Psychosocial Functioning and Subjective Experience in Schizophrenia: A Reanalysis

by David M. Romney

Abstract

Data collected by Brekke et al. (1993) on the symptomatology, psychosocial functioning, and subjective experience of schizophrenia outpatients were reanalyzed using LISREL to elucidate a causal model that would depict the functional relationships between the variables. The model that best fit the data parallels another model tested previously on cardiac patients and shows that subjective experience is much more influenced by symptomatology than by social functioning. This confirms Brekke et al.'s main finding. The implications of these results for intervention and for future research are considered.


Brekke et al. (1993) explored the relationship between subjective experience and psychosocial functioning in schizophrenia. They argued that this research was important because (1) the nature of the subjective experience of schizophrenia patients needed further clarification, (2) psychosocial variables, which may influence subjective experience, are commonly used as measures of change in intervention studies, and (3) there is no conceptual model for understanding the functioning relationship between subjective experience and the social and clinical aspects of schizophrenia. As the authors point out, it is not clear whether psychosocial functioning influences subjective experience or vice versa; in other words, what is the dominant direction of influence?

Data for the Brekke et al. study came from 193 outpatients with schizophrenia (74% male) who were not undergoing rehabilitative treatment at the time. Subjective experience was assessed on the Index of Self Esteem (ISE; Hudson 1982); the Satisfaction With Life Scale (SWL; Stein and Test 1980); and the Brief Symptom Inventory (BSI; Derogatis and Melisaratos 1983), which measures distress. Psychosocial functioning was assessed with the Community Adjustment Form (CAF; Test et al. 1991), the Brief Psychiatric Rating Scale (BPRS; Overall and Gorham 1962), and the Intrapsychic Foundations subscale of the Quality of Life Scale (QLS; Heinrichs et al. 1984). While the CAF measures social functioning in areas such as employment, independent living, and social support (family and friends), the BPRS and the Intrapsychic Foundations subscale measure symptomatology, with the latter tapping intrapsychic deficit (ID) (i.e., lack of purpose, motivation, curiosity, etc., combined with anhedonia and aimless inactivity), which is considered to be central to schizophrenia (cf. negative symptoms).

Because the correlation among these variables shows that the ID and the BPRS have a more pervasive relationship with subjective experience than the other psychosocial variables have, Brekke et al. (1993) decided to perform a canonical correlation analysis. The results of this analysis suggest that (1) the psychosocial variables should be dichotomized into disorder-related variables (symptoms and ID) and
functional status variables (employment, social functioning, and living situation), and (2) the subjective experience variables seem to be much more related to the former group than to the latter.

Granted, that these variables could be grouped into the three categories of symptomatology (BPRS, ID), social functioning (employment, social support, independent living), and subjective experience (ISE, SWL, BSI), the question still remains: How do these variables relate to one another functionally? Inspection of the correlation matrix led Brekke et al. (1993, p. 603) to suggest that, as symptomatology and intrapsychic deficits increase, self-esteem and satisfaction with life decrease and subjective distress increases. As work and social functioning increase . . . self-esteem increases. Finally, as social functioning increases, so does satisfaction with life.

What is intriguing is that this "model" is similar to another model, found in a totally unrelated study by Romney et al. (1992), that describes a structural analysis of health-related quality of life dimensions in 469 cardiac patients, even though the components and their pathways are not identical. The prime purpose of the Romney et al. (1992) study was to compare the goodness of fit of two competing models, a medical model in which illness adversely affects morale and a psychosomatic model in which low morale exacerbates illness. The results of the analysis showed that the medical model fit the data very well whereas the psychosomatic model fit the data poorly. The medical model had symptoms of illness and neurological dysfunction as exogenous factors that had a direct and adverse affect on economic status, morale, and social relationships. Diminished economic status, in turn, lowered morale, which was detrimental to maintaining relationships (see figure 1).

Although the Romney et al. (1992) model (model 1) was fitted to data elicited from cardiac patients and used different assessment instruments, the actual domains examined were similar to those in the study by Brekke et al. (1993) on schizophrenia patients. Hence, we ask ourselves if it is possible for the model for cardiac patients to be generalized to schizophrenia patients. After all, both groups are chronic patients whose quality of life can be adversely affected by their illness. To answer this question, we subjected the relevant data from the Brekke et al. (1993) study to a series of covariance-structure analyses using LISREL (Jöreskog and Sörbom 1989), a computer program designed to test the goodness of fit of models that include causal pathways between variables (observed and latent). Theoretically, all these pathways can flow in the same direction (recursive model), or they can be bidirectional, indicating reciprocal causation (nonrecursive model). The LISREL model, however, assumes that the relationships among its components are linear. Not only does this kind of analysis take direction of influence into account, but it also estimates the strength of the influence by path or standardized partial re-

Figure 1. Quality-of-life model for cardiac patients

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SYMPTOMS OF ILLNESS

NEUROLOGICAL DYSFUNCTION

.18

.13

.48

.31

.17

.14

DIMINISHED SES

LOW MORALE

POOR RELATIONSHIPS

.18

.48

.31

.17

.14

.72

.70

.86

SES = socioeconomic status.
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gression coefficients. The indices that measure goodness of fit include chi-square, which is an index of the probability that the actual correlation coefficients in the original (sample) correlation matrix diverge from their expected values in the (population) matrix implied by the model; the adjusted goodness-of-fit index, which is the variance of the correlation matrix explained by the model and adjusted for degrees of freedom; and the root-mean-square residual, which is the root-mean-square difference between the two correlation matrices.

For readers who are unfamiliar with covariance-structure analysis using LISREL and would like to learn more, Bynner and Romney (1985) have provided an introduction to the topic.

**Method**

The model suggested by the schizophrenia data, which parallels the model in figure 1, was tested with LISREL 7 (Jöreskog and Sörbom 1989). In this model (model 2a), symptoms (BPRS) and ID are on the left-hand side (the exogenous variables), and friendships (social functioning), life satisfaction (SWL), and employment are on the right (see figure 2). Note that the variables representing family support, self-esteem, distress, and living situation were omitted from this model to make it consistent with the model on cardiac patients. (Also, because a low score on ID reflects impairment, the signs of the coefficients involving this variable were reversed.)

One other change in this model involves reversing the direction of the arrow running from friendships to satisfaction, in keeping with Brekke et al.'s (1993) hypothesis that social functioning increases satisfaction. This model fit the data extremely well, as evidenced by the goodness-of-fit indices (see table 1). However, the path coefficients from symptoms to friendships (-0.01) and from employment to satisfaction (0.02) were negligible. They were, therefore, eliminated from the model, and a more parsimonious model variant (model 2b) was tested. This model was also an excellent fit (table 1). In fact, if we compare the two chi-square/degrees of freedom ratios (cf. Wheaton et al. 1977), 2.22 versus 0.79, it is clear that the latter is superior although the estimated parameters in model 2b remain virtually unchanged (see figure 3).

Inspection of figure 3 shows that the strongest pathways run from symptoms and deficit to satisfaction. Deficit also acts on satisfaction indirectly via friendships to add an effect of \(-0.28 \times 0.25 = -0.07\) to the direct effect of \(-0.73\) to produce a total effect of \(-0.80\). Neither of the two path coefficients running from the exogenous variables to employment are statistically significant. However, omitting both of these insignificant pathways would result in a model (model 2c) with a much poorer fit (table 1). Note that the chi-square/degrees of freedom ratio then increases to 2.86.

![Figure 2. Model 2a: Causal model relating symptomatology, psychosocial functioning, and subjective experience in schizophrenia](https://academic.oup.com/schizophreniabulletin/article-abstract/21/3/405/1943913/407)
Table 1. Goodness-of-fit indices for LISREL models

<table>
<thead>
<tr>
<th>Model</th>
<th>Chi-square</th>
<th>Degrees of freedom</th>
<th>p</th>
<th>Adjusted goodness-of-fit index</th>
<th>Root-mean-square residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.82</td>
<td>1</td>
<td>0.18</td>
<td>0.998</td>
<td>0.012</td>
</tr>
<tr>
<td>2a</td>
<td>2.22</td>
<td>1</td>
<td>0.14</td>
<td>0.931</td>
<td>0.027</td>
</tr>
<tr>
<td>2b</td>
<td>2.38</td>
<td>3</td>
<td>0.50</td>
<td>0.975</td>
<td>0.029</td>
</tr>
<tr>
<td>2c</td>
<td>14.29</td>
<td>5</td>
<td>0.01</td>
<td>0.916</td>
<td>0.090</td>
</tr>
</tbody>
</table>

Discussion

Essentially, Brekke et al. (1993) found that there are two distinct relationships among their domains: a strong one between symptomatology and subjective experience, and a weak one between social functioning and subjective experience. They refer to this model as a “two-tiered canonical model of subjective experience in schizophrenia” (p. 605). Likewise, the LISREL model 2b also demonstrates a strong relationship between symptomatology and subjective experience and a much weaker one between social functioning and subjective experience. With respect to the latter relationship, only social networking, as indicated by friendships, had any effect on life satisfaction; employment had no tangible effect at all. Nevertheless, although individuals with schizophrenia did not seem to find their employment activities satisfying, the mere fact that they were employed at all may have been good for their self-esteem. (The correlation between employment and self-esteem was 0.20, \( p < 0.01 \).) Moreover, none of the individuals was having rehabilitation, so we are unable to judge what effects that might have had on their employment activities and thus on their feelings of satisfaction. For these (and other) reasons, it would be premature to underestimate the role of employment in life satisfaction because it was not possible to assess the full and unequivocal impact that a job could have had. It is noteworthy that in the model for cardiac patients (figure 1), socioeconomic status (SES) did have an effect on life satisfaction, albeit a small one. However, the two measures did not have that much in common: SES in the cardiac patient study was an index of occupational status and income, whereas employment in the schizophrenia patient study referred to the number of days at work. This difference may account for the discrepancy between the findings.

In conclusion, for people with schizophrenia to be able to experience overall satisfaction with life, it would appear that the most important first step is to alleviate...
their symptoms, both positive and negative. This is something that we hope can be realized through medication. If we believe that schizophrenia patients can experience an adequate standard of quality of life (QOL) regardless of their symptoms, this belief needs to be reconsidered because, although it may be possible, it would be far more difficult to achieve. The importance of relieving symptoms and having a sense of psychological and physical well-being cannot be overstated. Hence, every attempt should be made to keep their symptoms under control, although this inevitably raises the issue of treatment compliance and correct dosage (to maximize treatment effects and minimize side effects).

Despite the acknowledged importance of medication in controlling symptoms and thereby helping to facilitate a satisfactory QOL, nonmedical forms of intervention should not be neglected. The advantages of psychosocial treatment for chronic schizophrenia, as an adjunct to drug therapy, are discussed fully by Bellack and Mueser (1993). Also, a recent study by Benedict et al. (1994) shows how cognitive retraining can help schizophrenia patients compensate for their attention deficits, which should in turn help them to lead a more normal life.

Implications and Recommendations

The serendipitous finding that the causal model relating symptomatology, social functioning, and subjective experience in cardiac patients also worked for schizophrenia patients has both theoretical and practical implications. First, it suggests that there may be a universal model or template that can be applied to all disabled populations. This means not just those suffering from chronic mental or physical illnesses but also those born with developmental disabilities and those afflicted with the frailties of old age. From a theoretical standpoint, the QOL model implies that the disability is primary and that psychosocial functioning is secondary.

There has been a proliferation of scales for measuring QOL, and there is now even an embarrassment of choices. A single battery of scales developed specifically to measure those factors included in the model would provide greater consistency of measurement instrumentation across studies, which would be a boon for clinicians, researchers, and administrators alike. Of course, the battery would have to be adapted to the target population. In the elderly, for instance, the Illness Symptoms factor would have to be recast. Rather than focus on the symptoms of one disease category, it would be necessary to devise a general measure (e.g., the Sickness Impact Profile [Bergner et al. 1981]) that would cover the symptoms of arthritis, pulmonary problems, digestive problems, etc., as well as other common aches and pains associated with old age (Jenkins 1989). Similarly, if we were to try and formulate a QOL model for individuals with developmental disabilities, we would find that the two exogenous variables that might be considered equivalent to psychiatric symptoms and ID in schizophrenia patients are impaired intelligence and failure to cope with everyday activities, while the endogenous variables in the model would stay essentially the same.

Further studies using covariance-structure analysis could be conducted on symptomatology, social functioning, and subjective experience data collected from different clinical populations to confirm that the QOL model applies. Preference, however, should be given to longitudinal studies, because they could show that changes in subjective experience actually follow changes in symptomatology. Even so, post hoc non ergo propter hoc and, strictly speaking, causality can only be determined through experimentation. However, as experimentation might entail withholding treatment from some patients, ethical considerations come into play. Covariance-structure analysis, on the other hand, poses no such problems.

References


Bergner, M.; Bobbitt, R.A.; Carter, W.B.; and Gilson, B.S. The Sickness Impact Profile Development and final revision of a health status measure. Medical Care, 19:787–796, 1981.

Announcement

The IV International Congress on Emergency Psychiatry will be held in Turin, Italy, October 18-21, 1995. The Congress will cover a wide range of topics including emergency intervention—families and social environment; aggressivity—violence and impulsiveness; emergency and minorities; psychiatry—emergency and crisis; the staff—the therapeutic network; prevention and training; the cost of emergencies; and self-inflicted violence and suicide.

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