

HEALTH-RELATED QUALITY OF LIFE IN OLDER PATIENTS WITH SCHIZOPHRENIA AND OTHER PSYCHOSES: RELATIONSHIPS AMONG PSYCHOSOCIAL AND PSYCHIATRIC FACTORS

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ABSTRACT

Objective. Few multivariate studies relating psychosocial factors to symptoms of psychosis among older patients exist. We assessed environmental stressors, satisfaction with emotional support, coping responses and psychiatric symptoms, and sought to relate these factors to quality of well-being among older patients with schizophrenia and other psychoses.

Method. Subjects were 70 psychosis patients with a mean age of 58. Predictors included measures of stressors (number of negative life events), satisfaction with emotional support, coping responses, positive and negative symptoms, depressive symptoms, social adjustment and a general quality of well-being (QWB) score.

Results. A conceptual model was tested and modified using path analytic techniques. Preliminary analyses suggested that psychosocial environment (life events, coping and emotional support) was primarily a product of psychiatric symptoms. Therefore, psychiatric symptoms preceded psychosocial environment variables in the proposed model. Further results suggested that depression mediated all of the effects of psychotic symptoms on social maladjustment, but not all of their effects on well-being.

Conclusions. In older patients with schizophrenia and other psychoses, health-related quality of well-being is influenced by symptoms of psychoses, psychosocial factors and social maladjustment. © 1997 by John Wiley & Sons, Ltd.

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Research into the role of psychosocial factors in the development and course of psychosis has been limited; however, investigations of life events and familial stressors have demonstrated the importance of both environmental and interpersonal factors (Harder *et al.*, 1989; Goldstein, 1985). In addition to life events, most of these studies have focused on personal dispositions and/or social conditions. As outlined by Dohrenwend and Dohrenwend (1980), a number of different models have been suggested in attempts to integrate these

constructs. Most models have suggested that stressful life events may lead to adverse health change. At least one model, sometimes termed the proneness model, suggests, however, that symptoms precede increased life events. The overarching goal of the present study was to examine relationships among life events, symptoms of psychosis and their impact on the quality of life of older patients with schizophrenia and related psychoses.

Research examining the relationship between life events and the development of schizophrenia has produced mixed results. Several studies have found a significant increase in the number of 'independent' life events occurring in a short period of 3-12 weeks preceding the onset of psychotic symptoms (Brown and Birley, 1968; Brown *et al.*,

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1973; Harder *et al.*, 1980; Leff *et al.*, 1973). This suggests that life events may play a major role in triggering schizophrenic episodes. Other investigators have also found an increase in life events preceding the onset of schizophrenic illness, but the events were not clearly independent of the influence of the illness (Dohrenwend and Dohrenwend, 1980; Dohrenwend and Egri, 1981; Fontana *et al.*, 1972; Jacobs and Myers, 1976; Michaux *et al.*, 1967). It may be that personal characteristics and lifestyles of persons with schizophrenia influence the occurrence of life events which, in turn, increase the likelihood of a schizophrenic episode or relapse. Problems with measurement instruments, sample size, sample bias and methodological inadequacies have been noted as factors that may account for the absence of an observed relationship in some studies (Eisler and Polak, 1971).

Empirical investigations of the role of social support in buffering and ameliorating the symptoms of schizophrenic illness are limited in number. The few studies that examined the interpersonal relationships of psychotic patients have dealt with social network factors rather than qualitative aspects of social support. Nevertheless, these studies indicate that schizophrenia patients have smaller networks than normal controls and non-psychotic psychiatric patients (Cohen and Sokolovsky, 1978; Garrison, 1978; Lipton *et al.*, 1981; Tolsdorf, 1976; Westermeyer and Pattison, 1981). There is also evidence that the social networks of schizophrenia patients tend to be dominated by family relationships, whereas controls are likely to be involved with both family and friends (Tolsdorf, 1976; Pattison *et al.*, 1975). We found only one published study of schizophrenia that assessed the patient's perceptions of social support and related this factor to the course of the disorder. Erickson *et al.* (1989) reported that schizophrenia patients had both a smaller number of close and confiding relationships and fewer friends as compared to normal controls and patients with affective disorders. Furthermore, greater availability of non-kin was positively associated with better outcome for schizophrenia patients, whereas family involvement was negatively associated with outcome.

In our previous work, health-related quality of life was inversely related to severity of symptoms among older psychosis patients (Patterson *et al.*, 1996). That study did not consider psychosocial factors or social functioning as predictors of this important outcome. Although psychosocial factors have been associated with health-related quality of

life among medically ill patients (eg cardiovascular patients; Shumaker and Czajkowski, 1993), no published studies have simultaneously examined these relationships among older psychosis patients. The purpose of the present study was to examine the interrelationships between psychosocial factors (ie life events, coping and social support) and psychiatric symptoms (ie positive, negative and depressive symptoms) and their relationship to social functioning and health-related quality of life. Most studies of psychosis have focused on positive and negative symptoms; however, some studies (eg Siris *et al.*, 1994) suggest the importance of depressive symptoms in this population. In our study, we used path analytic techniques to assess the degree to which a conceptual model might explain the covariance among psychiatric symptoms, psychosocial environment, social maladjustment and health-related quality of life.

METHODS

Sample selection

The sample was composed of 70 psychosis patients over the age of 45 who were participating in a study at the University of California, San Diego, Clinical Research Center (CRC). The cohort was recruited from the Veterans Affairs Medical Center, San Diego, UCSD Medical Center and the San Diego community. Patients had to have a DSM-III-R (American Psychiatric Association, 1987) diagnosis of psychosis and be physically and psychiatrically stable enough to undergo assessments required by the CRC. Exclusion criteria for this study were: organic mental syndromes, with evidence of neurologic, metabolic or similar disorders on the basis of past history, current physical examination or laboratory tests; substance abuse—current diagnosis of substance abuse or dependence that would meet DSM-III-R (American Psychiatric Association, 1987) criteria; and absence of voluntary informed consent. Patients were not excluded for physical illness, unless it precluded their ability to complete assessments.

Psychiatric diagnoses were based on the Structured Clinical Interview for DSM-III-R patient version (SCID-P) (Spitzer *et al.*, 1990). The majority of the patients had a diagnosis of schizophrenia. Details of the clinical assessment have been described previously (Jeste *et al.*, 1995). Sample characteristics are presented in Table 1.

Table 1. Means and standard deviations for demographic variables for psychosis patients

	Psychosis patients (<i>N</i> = 70)	
	Mean	(SD)
Age (yr)	58.2	(9.2)
	<i>N</i>	(%)
<i>Gender</i>		
Female	12	17.1
Male	58	82.9
	<i>N</i>	(%)
<i>DX grouping</i>		
Schizophrenia	49	70.0
Mood disorder	11	15.7
Schizoaffective	10	14.3
No major psychiatric disorder	0	0.0
	<i>N</i>	(%)
<i>Marital status**</i>		
Single	28	40.0
Cohabiting	2	2.9
Separated/divorced	18	25.7
Widowed	10	14.3
Married	12	17.1
	Mean	(SD)
Education (yr)*	12.7	(2.9)
	Mean	(SD)
Age of onset of illness (yr)	33.7	(15.8)
	<i>N</i>	%
<i>On neuroleptics</i>		
Yes	63	90.0
No	7	10.0
Simpson-Angus scale**	21.2	(5.7)
AIMS**	6.1	(3.9)

AIMS, Abnormal Involuntary Movement Scale.

p* ≤ 0.05 (two-tailed *t*-tests).*p* ≤ 0.01 (two-tailed *t*-tests).

MEASURES

Stress

Data on life stress for the 6 months preceding the interview were gathered based on the Psychiatric Epidemiology Research Interview (PERI) (Dohrenwend, 1977), with additional instructions and probes to enhance reliability of self-report (Grant *et al.*, 1989). In a structured format the

interviewer inquired about the occurrence of 133 events related to school, work, love, health (personal and important others), crime, money, childbirth, family, residence, personal habits and death that had occurred in the 6 months preceding the interview. The subjects were also asked about any other events that they had experienced that did not appear on the PERI list. When an event was identified, participants rated the desirability/undesirability of each event on a seven-point Likert scale, ranging from 1 (extremely negative) to 7 (completely positive). For this report, we utilized the total number of events rated by the subject as being negative (ie ratings of mildly, moderately or extremely negative) as our measure of stressful life events.

Emotional support

Emotional support was assessed using a shortened version of a scale developed by Pearlin *et al.* (Pearlin *et al.*, 1990). Respondents were asked to indicate the extent to which they agreed or disagreed with a series of five statements that tapped into the perceived availability of a person who was caring, trustworthy, uplifting and a 'confidant'. The mean value for this five-item scale for emotional support was utilized in the analysis.

Coping

Participants completed an abbreviated Ways of Coping Questionnaire—Revised (WCQ-R) (Folkman *et al.*, 1986) related to the most stressful incident that they had experienced during the previous 6-month period. The original 66-item scale employs a Likert-type format to ascertain the degree of the use of each coping item. In order to reduce the length of this scale, original items with factor loadings greater than 0.5 (see Folkman and Lazarus, 1988, for a description of the eight original scales and factor loadings) were retained, yielding three items per scale for a total of 24 items. Secondary factor analysis revealed that two major factors were present: avoidant coping (including the subscales of distancing, accepting responsibility, escape-avoidance and self-controlling); and approach coping (including the subscales of confrontive coping, seeking social support, planful problem-solving and positive reappraisal). Avoidant forms of coping have been demonstrated to relate to psychotic outcomes. Hence we only considered avoidant coping in these analyses.

Psychopathology

The Scales for Assessment of Positive and Negative Symptoms (SAPS and SANS) (Andreasen and Olsen, 1982; Andreasen, 1982) and the depression scale derived from the Brief Symptom Inventory (BSI) (Derogatis *et al.*, 1974; Derogatis and Melisaratos, 1983) were used to assess psychopathology.

Social maladjustment

Social functioning and adjustment of the patient were assessed by a modified Social Adjustment Scale (SAS) (Weissman *et al.*, 1971, 1990; Cooper *et al.*, 1982), utilizing a semi-structured interview format, designed to be administered by non-clinicians in a relatively short period of time. The SAS covers six areas of social functioning: work, social and leisure activities, relationships with immediate and extended family, marital and parental roles and economic dependence. Subjects rated their functioning during the prior 6-month period. A single score based on the mean value of responses to items from all areas of functioning was used in the present analysis. The SAS interview format has been used widely with a variety of psychiatric populations, eg schizophrenia (Bellack *et al.*, 1990) and depression (Paykel and Weissman, 1973). It has been shown to have both good interrater reliability (Weissman *et al.*, 1971; Paykel *et al.*, 1971) and discriminant validity (Paykel and Weissman, 1973; Kreisman *et al.*, 1988).

Quality of well-being

The quality of well-being (QWB) scale (Kaplan and Anderson, 1988) includes three common dimensions of functional health status: mobility, physical activity and social activity; and one subscale of subjective symptoms. Each dimension describes how a person might be affected by a disease or disability (see Kaplan and Anderson, 1988, for a more detailed description of these dimensions). The reliability and validity of the measure have been reported in several studies (see Kaplan and Anderson, 1990, for review). This scale differs from quality of life scales developed specifically for the severely mentally ill (eg Lehman, 1983), which have several advantages but do not yield a single summary score.

Other measures

Background variables included the duration of illness (calculated from the time of onset of

prodromal symptoms), current daily neuroleptic dose in mg chlorpromazine equivalent or CPZE (Jeste and Wyatt, 1982), the Abnormal Involuntary Movement Scale (AIMS) (National Institute of Mental Health, 1976) to examine the severity of dyskinesia and the Simpson–Angus scale (Simpson and Angus, 1970) for extrapyramidal symptoms. All of the rating scales used were administered 'blind' by trained raters and had high (ICC > 0.76) interrater reliability.

Statistical methods

Group comparisons were performed on continuous variables with two-tailed *t*-tests and on categorical variables with chi-square tests. We used path analysis, which is an application of multiple regression techniques to examine both direct and indirect effects of multiple variables cross-sectionally included in a causal link-node model. A detailed description of path analysis can be found in Cohen and Cohen (1983). The model can include both serial and parallel effects between variables. The methodology is limited by the requirements that all causal relationships between variables be unidirectional and that the assumptions of multiple regression analysis be upheld at all stages of the model. For each endogenous variable (a variable which is 'caused' by at least one other variable), a multiple regression analysis is performed using the predictor variables hypothesized to have an effect on the dependent variable. This procedure is repeated for all endogenous variables and overall model R^2 values for multiple regression analyses are calculated at each step. Standardized beta weights (partial regression coefficients) between predictor variables and dependent variables are used to represent 'path coefficients'. The relative strength of direct relationships between variables can be determined by comparing path coefficients. Indirect effects can be determined by multiplying all in-line path coefficients between two variables in the model. This procedure is particularly effective when examining several intercorrelated variables for which multiple causal relationships can be hypothesized.

RESULTS

Among psychotic patients, there was no significant difference in either QWB (means = 0.58 versus 0.56 for schizophrenia patients versus those with

Table 2. Means (SDs) for measures in path analysis

	Psychosis patients mean (SD)	
Duration of illness (yr)	23.3	(14.3)
Current daily neuroleptic dosage (mg CPZE)	488.7	(1065.7)
Negative life events	1.5	(1.3)
Avoidant coping	0.1	(1.2)
Emotional support	3.2	(0.6)
BSI depression score	5.4	(6.0)
SANS score	7.8	(5.0)
SAPS score	4.7	(3.9)
Social maladjustment	2.3	(0.41)
QWB score	0.58	(0.11)

CPZE, chlorpromazine equivalent; BSI, Brief Symptom Inventory; SANS, Scale for the Assessment of Negative Symptoms; SAPS, Scale for the Assessment of Positive Symptoms; QWB, quality of well-being.

other diagnoses, respectively: $t = 0.87$, $df = 103$, $p > 0.05$) or maladjustment scores on the SAS (means = 2.27 versus 2.29 for schizophrenia patients versus those with other diagnoses, respectively: $t = 0.18$, $df = 107$, $p > 0.05$). Therefore, we grouped together all the patients for further analyses.

Table 2 presents the means and standard deviations for all measures, psychosocial predictors, psychopathology scores and health status utilized in the path model. In previous work (Patterson *et al.*, 1996) we compared patients and

normal controls (NC) on a number of our predictors and outcomes (eg psychopathology and QWB). Compared to NC subjects, patients reported experiencing similar numbers of life events, similar amount of avoidant coping, and reported slightly less access to emotional support. Patients scored higher on all measures of psychopathology and social maladjustment. Finally, patients had lower QWB scores (0.57 versus 0.71 for controls). Zero-order correlations (patients only) for the 10 variables included in the model are shown in Table 3. As can be seen, age, duration of illness and amount of neuroleptic medications were for the most part unrelated to other factors in the model. The daily dose of neuroleptic (in mg CPZE) was, however, negatively correlated with age (-0.23 , $p < 0.05$) and negative life events (-0.24 , $p < 0.05$) and was positively correlated with SAPS score (0.26 , $p < 0.05$). A number of other significant correlations resulted from this matrix of data. In particular, depressive symptoms were related to most of the constructs included in our model (eg 0.29 , $p < 0.05$ with negative life events; 0.29 , $p < 0.05$ with avoidant coping; 0.30 , $p < 0.05$ with SANS score; and 0.37 , $p < 0.01$ with SAPS score). The complexity of this matrix suggested that multivariate techniques would be helpful to explicate the pattern of findings. Therefore, several multiple regression analyses were performed to address specific questions of shared variability and causality. This was followed by an

Table 3. Zero-order correlations for variables included in path analysis ($N = 70$)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Negative life events	1.00	0.04	-0.11	0.29*	0.08	0.05	0.20	-0.07	0.23*	0.05	-0.24*
(2) Avoidant coping		1.00	0.15	0.29*	0.02	-0.27*	0.24*	-0.12	-0.02	-0.01	-0.01
(3) Negative psychotic symptoms (SANS score)			1.00	0.30*	0.34*	-0.25*	0.35*	-0.36*	-0.04	-0.12	0.18
(4) Depressive symptoms (BSI) score				1.00	0.37*	-0.18	0.60**	-0.45*	0.05	-0.15	0.10
(5) Positive psychotic symptoms (SAPS score)					1.00	-0.07	0.25*	-0.48*	0.06	-0.16	0.26*
(6) Emotional social support						1.00	-0.45*	0.12	0.01	-0.11	-0.04
(7) Social maladjustment							1.00	-0.38*	0.08	-0.18	0.07
(8) Quality of well-being score								1.00	0.02	0.19	-0.15
(9) Duration of illness									1.00	0.14	0.19
(10) Age										1.00	-0.23*
(11) mg chlorpromazine equivalent											1.00

SANS, Scale for the Assessment of Negative Symptoms; BSI, Brief Symptom Inventory; SAPS, Scale for the Assessment of Positive Symptoms.

*Pearson or point-biserial correlations significant at $p \leq 0.05$ (2-tailed).

**Pearson or point-biserial correlations significant at $p \leq 0.01$ (2-tailed).

overall significance test of a stress outcomes model using path analytic techniques.

The overarching goal of our data analytic technique was to investigate the role of psychosocial variables in mediating the effects of psychiatric symptoms on the patient's well-being. Therefore, the QWB score, a general measure of functional health status, was designated as the final outcome in our proposed model. Pearson correlations of the QWB score with age and duration of illness were not statistically significant, and QWB did not vary by gender, $t(68) = 0.93$, $p > 0.05$. However, based on frequent findings that it is correlated with age and based on our own trend ($r = 0.19$) between the QWB score and age, we included age as a covariate in all subsequent analyses of well-being as a predicted outcome. After controlling for age, social maladjustment accounted for an additional 12% of the variability in QWB scores, and this change was statistically significant, $F(1, 67) = 9.53$, $p < 0.05$. Based on the strength of this relationship and the common characterization of psychotic impairment as social in nature, we hypothesized (in our development of a model) that social maladjustment would mediate all of the impacts of psychosis on the QWB score.

Before construction of a final proposed model, we wished to address the specific issue of whether psychosocial environment (coping, negative life events and emotional social support) should precede or follow psychiatric symptoms (positive symptoms, negative symptoms, depressive symptoms) in the model. The former design implies that a poor psychosocial environment may exacerbate psychiatric symptoms and the latter implies that a poor psychosocial environment is merely the product of psychopathology. If the former is true, then the relationship between psychosocial environment and social maladjustment would be only partially obscured with psychiatric symptoms are covaried. We tested this hypothesis using a hierarchical multiple regression approach in which SAS score was the dependent measure and the three variables describing the psychosocial environment (coping, negative life events and emotional social support) were tested as a block of independent variables after controlling for severity of psychiatric symptoms (positive symptoms, negative symptoms and depressive symptoms). The results reflected a strong reciprocal relationship between psychiatric symptoms and social maladjustment, accounting for 39% of the variability in maladjustment. Subsequently, the three variables describing

the psychosocial environment explained an additional 9% of variance in social maladjustment, and this increment was statistically significant, $F(3, 63) = 3.64$, $p < 0.05$. When the two groups of variables were entered in the opposite order, psychosocial environment described 22% of the variability in maladjustment and psychiatric symptoms described an additional 25% ($F(3, 63) = 10.23$, $p < 0.05$). This analysis suggested that psychiatric symptoms should precede psychosocial environment variables in the model; however, psychosocial environment may still have some effect on psychiatric symptoms.

A conceptual model (Fig. 1) was developed to explain causal relationships among variables related to social functioning and health-related functioning (QWB). This model represents the final model in a series of hypothesized relationships among our set of variables. In the interest of clarity, we trimmed non-significant indicators of the following constructs: coping (approach coping); stress (major life adversity); and social support (presence of tangible support), and do not present these variables in the model. Moving from left to right, our model presumes that positive and negative psychotic symptoms lead to increased symptoms of depression, and depression leads to the use of avoidant coping, poor emotional support from others and a preponderance of negative life events. This poor psychosocial environment, in turn, leads to increased social maladjustment, and that reduces the individual's quality of well-being. To assess the ability of this model to describe covariance among variables, a series of multiple regressions were performed to construct a path model. Path coefficients (standardized regression coefficients) and R^2 values for each of the multiple regression steps are shown in Fig. 1.

Because path analytic techniques include both direct and indirect effects between predictor variables and endogenous variables, the significance of individual path coefficients for the intermediate multiple regression steps should not be used as a sole basis for accepting or rejecting components of the model. Nevertheless, path coefficients can be interpreted to assess the relative strengths of the various predictor variables. The weakest links in the model were the ability of both negative life events and avoidant coping to explain variability in social maladjustment (path coefficients of 0.05 and -0.10 , respectively). The strongest links in the model were the relationships between depressive symptoms and social maladjustment (path

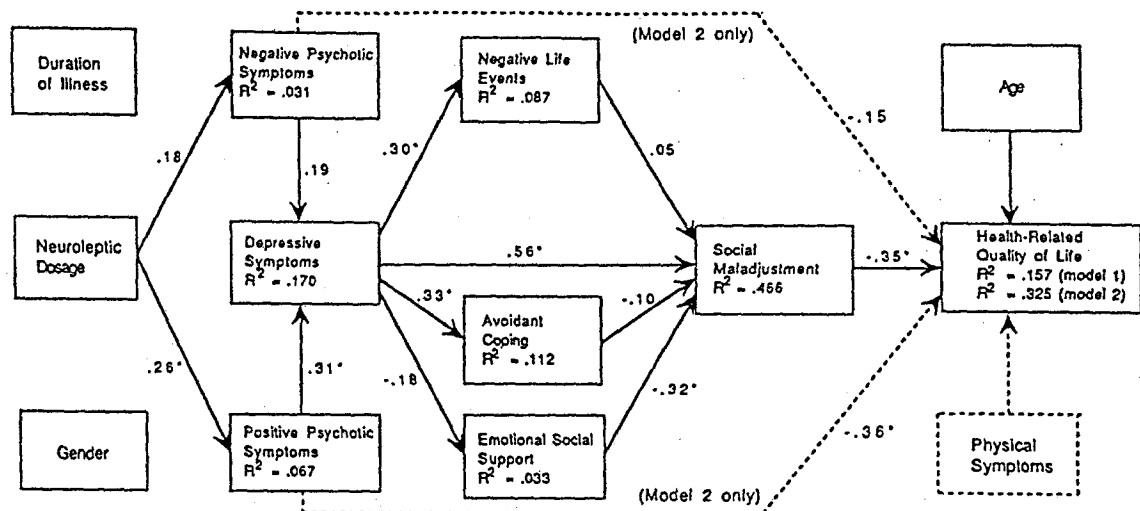


Fig. 1. Results of path analysis testing a theoretical model developed to explain directional relationships among variables related to social functioning and health-related functioning in older psychotic patients ($N = 70$). Significant paths are represented with solid lines, while non-significant paths for select variables are indicated by broken lines. Path coefficients (standardized regression coefficients) appear above each path

coefficient = 0.56) and between social maladjustment and QWB score (path coefficient = -0.35).

The overall model was tested by comparing it with a 'just identified' model as suggested by Cohen and Cohen (1983). The just identified model was similar to the conceptual model (Fig. 1) except that additional causal paths were added to show an effect of every earlier predictor variable on every later endogenous variable. In addition, the background variables of age, gender, duration of illness and current neuroleptic dosage were added as predictor variables for all endogenous variables. A test statistic, W , which can be approximated by a chi-square distribution, was computed to compare the proposed model with the just identified model according to the following equations:

$$R^2(\text{model}) = 1 - \{(1 - R_1^2) \times (1 - R_2^2) \dots (1 - R_k^2)\} \quad (1)$$

$$Q = \{1 - R^2(\text{just identified})\} / \{1 - R^2(\text{hypothesized})\} \quad (2)$$

$$W = -(N - df) \log_e Q \quad (3)$$

(where df = the difference in total degrees of freedom between models and k = the total number of structural equations required by the model).

The results of the test of significance showed that the addition of all possible non-recursive paths did not significantly improve the total variance explained, $W = 25.24$, $p < 0.05$, for $N = 70$ and $df = 47$. Therefore, the proposed model represented a reasonably efficient reduction of the just identified model including all possible paths. In addition to comparing the proposed model (model 1) with the just identified model, we were interested in evaluating whether the addition of direct effects of negative and positive psychotic symptoms to QWB would improve the prediction of the model. These (model 2) pathways are shown as dashed lines in Fig. 1. Computing the same W statistic as described above for a comparison of the models 1 and 2, the model 2 significantly improved the overall prediction of covariance between variables in the model, $W = 15.14$, $p < 0.05$, for $N = 70$ and $df = 2$. In particular, the second model was successful by including the direct effects of positive symptoms on well-being.

DISCUSSION

A substantial literature argues that patients who experience a greater number of life events are more likely to experience increased psychiatric symptoms (eg Harder *et al.*, 1980). Our analyses suggest

that the relationship between these variables is primarily in the opposite direction: increased symptoms of psychosis are related to disturbances in the psychosocial environment (ie increased life events, decreased social support and use of more avoidant coping). Weaker relationships in predicting social maladjustment and health-related quality of life emerged from our analyses when psychosocial factors were entered into the model preceding symptoms of psychoses. It appears that depressive symptoms, more than positive or negative symptoms, play a particularly central role in perturbing the psychosocial environment. Furthermore, our analyses suggest that social maladjustment mediates much of the relationship between psychotic symptoms and health-related quality of life.

Our data indicate that symptoms of psychosis precede reports of increased life events, decreased social support and use of more avoidant coping. While most cross-sectional and retrospective studies have reported that life events predict symptoms (eg Harder *et al.*, 1980), some studies with other psychiatric populations support the notion that symptoms may predate life events (eg Grant *et al.*, 1982, 1987). While antecedent-consequent relationships are tenuous using cross-sectional designs such as the one we employed, the reliance on correlational methods utilized in most studies without consideration of directional relationships precludes testing alternative directional hypotheses. The somewhat modest relationships that our model describes suggest the need for using longitudinal data in which psychosocial data and symptoms are measured at multiple points in time.

Previous clinical studies support the centrality of depression in psychosis. Siris *et al.* (1994) reported better treatment efficacy for younger schizophrenia patients when symptomatic treatment of postpsychotic depressive symptoms was included. Our findings suggest that this could also be true among older psychosis patients. It is interesting that depressive symptoms, but not life events and avoidant coping, were directly related to health-related QWB. Perhaps the 'cognitive' pathway between negative/positive symptoms and our set of psychosocial variables is through depressive symptoms, or perhaps depressive symptoms overlap with psychotic symptoms.

We previously reported that older psychosis patients suffered significant reductions in their health-related QWB (Patterson *et al.*, 1996). The present study extends the findings to include the

impact of social adjustment on QWB. Our study suggests the real-life implications of psychotic illness for the individual. The increases in social maladjustment scores observed in this study indicate that patients have problems in all areas of functioning (eg social and leisure, work for those who are employed). Perhaps the measures that did not enter into the equation are of as much interest as those that did. For example, in preliminary examination of our data we did not find that an objective determination of life adversity was related to depressive symptoms, while subjective indications of stress were. Previous work by us and by others with depressive patients (McNaughton *et al.*, 1992), physically ill patients (Patterson *et al.*, 1994) and normal elderly (Smith *et al.*, 1990) suggests that objective measures, such as the Life Events and Difficulties Schedule, are more strongly related to outcome than are subjective ratings. We speculate that psychotic patients' perception of life stress is not captured by investigators' ratings of stress. Perhaps more 'mild' everyday events, such as arguments over change on a bus, are interpreted differently than a non-psychotic person would, and thus become more impactful to a psychotic patient. It is, however, important to note that in cross-sectional analyses, such as this one, the potential for contamination of criterion measures with predictors cannot be ruled out.

Avoidant coping, but not approach coping, was related to depressive symptoms in our preliminary analyses. Our work and that of others supports the centrality of avoidant coping in determining depressive symptoms (McNaughton *et al.*, 1992; Patterson *et al.*, 1994). While the causal direction of this relationship must be addressed using longitudinal data, our findings suggest that patients may benefit from interventions designed to reduce the amount of avoidant coping used.

Finally, increased severity of negative symptoms was related to less emotional support. The literature suggests that social support may diminish as individuals age (Jackson and Antonucci, 1992). Losses of social support due to normal ageing may be further magnified by psychoses. It is unclear if this reduction in support is related to changes in the patients' perception of support or actual changes in the support system. In previous work (Grant *et al.*, 1988) with relatively healthy, non-disturbed elderly men and women, we found that increased physical symptoms were related to increased social support, while increased psychological symptoms were related to decreased social

support. We speculated that physical symptoms were socially more acceptable and resulted in the mobilization of an individual's support network, while the experience of less socially desirable psychological symptoms resulted in the driving away of potential supports. If confirmed, these findings point to a need to educate the network surrounding the patient in order to increase the potential stress-buffering effects of support networks.

The present study has a number of limitations including the moderately sized sample of older psychosis patients. While our design precludes lifespan statements regarding the patient cohort, we recognize the importance of ageing and the time period in the life course in understanding issues surrounding the individual patient (see Cohler *et al.*, 1991). It is, therefore, important to emphasize the need to consider our findings in the context of normal ageing. Nonetheless, the extension of previous studies attempting to relate psychosocial factors to symptoms of psychosis in older patients is an important step in understanding relationships among these variables. Our sample included patients who were relatively high functioning (ie they were not currently hospitalized). The inclusion of more impaired individuals could change the pattern of results. For example, medications might play a more important role in a more sick group. In addition, physical comorbidity should be considered in future work. Finally, in order to make more definitive statements regarding the generalizability of relationships among psychosocial factors, symptoms and health-related quality of life over time, longitudinal data will need to be examined.

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