

Family environment predictors of outcome in schizophrenic patients in Spain: a nine-month follow-up study

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This study investigates the effects of perceived family environment on clinical outcome among patients in Spain who suffer from schizophrenia. Forty-five consecutively admitted DSM-III-R schizophrenic patients were assessed monthly with the Brief Psychiatric Rating Scale during a 9-month period. Patients and parents rated the family environment through the Family Environment Scale (FES). FES factors were considered separately for each family member, since parents' and patient's perceptions of the family environment were weakly correlated. Stepwise multiple regression analysis showed that patients' perceptions of family control and intellectual-cultural orientation predicted rehospitalization. Patients' and mothers' ratings of family control and fathers' scores of conflict and moral religious emphasis predicted psychotic relapse. However, fathers' scores of family cohesion predicted higher negative symptoms. Prior admissions, age of onset and use of depot medication tended to predict outcome in conjunction with the family variables.

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In Spain, given the lack of residential care alternatives for seriously and severely mentally ill people, the large majority of uninstitutionalized patients with schizophrenia live with their families (1). An increasingly large number of studies have found an association between family environment and outcome in schizophrenia (2). Several theoretical family constructs, each with different methodologies, have been researched. Expressed emotion (EE) is determined through a semistructured family interview (3). Family behavioral observations are used to measure affective style (4). In addition, two self-rated instruments, the Parental Bonding Instrument (5) and the Family Environment Scale (FES) (6), have also been utilized to predict outcome in schizophrenia (7-11).

The EE paradigm is the only family measure researched in non-Anglo cultures and found predictive of relapse in schizophrenia. Moreover, prospective studies in 3 different regions in Spain (11-14), found high EE predicted relapse among schizophrenic patients.

Expressed emotion is measured through the Camberwell Family Interview (3), a 2- to 4-hour audiotaped semistructured interview of each significant family member that takes a few hours to score. The predictive validity of other less cumbersome family

environment measures have not been studied in other ethnic groups, or more importantly for our purpose among Spaniards, until this study.

The FES (6) is a self-rated questionnaire that evaluates family atmosphere through ten subscales measuring family cohesion, expressiveness, conflict, independence, achievement orientation, intellectual-cultural orientation, active recreational orientation, moral-religious emphasis, organization and control (see Table 2 for more detail). The FES has been used effectively to predict outcome among general psychiatric patients (9-11, 15), and more specifically among depressive (16) and alcohol dependent patients (17, 18).

Studies with schizophrenic patients found that family cohesion, expressiveness, conflict and independence correlate with outcome (9, 10, 15). The results of these investigations are inconclusive, since outcome measures vary across research articles. Moreover, family members' score differences were ignored, since their average FES factor scores were utilized.

This study is part of a larger investigation that inquires into the effectiveness of the psychoeducational approach in Spaniards with schizophrenia (1). This article proposes to answer the question: what

factors of the family environment, as measured by the FES, are predictive of outcome among Spaniards with schizophrenia? In order to investigate this question we determine: 1) the association of FES factors among family members; and 2) the predictability of each family member's perception of the family environment on a different set of outcome measures.

Material and methods

Subjects

The study was conducted at the Hospital Clínico San Carlos de la Universidad Complutense de Madrid, Spain. Patients who met the following inclusion criteria were invited to participate in the research project: 1) age: 18 to 45; 2) living with their parents; 3) living within the hospital's catchment area; 4) consecutive admissions to the inpatient unit; and 5) DSM-III-R diagnosis of schizophrenia based on personal interview using a DSM-III-R symptom checklist.

The following demographic variables were recorded for patients and parents: age, sex, marital status, education, religion and employment status. Age of onset of illness and number of prior psychiatric hospitalizations were determined through interviews with patients and parents and medical record review.

Procedures

Patients were interviewed by members of the research team within 1 week after admission. Parents were contacted by telephone and invited to participate in the study, if patient's informed consent was obtained.

Both patients and parents were administered the FES (6). Patients were asked to complete the FES 2 weeks after index hospitalization, since upon admission many patients were too disorganized to complete it. Parents filled out the FES questionnaire following their consent to participate in the study, approximately two weeks after patient's index hospitalization. Fathers, mothers and patients completed the questionnaires independently of each other. All family members completed the FES again at the end of the study, for the purpose of assessing long-term test-retest stability.

Members of the research team, blind to the FES scores, assessed psychopathological symptoms on the Brief Psychiatric Rating Scale (BPRS) (19). The BPRS was first administered to the subjects following their informed consent and then monthly during the nine-month follow-up period. The second BPRS reading was used as the baseline measure. The research team was trained in the administration of the

BPRS by one of the authors (FF) to acquire a high interrater reliability (Pearson $r > 0.85$). In addition, patients were assigned the same rater throughout the study period.

Measures

Family Environment Scale. The FES is a 90-item true-false self-report measure developed and validated by Moos & Moos (6) that assesses family members' perceptions of the family environment through 10 subscales corresponding to 3 domains. The relationship domain includes cohesion, expressiveness and conflict. Independence, achievement, active-recreational orientation, intellectual-cultural orientation and moral religious emphasis constitute the personal growth domain. Organization and control are part of the system maintenance domain. The FES, along with other scales developed by Moos and published under the general term Social Climate Scales, (20) was translated into Spanish and validated in Spain with a sample of 2134 subjects (21). This authorized FES Spanish adaptation has been utilized in this study.

Brief Psychiatric Rating Scale. The BPRS (19) was used to measure severity of psychopathology at admission and at 1-month intervals throughout the follow-up period. The 18-item version 7-point scale of the BPRS was used. The BPRS was translated into Spanish by the research team using the translation and back-translation procedure. Four major higher-order factors have consistently been obtained from numerous factor analyses of the BPRS: anxious depression, hostile-suspiciousness, withdrawal-retardation, and schizophrenic thought (22). Factors 3 (withdrawal-retardation) and 4 (schizophrenic thought) were used to determine outcome measures.

Outcome measures. Three different outcome measures were considered:

- rehospitalization, determined through patient and family interviews and chart review;
- psychotic relapse, defined as a 5-point score increase from baseline in the BPRS factor 4 or a 3-point score increase if the baseline score was above 9, following a modification of the criteria used by Liebermann (23); and
- an increase in negative symptoms, measured by the score difference between baseline factor 3 (withdrawal-retardation) score and its mean throughout the follow-up period.

Data analysis

To determine the consistency between parents' and patients' ratings on the FES factors, a correlation

analysis was carried out. The same analysis was used to ascertain correlations of the BPRS factors. To investigate the predictive effect of family environment on outcome, stepwise multiple regression analysis was performed for each outcome variable with each set of father's, mother's and patient's perception of the family environment.

Additional independent variables considered were patient's age, sex, education, age at onset, use of depot medication, and number of admissions prior to index hospitalization. Independent variables were allowed to enter each regression analysis stepwise to minimize the problems created by the moderate intercorrelation of some of the independent variables.

Results

Sample characteristics

Forty-seven patients were invited to participate in the study, and 45 patients gave informed consent. The two patients who refused to participate in the study were not apparently different from those who gave consent. The patient sample consisted of 30 men and 15 women with a mean age of 26. All were single with the exception of one woman who was separated from her husband and lived with her parents. Thirty patients had a high school education or above and only 3 patients had been employed within the 6-month period prior to index hospitalization. The subjects' mean age of illness onset was 20 years, and they had an average of 3 previous hospitalizations (Table 1).

Follow-up data are available on 38 of the original 45 subjects. Two patients moved out of town. Five other patients were excluded from the final analysis due to missing scores on some of the monthly BPRS ratings. No notable differences in background variables were found between those who completed the study and those lost to follow-up.

Of 90 potential parents, 10 fathers and 1 mother were deceased, and 2 fathers were divorced and ab-

sent from the family. Forty-one mothers and 27 fathers participated in the study. Thus, only 6 fathers and 3 mothers refused to participate in the study and provided us with no information. The mothers' and fathers' average age was 58 and 59, respectively. Sixty-five percent of the fathers and 76% of the mothers had an elementary education. Fifty-four percent of the fathers were employed and 35% were retired. Seventy-seven percent of the mothers were homemakers (Table 1).

FES factors' correlations among family members

Since FES factors are considered predictor variables in this study, the means and standard deviations from the initial ratings are given in Table 2. It is also noted that there are no major differences between initial and final FES ratings.

Table 2. FES factors in initial ratings^a: number of subjects, means, and standard deviations

	Father	Mother	Patient
Sample (n)	27	41	43
Cohesion	6.68 (2.00)	5.88 (2.47)	5.84 (2.61)
Expressiveness	4.86 (1.51)	5.37 (1.91)	4.72 (1.86)
Conflict	2.14 (1.84)	2.95 (2.04)	3.81 (2.44)
Independence	5.36 (2.26)	5.32 (2.15)	5.53 (1.72)
Achievement	6.21 (1.81)	5.71 (1.66)	6.33 (2.19)
Cultural	3.93 (2.02)	3.90 (2.25)	4.12 (2.28)
Recreational	3.29 (1.44)	3.02 (1.67)	3.93 (1.86)
Moral-religious	4.68 (1.79)	4.29 (1.45)	4.65 (1.86)
Organization	7.07 (2.04)	6.56 (2.04)	6.37 (1.95)
Control	3.68 (1.87)	3.29 (1.99)	4.09 (1.99)

^a No major differences were found between initial ratings and ratings obtained at the end of the study.

The ten FES subscales are defined as follows:

- 1) Cohesion: extent to which family members are supportive of each others (for example, "Family members really help and support each other");
- 2) Expressiveness: degree to which family members are encouraged and allowed to freely and directly express their feelings (for example, "We say anything we want to around home");
- 3) Conflict: extent to which family members freely express anger and conflict (for example, "Family members often criticize each other");
- 4) Independence: degree to which family members consider themselves self-sufficient and capable of making their own decisions (for example, "In our family, we are strongly encouraged to be independent");
- 5) Achievement orientation: degree to which activities are oriented towards competitive action (for example, "We feel it is important to be the best at whatever we do");
- 6) Intellectual cultural orientation: degree of interest in social, political, intellectual and cultural activities (for example, "We often talk about political and social problems");
- 7) Active recreational orientation: extent of participation in social and recreational activities (for example, "Friends often come over for dinner or to visit");
- 8) Moral-religious emphasis: how important family members consider ethical and religious values and practices (for example, "Family members have strict ideas about what is right and wrong");
- 9) Organization: emphasis given to a clear organization and structure to plan family members' responsibilities and activities (for example, "Activities in our family are pretty carefully planned");
- 10) Control: extent to which family life is regulated by established rules and procedures (for example, "Family members are rarely ordered around").

Table 1. Demographic and clinical characteristics

	Subjects (%)	Mothers (%)	Fathers (%)
n	45 (100)	41 (60)	27 (40)
Age (range)	26 (18-44)	58 (37-79)	59 (44-69)
Male	30 (67)	41 (100)	27 (100)
Married		29 (71)	25 (93)
Single	44 (98)		
Separated or divorced		1 (2)	2 (7)
Widowed		10 (24)	1 (4)
Elementary education	15 (33)	32 (76)	17 (63)
High school education	30 (67)	10 (24)	10 (37)
Employed	3 (7)	7 (16)	14 (52)
Retired		3 (7)	9 (33)
Age at onset (range)	20 (8-31)		
Prior admissions (range)	3 (0-12)		

Table 3. FES factor correlations among mothers, fathers and patients (Pearson *r*)

	Mother/father	Patient/mother	Patient/father
Cohesion	0.38	0.27	0.39*
Expressiveness	0.16	-0.02	0.41
Conflict	0.18	0.45***	0.38*
Independence	-0.01	-0.21	0.52**
Achievement	0.37	-0.14	-0.23
Intellectual-cultural	0.57**	0.8	-0.13
Active-recreational	0.35	0.20	0.33
Moral-religious	0.24	-0.07	0.41**
Organization	0.57***	0.59***	0.64***
Control	0.52**	0.00	0.31

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

Fathers, mothers and patients mostly disagree in their perceptions of the family environment, as measured by the FES (Table 3). The 3 family members agreed only on their views of the family's level of organization (each $r > 0.57$). Fathers' and mothers' scores of family control and intellectual-cultural orientation were also alike ($r = 0.57$ and $r = 0.52$ respectively), but they disagreed in their ratings of all the other family environment factors. Patients and mothers concurred only in their perceptions of family conflict ($r = 0.45$, $P < 0.005$). On the other hand, patients and fathers held closer views of family cohesion ($r = 0.39$, $P < 0.05$), expressiveness ($r = 0.41$, $P < 0.05$), conflict ($r = 0.38$, $P < 0.05$), independence ($r = 0.52$, $P < 0.01$) and moral-religious orientation ($r = 0.41$, $P < 0.01$).

Given the overall poor correlation among patients', fathers' and mothers' FES ratings, separate analyses were carried out for each family member's perception of the family environment.

BPRS factor correlations

Correlations among BPRS factors were also obtained (Table 4). As expected, factors 1 (hostile-suspiciousness), 2 (anxious-depression) and 4

Table 4. Correlations among BPRS factors (Pearson *r*)

	Anxious-depression	Hostile-suspiciousness	Withdrawal-retardation	Schizophrenic thought	Global score
Anxious-depression	1.00	0.53*	-0.13	0.83*	0.85*
Hostile-suspiciousness		1.00	-0.13	0.57*	0.74*
Withdrawal-retardation			1.00	-0.20	0.12
Schizophrenic thought				1.00	0.83*
Global score					1.00

* $P < 0.001$

(schizophrenic thought) of the BPRS correlated highly with the BPRS global score ($r = 0.83$, 0.74 and 0.83 respectively). In addition, anxious-depression and hostile-suspiciousness both correlated with schizophrenic thought ($r = 0.57$ and 0.83) and correlated between themselves ($r = 0.53$). Factor 3 (withdrawal-retardation) did not correlate with any other BPRS factor.

Rehospitalization prediction

Nine (24%) of 38 patients were hospitalized during the 9-month follow-up period. Although parents' perceptions of the family environment did predict rehospitalization, patients' ratings of family control and family intellectual-cultural orientation did not predict rehospitalization. (The details of this stepwise regression and of those in the following paragraphs are listed in Table 5.)

Psychotic relapse prediction

Fourteen (37%) of 38 patients met the criteria for relapse. Psychotic relapse, as defined by changes in the schizophrenic thought factor of the BPRS, was predicted by fathers' perceptions of the family's

Table 5. Family and clinical variables that significantly predicted outcome

Outcome variable	Stepwise best model predictor variable ^a	<i>n</i>	Multiple <i>R</i> ^b	Parameter estimate	Overall <i>F</i> / Partial <i>F</i>	
Rehospitalizations	Patient	35	0.66		7.67	
	Control			0.170	8.38	
	Cultural			0.192	14.39	
Relapse ^c	Father	24	0.57		5.13	
	Moral			0.153	7.92	
	Conflict			0.105	4.73	
	Mother	36	0.57		5.22	
	Control			0.107	9.73	
	Prior admissions			0.147	4.48	
	Patient	38	0.58		5.95	
	Control			0.091	6.78	
	Independence			0.088	4.07	
	Prior admissions			0.150	4.75	
	Negative symptom change	Father	23	0.79		10.62
		Cohesion			0.891	12.65
Conflict		1.025			17.05	
	Age at onset			0.358	6.76	
	Mother	31	0.50		4.71	
				Prior admissions	-1.471	6.46
Depot				2.981	6.52	
Patient	34	0.58			5.67	
			Depot	3.068	8.47	

^a Up to three predictor variables allowed.

^b Includes predictor variables not shown when *F*-to-enter $P < 0.05$

^c Logistic regression was used to validate these models, since according to our definition relapse is a binary variable.

moral-religious emphasis and the family conflict factor. No background variable entered significantly in that equation. Relapse was also predicted by mothers' scores of family control when the number of prior admissions was considered. Likewise, patients' ratings of family control and independence predicted relapse when the number of prior admissions entered the equation.

Negative-symptom prediction

Increase in negative symptoms, as defined in Material and methods, was predicted mostly by clinical background variables: age at onset, prior admissions, and use of depot medication. Of the family variables, only fathers' perception of family cohesion and family conflict predicted a negative symptom increase. Neither mothers' nor patients' perceptions of the family environment were predictive of this outcome variable.

Discussion

Similar to other studies (9–11, 15), several elements of the family environment were found to be predictive of outcome. However, predictive FES factors varied according to family members' perceptions and outcome measures.

Rehospitalization

Rehospitalization was predicted only by patients' ratings of family control and intellectual-cultural orientation. In contrast to Spiegel & Wissler's (9) findings, the prior number of admissions did not predict rehospitalization. In fact, none of the clinical variables predicted this outcome. Our findings also differ from those of Schnur et al. (10). In our sample, family expressiveness and family conflict did not predict hospital admission. In their investigation, family incongruence was also associated with rehospitalization. Family incongruence was not investigated in our study, since fathers', mothers' and patients' FES factor correlations were mostly weak. The predictability of patient-rated intellectual-cultural orientation was strong in our sample ($F > 14.39$). In the Spiegel & Wissler (9) study, intellectual-cultural orientation also predicts the total days of rehospitalization for the overall mixed-diagnosed sample but not for the schizophrenic subsample. This finding appears to contradict the notion that families' interest in outside activities decreases rehospitalization (24).

Hafner & Miller (15) found that fathers' scores on the moral-religious emphasis subscale predicted the number of days of hospitalization. None of the fathers' FES factor-scores predicted rehospitalization

in our sample. Whereas our outcome measure was rehospitalization, their's was number of days of hospitalization. Additional differences between the two studies are their smaller sample ($n = 18$) and the higher correlation they found among fathers', mothers', and patients' ratings of the FES factors.

Psychotic relapse

In contrast to Halford et al. (11), our investigation found an association between FES and BPRS scores. Whereas they administered the BPRS to patients on presentation and at follow-up, patients in our study were assessed monthly throughout the 9-month follow-up period. Relapse, in our sample, was defined a priori as a specific score increase in the schizophrenic thought factor of the BPRS. No FES and schizophrenia study, to our knowledge, has utilized a psychometric definition of relapse.

Similar to Hafner & Miller's (15) results, our study suggests that fathers' perception of the family's moral-religious emphasis predicts a negative outcome. Whereas in the Schnur et al. (10) retrospective study, patient-rated conflict predicted multiple admissions, in our investigation father-rated conflict predicts relapse. The family conflict factor predicted rehospitalization only at 3 months in Spiegel & Wissler's (9) sample. It is of interest to note that no background variable entered significantly in the equation when fathers' perceptions of the family environment were examined.

Relapse was also predicted by patients' and mothers' ratings of family control. Whereas family expressiveness is a frequent predictor of positive outcome in other studies (9–11, 15), in our investigation family control is the only FES factor that significantly predicts relapse according to two members of the family. In contrast to these other studies, our sample is from Spain. Seisedos et al. (21), in their validation study of the FES among Spaniards, comment on the similarities in the results while also noting "a different mathematical structure of the factors". Moreover, Moos & Moos (6) compared the FES factor means of ethnic minority families (black and Hispanic) with their general normative sample. Ethnic minority families appeared to be more structured through their higher emphasis on achievement, moral religious values, organization and control. Although this research does not investigate Hispanic minorities, it studies Spaniards, an ethnic group more akin to Hispanic minorities in the United States than to Anglos. Moreover, for most Spaniards the family is the center of individual loyalty and the ideal man is in control of his family (25).

Patients' ratings of family independence also predicted relapse in our study. This finding resembles Spiegel & Wissler's (9). In their research, patient-

rated independence was associated with self-rated patient adjustment.

Negative symptoms

Mothers' and patients' ratings of the FES did not predict patients' negative symptoms. In both cases, only patients' clinical variables (i.e., depot medication and prior admissions) significantly predicted an increase in negative symptoms (Table 5). However, when fathers' FES ratings are considered, father-rated family conflict strongly predicts an increase in negative symptoms. Contrary to our expectations, father-rated cohesion shows a positive correlation with negative symptoms. In contrast to Halford et al. (11), in our study family expressiveness does not predict negative symptoms. Several methodological differences may account for these discrepancies. Whereas they used the Schedule for the Assessment of Negative Symptoms (26) to determine negative symptoms, we use the withdrawal-retardation factor of the BPRS. They evaluated the subjects at the beginning and at the end of the study; we administered the BPRS monthly. Similar to our study, Halford et al. (11) found little agreement between patients' and relatives' ratings of the family environment.

Overall predictive accuracy of the FES

The family environment scale is able to predict outcome among Spaniards with schizophrenia. Similar to studies with Anglos, in our study family conflict predicts two negative outcomes: relapses (not rehospitalization) and negative symptoms. In contrast to other studies, family expressiveness does not predict a positive outcome in our research. The inability of family expressiveness to predict outcome is puzzling. Keefe et al. (25) describe Spaniards as courteous, open and frank, with a complete disregard for privacy. Their description implies a greater ability to express feelings. We can speculate that this greater comfort in expressing feelings renders individual differences insignificant and thus incapable of predicting outcome in schizophrenia.

Contrary to other studies' findings, our results indicate that family control is an important predictor of outcome. Similar results have been obtained in other settings with the Parental Bonding Instrument (7, 8). In those two studies, schizophrenia patients who perceive their parents as more controlling than affectionate relapse more frequently.

Overall, predictive family factors varying from father to mother to patient is to be expected, since correlations among fathers', mothers' and patients' FES factor scores are overall poor. Patients' perception of the family environment is able to predict

rehospitalization but not relapse or negative symptoms. As shown in Table 5, patients' perception of control and independence does predict relapse but only when background clinical variables (i.e., prior admissions) are also entered in the equation. Mothers' perception of control relates to relapse, but no mother-rated FES factor predicts rehospitalization or negative symptoms. It is the father's perception of the family environment that is most able to predict relapse and negative symptoms, although this cannot predict rehospitalization.

Clinical applications of the FES

The FES is easy to administer and score. Four previous studies (9–11, 15) successfully used the FES to predict outcome in patients with psychotic disorders. However, the findings from this study suggest that the perceptions of the family environment vary according to family member's role, status and sex. Thus family interventions designed to decrease patients' relapse rates through changing family attitudes need to consider the diverse perspectives of the involved family members. For example, according to our findings, the father's engagement in treatment is extremely important, since his views of the family environment are good predictors of relapse. Furthermore, patients' own view of family control has a predictive value in regard to rehospitalizations. Thus, it seems that course variables more related to clinical status (i.e., relapses or negative symptom changes) are better predicted by parents' perception of family environment, whereas course variables more likely related to psychosocial factors (i.e., rehospitalizations) are better predicted by patients' perception of family environment. These results suggest that different types of outcome measurement are differentially predicted by different sets of family variables. This intriguing finding would need further research.

Our results also suggest that, whereas some family predictors of relapse may be the same across cultures, others are more culture-specific. For instance, the ability of family control to predict rehospitalizations and relapses seem to play a relatively important role in Spanish families. A cross-cultural study of the FES factors predictive ability in schizophrenia would be highly desirable.

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moral-religious emphasis and the family conflict factor. No background variable entered significantly in that equation. Relapse was also predicted by mothers' scores of family control when the number of prior admissions was considered. Likewise, patients' ratings of family control and independence predicted relapse when the number of prior admissions entered the equation.

Negative-symptom prediction

Increase in negative symptoms, as defined in Material and methods, was predicted mostly by clinical background variables: age at onset, prior admissions, and use of depot medication. Of the family variables, only fathers' perception of family cohesion and family conflict predicted a negative symptom increase. Neither mothers' nor patients' perceptions of the family environment were predictive of this outcome variable.

Discussion

Similar to other studies (9–11, 15), several elements of the family environment were found to be predictive of outcome. However, predictive FES factors varied according to family members' perceptions and outcome measures.

Rehospitalization

Rehospitalization was predicted only by patients' ratings of family control and intellectual-cultural orientation. In contrast to Spiegel & Wissler's (9) findings, the prior number of admissions did not predict rehospitalization. In fact, none of the clinical variables predicted this outcome. Our findings also differ from those of Schnur et al. (10). In our sample, family expressiveness and family conflict did not predict hospital admission. In their investigation, family incongruence was also associated with rehospitalization. Family incongruence was not investigated in our study, since fathers', mothers' and patients' FES factor correlations were mostly weak. The predictability of patient-rated intellectual-cultural orientation was strong in our sample ($F > 14.39$). In the Spiegel & Wissler (9) study, intellectual-cultural orientation also predicts the total days of rehospitalization for the overall mixed-diagnosed sample but not for the schizophrenic subsample. This finding appears to contradict the notion that families' interest in outside activities decreases rehospitalization (24).

Hafner & Miller (15) found that fathers' scores on the moral-religious emphasis subscale predicted the number of days of hospitalization. None of the fathers' FES factor-scores predicted rehospitalization

in our sample. Whereas our outcome measure was rehospitalization, their's was number of days of hospitalization. Additional differences between the two studies are their smaller sample ($n = 18$) and the higher correlation they found among fathers', mothers', and patients' ratings of the FES factors.

Psychotic relapse

In contrast to Halford et al. (11), our investigation found an association between FES and BPRS scores. Whereas they administered the BPRS to patients on presentation and at follow-up, patients in our study were assessed monthly throughout the 9-month follow-up period. Relapse, in our sample, was defined a priori as a specific score increase in the schizophrenic thought factor of the BPRS. No FES and schizophrenia study, to our knowledge, has utilized a psychometric definition of relapse.

Similar to Hafner & Miller's (15) results, our study suggests that fathers' perception of the family's moral-religious emphasis predicts a negative outcome. Whereas in the Schnur et al. (10) retrospective study, patient-rated conflict predicted multiple admissions, in our investigation father-rated conflict predicts relapse. The family conflict factor predicted rehospitalization only at 3 months in Spiegel & Wissler's (9) sample. It is of interest to note that no background variable entered significantly in the equation when fathers' perceptions of the family environment were examined.

Relapse was also predicted by patients' and mothers' ratings of family control. Whereas family expressiveness is a frequent predictor of positive outcome in other studies (9–11, 15), in our investigation family control is the only FES factor that significantly predicts relapse according to two members of the family. In contrast to these other studies, our sample is from Spain. Seisdedos et al. (21), in their validation study of the FES among Spaniards, comment on the similarities in the results while also noting "a different mathematical structure of the factors". Moreover, Moos & Moos (6) compared the FES factor means of ethnic minority families (black and Hispanic) with their general normative sample. Ethnic minority families appeared to be more structured through their higher emphasis on achievement, moral religious values, organization and control. Although this research does not investigate Hispanic minorities, it studies Spaniards, an ethnic group more akin to Hispanic minorities in the United States than to Anglos. Moreover, for most Spaniards the family is the center of individual loyalty and the ideal man is in control of his family (25).

Patients' ratings of family independence also predicted relapse in our study. This finding resembles Spiegel & Wissler's (9). In their research, patient-