84.

5) “Coping to avoid rejection by stigma” was assessed by two subscales of Link’s Stigma Withdrawal Scale (Secrecy and Withdrawal Subscale). Split-half reliability for the subscales was 0.82 and 0.78, respectively.

6) The construct “quality of life” was measured using two randomly selected ‘subscales’ of the German validated short version of the Lancashire Quality of Life Profile.
and their intercorrelations are presented in Table 2. The statistical analysis of the covariance matrix was carried out with the AMOS 4.0 program, estimating model parameters (maximum likelihood estimation) and testing the adequacy of the proposed model (Arbuckle and Wothke, 1995). For these purposes, measures of absolute model fit (e.g. non-significant $\chi^2$) and measures of parsimony have to be considered. For a variety of such fit measures (Bollen, 1989; Kline, 2005), certain criteria have to be met, to accept the structural equation model as a plausible explanatory model for the empirical data. Hair et al. (1998) argued that the minimum sample size for structural equation modeling must be greater than the minimum ratio of at least five respondents for each estimated parameter. In our model the number of distinct parameters to be estimated was 31. We thus exceeded the required sample size with 5.5 respondents per parameter. As the normed fit index (NFI) may underestimate the goodness of fit of models using smaller sample sizes, additional information was obtained on the fit of the model using a small sample size by employing the comparative fit index (CFI) (Tabachnick and Fidell, 1996). More complex, i.e. less restrictive, models are penalized by a downward adjustment, while more parsimonious, i.e. more restrictive, models are rewarded by an increase in the fit index. According to Bentler (1990), the CFI avoids the underestimation of fit often noted in small samples for Bentler and Bonett’s (1980) NFI. The CFI ranges from zero to one, with higher values indicating better fit. A rule of thumb for this index is that 0.95 is indicative of good fit relative to the independence model, while values greater than 0.90 may be interpreted as an

### Table 1

Sample characteristics in model variables ($N=172$)

<table>
<thead>
<tr>
<th>Variables (measures)</th>
<th>Ranges</th>
<th>M (S.D.)/number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping to avoid rejection by stigma and discrimination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secrecy (Link’s Secrecy Scale)</td>
<td>1–4</td>
<td>2.7 (S.D. = 0.80)</td>
</tr>
<tr>
<td>Withdrawal (Link’s Withdrawal Scale)</td>
<td>1–4</td>
<td>2.7 (S.D. = 0.61)</td>
</tr>
<tr>
<td>Perceived Devaluation and Discrimination (PDD)</td>
<td>1–4</td>
<td>2.7 (S.D. = 0.62)</td>
</tr>
<tr>
<td>Number of patients exceeding scores $&gt;1$</td>
<td></td>
<td>126 (73.4%)</td>
</tr>
<tr>
<td>Self-efficacy (Generalized Self-efficacy Scale)</td>
<td>10–40</td>
<td>26.3 (S.D. = 6.8)</td>
</tr>
<tr>
<td>Empowerment (Empowerment Scale)</td>
<td>1–4</td>
<td>2.8 (S.D. = 0.33)</td>
</tr>
<tr>
<td>Depression (CED-S/ADS total score)</td>
<td>0–42</td>
<td>28.8 (S.D. = 9.4)</td>
</tr>
<tr>
<td>Quality of life (Lancashire Quality of Life Profile, total score)</td>
<td>1–7</td>
<td>4.7 (S.D. = 0.97)</td>
</tr>
</tbody>
</table>

Notes: Coping to avoid rejection by stigma and discrimination: Link’s Stigma-Withdrawal Scale (Link and Phelan, 2001). Anticipatory anxiety of expected stigmatization: Perceived Devaluation–Discrimination Scale (PDD; Link, 1987; Link et al., 1991); Self-efficacy: Generalized Perceived Self-efficacy Scale (Schwarzer and Jerusalem, 1995); Empowerment: Empowerment Scale (Rogers et al., 1997b); Depression (CED-S/ADS): German adapted shortened 14-item version (ADS-K, Allgemeine Depressions Skala; (Hautzinger and Bailer, 1993); Kurzform (ADS-K) of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977); Quality of life: German modified version (Kaiser et al., 1996, 1999; Oliver et al., 1997) of the Lancashire Quality of Life Profile (LQOLP; Oliver et al., 1997); $M =$ mean; S.D. = standard deviation; high scores represent a high endorsement of the variable, when not otherwise specified as +."
acceptable fit (Hu and Bentler, 1998). Again a value of 0.95 seems to be more reasonable as an indication of a good model fit than the often stated cutoff value of 0.90 (Bentler, 1990). Because coefficient alpha wrongly assumes that all indicators contribute equally to reliability (Bollen, 1989), we chose composite reliability (Fornell and Larker, 1981; Baumgartner and Homburg, 1996), which draws on the unstandardized regression weights and measurement error for each indicator.

3. Results

Level of psychopathology (PANSS) in our sample generally was low to moderate: Means and standard deviations were as follows: for positive symptoms (range: 7–49) 13.1 (S.D. = 4.8), for negative symptoms (range: 7–49) 15.4 (S.D. = 5.7), and for general psychopathology (range: 16–112) 30.3 (S.D. = 7.5). Means and standard deviations of all other variables are listed in Table 1.

Self-efficacy was significantly lower than the mean found by Schwarzer et al. (1997) in a German sample with chronic somatic diseases ($M_{\text{Y}}=316$ = 32.11 (S.D. = 5.2), $P<0.001$). The proportion of patients without any perceived stigma and devaluation was low (26.6%). The overall mean empowerment score was above the midpoint for the instrument, pointing to a low endorsement of the variable in our sample. Intercorrelations of the variables are presented in Table 2.

Firstly, we present reliability and validity of the measurement models, and then evaluate the goodness of fit of the path model. The reliability and validity of the measurement models was acceptable: All indicators could be considered to represent attributes of the corresponding construct (Bollen, 1989). The regression weights from latent variables to indicators were all highly significant ($t$-values (the C.R. = critical ratios, are $t$-distributed) between 2.8 and 15.9; and indicator reliability always is $>0.40$, (Baumgartner and Homburg, 1996). Composite reliabilities for the respective latent variables were the following: Coping 0.76, Perceived Devaluation and Discrimination 0.85, Self-efficacy 0.87, Empowerment 0.69, Depression 0.87 and Quality of life 0.71. A popular

Fig. 1. Self-efficacy and empowerment mediating psychological effects of self-stigmatizing and coping (Model 1). Notes: Structural equation model: rectangles indicate observed indicator variables. Ovals indicate unobserved latent variables. Numbers at single headed arrows indicate standardized regression weights. Numbers at variables indicate squared multiple correlation coefficients. There were no undefined matrices and no constrained parameters. The overall model fit was $\chi^2 = 57.6, df=48, P<0.16$. Fit indexes: $C_{\text{min}}/df=1.20$, NFI=0.95, GFI=0.95, Tucker–Lewis Index (Bentler and Bonnet non-formed fit index)=0.99, RMSEA =0.035. Coping = Stigma Withdrawal Scale (Link et al., 1991; Link and Phelan, 2001); self-stigma = Perceived Devaluation–Discrimination Scale (Link, 1987; Link et al., 1991); self-efficacy = Generalized Perceived Self-efficacy Scale (Schwarzer, 1995); empowerment = Empowerment Scale (Rogers et al., 1997b); depression = (CED-S-/ADS) German adapted shortened 14-item version (ADS-K, Allgemeine Depressions Skala, Kurzform; Hautzinger and Bailer, 1993) of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977); quality of life = German modified version (Kaiser et al., 1996, 1999; Oliver et al., 1997) of the Lancashire Quality of Life Profile (LQOLP; Oliver et al., 1997).
rule of thumb is that 0.70 is the threshold for an acceptable composite reliability, which would suggest that less than half of the indicator variance is due to unmeasured sources. The average variance extracted by each construct from the indicators was as follows: Coping 0.62, Perceived Devaluation and Discrimination 0.74, Self-efficacy 0.77, Empowerment 0.51, Depression 0.78 and Quality of life 0.55. For all variables we exceeded the recommended value of 0.50 or higher. This indicated that in each case the variance captured by the construct was greater than the variance due to measurement error.

Testing the structural equation model in Fig. 1, we found a valid Model ($\chi^2 = 57.6$, $df = 48$, $P = 0.16$) and very good fit indices (see Bollen, 1989; Kline, 2005): NFI = 0.95, CFI = 0.99. Fig. 1 illustrates that in the proposed model 35% of the variance in the observed self-stigma can be explained by coping strategy, and 21% of the variance in self-efficacy can be explained by self-stigma; self-efficacy in turn explained 51% of the variance in empowerment, and 46% of the variance in the observed depression can be explained by empowerment. In a multi-group model comparison we checked whether significant differences occurred between the regression patterns of patients who were on atypical neuroleptic treatment and the total sample. If we forced all regression coefficients for the total sample and the subgroup of patients with atypical neuroleptic drugs to be the same, the model in the subsample of patients with atypicals did not differ significantly from the model in the total sample ($\chi^2 = 102.9$, $df = 97$, $P = 0.32$, NFI = 0.99, TLI = 0.99).

Finally, we did not find any evidence for our competitive hypothesis of a single second order factor model subsuming self-efficacy and empowerment as subconstructs in only one latent variable. This yielded to a model that did not fit the data ($\chi^2 = 64.89$, $df = 47$, $P < 0.043$, NFI = 0.94, TLI = 0.93). Neither positive symptoms nor negative symptoms showed any significant correlations to our model variables.

4. Discussion

In 172 outpatients with schizophrenia, we focused on quality of life and depression as important examples of psychological harm caused by self-stigmatizing. In our sample, the proportion of patients without any perceived stigma and devaluation was low (26.6%). The overall mean empowerment score was above the midpoint for the instrument. This indicates a moderate to low level of empowerment, and the mean score was in between the scores found by Wowra and McCarter (1999) and Rogers et al. (1997b). This demonstrated that perceived devaluation and stigmatization is important in people with schizophrenia even if the degree of recovery is high (low psychopathology scores and 48% of the sample was employed or had at least sheltered work).

Structural equation modeling supported our path model: 35% of the variance in the observed self-stigma can be explained by the coping strategy adopted. This confirms our hypothesis that withdrawal and secrecy as coping strategies may be regarded as avoidance behavior maintaining high levels of anticipatory anxiety of future stigmatizing. In line with other findings, in epilepsy (Dilorio et al., 2003), de-institutionalized patients (Wright et al., 2000), and schizophrenia (Kleim et al., submitted for publication), we demonstrated that higher levels of perceived devaluation and discrimination (e.g. agreement with negative prejudice like character weakness or incompetence) contribute to lower self-efficacy: 21% of the variance in self-efficacy could be explained by self-stigma. An explanation for this may be that learned helplessness was demonstrated as a frequent consequence of psychosis (Starkey and Flannery, 1997) undermining the recovery process (Jackson et al., 2000; Birchwood, 2000).

Our results also showed that diminished self-efficacy undermines personal empowerment. Indeed, 46% of the variance in the observed depression and 58% of quality of life reduction could be explained by eroded empowerment. This underlines the role of self-concept variables in the stigma process, especially the evaluative dimension of the self-concept of persons with schizophrenia (self-efficacy, empowerment). Despite a certain conceptual overlap between self-efficacy and empowerment, we failed to find evidence for a path model showing self-efficacy and empowerment as subordinated constructs of the same evaluative dimension of self-concept, or a mode omitted self-efficacy or empowerment. We supposed generalized self-efficacy as a more generalized dimension of control expectation and empowerment as more related to the experience of severe mental illness. All these effects were independent of psychopathology, or at least of low to moderate levels of symptom severity.

The present study extends previous investigations in the field in numerous ways. To date, very few studies have focussed on subjective aspects of stigma. In contrast to previous studies, which have mostly used correlational or regression models, the present study applies structural equation modeling to test the complex relationships between components of self-stigma and psychological consequences of these processes. Finally, with respect to the studied sample, our study differs from many other studies, as it presents detailed data on psychological consequences of self-stigmatizing.
processes in a sample of patients with schizophrenia rather than a mixed heterogeneous sample of patients with severe mental illness.

In spite of these strengths, our study has some limitations: Sample size was at the lower limit of tolerability for structural equation modeling. The study was cross-sectional in nature and should be replicated by longitudinal studies. Further, perceived discrimination and devaluation do not represent all aspects of the construct (for an overview, see Ritsher et al., 2003). Also, experienced discrimination and devaluation were not assessed. Finally, the influence of psychopathology may be underestimated in our study because of low levels of psychopathology in our sample and resulting problems of restricted range of values. Given the fact that nearly 50% of research participants had at least sheltered work, generalization of results to the population of schizophrenia may be compromised.

Stigma works at cross-purposes to treatment (Link et al., 1997): Self-stigma impedes recovery (Phelan et al., 2000) by eroding individuals’ social status, social network and self-esteem. All this contributes to poor outcomes (Leaf et al., 1986; Sussman et al., 1987; Fink and Tasman, 1992; Rosenfield, 1997; Angermeyer and Matschinger, 1999; Sirey et al., 1999, 2001b; Cooper et al., 2003), including deficits in social adaptation, unemployment or social isolation/withdrawal (Link et al., 1991; Wright et al., 2000; Link and Phelan, 2001; Perllick et al., 2001; Struening et al., 2001), treatment-refractory symptoms by reduced treatment adherence (Sirey et al., 2001a,b) or prolonged course by delayed treatment-seeking and avoidable hospitalizations (Leaf et al., 1986; Sussman et al., 1987). Clinicians should be encouraged to include self-stigma reduction as a verifiable treatment goal in addition to symptom reduction. Interventions that both reduce self-stigma and reduce illness symptoms are likely to be more efficient, efficacious and long-lasting. Promoting recovery should imply encouragement of the person to educate significant others about what the experience of psychosis means to him/her. One example of this kind of intervention is McGorry and Edwards’ Cognitively Oriented Psychotherapy (COPE) approach for first episode schizophrenia (Jackson et al., 2000) and Hayward’s group cognitive behavioral approach focusing on self-stigma (Knight et al., submitted for publication). In their cognitive behavioral group approach (six sessions, one booster session), they use cognitive restructuring techniques, skills training and normalizing. Future research should demonstrate the efficacy of this promising treatment approach and the generalization of effects on adaptive health service utilization, compliance with treatment regime and recovery in schizophrenia.

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