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Family environment and expressed emotion in patients with schizophrenia or other psychoses and in their first-degree relatives

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Introduction. Family has always been considered a key milestone for the development of the human psyche. Furthermore, in relationship with mental disorders we know that certain aspects of family environment change the course of some of these disorders. This study has aimed to compare the family sestting perception of schizophrenic patients vs. other psychotic patients, their first-degree relatives and to see if the expression of the disorder is related with that perception.

Method. The study included 112 subjects: 41 patients, 41 first-degree relatives and 30 normal controls. Patients were included in the group of as schizophrenic (n = 24) or non-schizophrenic psychosis (n = 17) following DSM-IV criteria diagnosis using the SCAN interview and were evaluated with the Family Environment Scale (FES) and PANSS. Descriptive analysis, group comparisons and correlation studies were used as statistical methods.

Results. No statistically significant differences were found when comparing FES between both group of patients, nor between patients and relatives, although psychotic patients presented a tendency to score higher on almost all the FES scales and dimensions. We found significantly positive correlations between patients and their own relatives in the FES scales.

Conclusions. Although not with statistical significance, non-schizophrenic psychotic patients and their relatives have a slightly different family environment perception than their schizophrenic counterparts: more conflictivity; more rule strictness and more planning needs. High levels of expressed emotion were related with a predominance of positive symptoms in psychotic patients.

Key words:
Family environment. Expressed emotion. Schizophrenia. Psychosis.

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Ambiente familiar y emoción expresada en pacientes con esquizofrenia u otras psicosis y en sus familiares de primer grado

Introducción. Desde siempre se ha considerado la familia como un pilar fundamental en el desarrollo de la psique humana; y en relación con los trastornos mentales sabemos que ciertos aspectos del ambiente familiar modulan el curso de algunos de estos trastornos. El objetivo de este estudio es comparar la percepción del clima familiar entre pacientes esquizofrénicos y pacientes con otras psicosis entre sus familiares de primer grado y ver si el ambiente familiar guarda relación con la expresión del trastorno.

Método. Se estudia a 112 sujetos: 41 pacientes, 41 familiares de primer grado y 30 controles. Los pacientes fueron diagnosticados dentro del grupo de las esquizofrenias (n = 24) o del grupo de las psicosis no esquizofrénicas (n = 17) sobre la base de los criterios DSM-IV mediante SCAN y se les aplicó la FES y la PANSS. Se utilizó la estadística descriptiva, la comparación de grupos y el estudio de correlaciones.

Resultados. No se observan diferencias significativas al comparar la FES entre ambos grupos de pacientes ni entre pacientes y familiares, aunque sí se observa una tendencia en los pacientes a puntuar más alto que sus familiares en la mayoría de escalas y dimensiones. Se obtienen correlaciones positivas significativas al estudiar el grado de asociación de las escalas de la FES entre pacientes y familiares.

Conclusiones. Aunque de manera no estadísticamente significativa los pacientes con psicosis funcionales no esquizofrénicas presentan una percepción del ambiente familiar distinto que los pacientes esquizofrénicos y sus familiares: más conflictividad, más rigurosidad en las reglas y más necesidad de planificación. Niveles elevados de emoción expresada guardan relación con el predominio de la sintomatología positiva en pacientes psicóticos.

Palabras clave:
Ambiente familiar. Emoción expresada. Esquizofrenia. Psicosis.

INTRODUCTION

In recent years, there has been a growing interest on the role of the family within the psychiatric context, considering the family environment as a modifying factor of the disease course. Many investigations[1-4] are aimed at studying the family environment of patients with psychiatric disorders since the family, on the one hand, may function as preventive and curative potential but, on the other, may contribute to the etiopathogeny and maintenance of the mental disorders.

The most important familial theories were formulated in the decade of the 1950's. Standing out among these was that of the Bateson[1] «deviated communication patterns»; the Lidz[2] «interrelationship deficit» and Wynne[3] formulations, which shared the fact that the condition of family life, especially certain forms of interaction between family members, may predispose an individual to schizophrenia[5]. Currently, the aspect studied most is the Expressed Emotion (EE) construct. This term, developed based on the works of Brown et al.[6-9], is used to refer to a global index of emotions, attitudes and behaviors expressed by the families about a relative diagnosed of schizophrenia. It was observed that patients with high EE relatives relapse more in the months following the hospital discharge than those with low EE relatives. Based on the EE construct, in the Robert et al.[4] study, the very close knit families with a high grade of expressiveness and with a tendency to manifest the conflict, would correspond with the families that Brown called high EE. The medication, limited contact with the relatives and social intervention in high risk relatives, moderate the negative effect of the EE in schizophrenic patients[10,11].

One of the instruments that has been used most to evaluate the family environment is the Social Climate scales designed by Moos RH, specifically the Family Environment Scale (FES)[12], that evaluates and describes the interpersonal relationships between the family members, the aspects of development that have the most importance in them and their basic structure. In a cross-sectional study performed using that scale in a sample of chronic psychiatric patients, it was observed that the patients having the worst functioning reported lower family cohesion, expressiveness and emphasis on the social-recreative than in the control subject group. Robert et al.[4] used the FES to evaluate the family climate in acute hospitalized patients with psychotic or affective disorder and in their relatives. They found that the patients with affective disorder scored higher on the Cohesion and Expressiveness subscales while those with psychotic disorder obtained higher scores in Conflict. On their part, Phillips et al.[13] compared a group of schizophrenic patients with a control group, observing that the relatives of schizophrenic patients have greater conflict and less cohesion, adaptability and social-recreative orientation compared to the control group. White et al.[14] stated that the schizophrenic patients perceive their family members as being less cohesive, with less emphasis on the moral-religious, achievement orientation and independence. García et al.[15] found differences between patients and family members, the former perceiving less cohesion and independence as well as greater expressiveness, conflict and control than the family members.

There are studies that relate family climate with the appearance of symptoms and relapses in the patients. Schnur et al.[16] compared a sample of schizophrenics with another group whose number of admissions was lower, observing that the former perceived their family members as more conflictive and as having less expressiveness. Cañivé et al.[17] indicates that the perception of the patients on the family control and the intellectual-culture orientation predicts rehospitalization. In a sample of psychotic patients, Halford et al.[18] observed that a greater level of expressiveness in the family was associated with lower presence of negative symptoms and less severity of it and better quality of life after hospital discharge. On the other hand, in families that have a higher level of conflict, higher levels of psychopathology were observed during the follow-up.

When the characteristics that the subjects considered to be affected by their interpersonal relationships are taken into account as well as that in our society family is a very important social unit in their development, Moos's concept of family climate would be useful to study family relationships. Using the FES, this study has aimed to analyze the possible differences in the perception of family environment in patients suffering schizophrenia or other psychoses and in their first degree relatives and to study if there were any differences in regards to expressed emotion of their relatives. It was also aimed to study if the symptoms present in the patients had any relationship with the perception of the family environment.

METHOD

Subjects

The sample was obtained from a larger family study enrolled in the acute and subacute units of the HOP Institut Pere Mata of Reus, during the period of 2002-2004.

A patient-family sample was chosen to avoid repeated measurements, giving priority to siblings followed by parents and finally by children. A sample of 41 patients with their corresponding family member was formed, 53.6% of whom were parents, 43.9% siblings and 2.4% children. The patients were included in the study after being diagnosed by SCAN[19] within the group of schizophrenias or other non-organic psychoses based on the DSM-IV criteria[20], by personnel trained in the technique. By diagnoses, 24 were schizophrenic and 17 had other non-organic psychoses distributed in the following way: 10 patients with non-specified psychotic disorder, 4 with delusional disorder and 3 with affective disorder with psychotic symptoms. Finally, the sample was made

up of 24 schizophrenic patients (SP), 24 relatives of schizophrenics (RS), 17 patients with other psychosis (PP), 17 relatives of other psychoses (RP) and 30 subjects who had no family psychiatric background were added as control group (C). All the participants signed an informed consent. The clinical and sociodemographic data are shown in table 1.

Instruments

The symptoms present were evaluated with the PANSS (Positive and Negative Syndrome Scale in Schizophrenia, Cuesta and Peralta[21]). The three-factors model was used: Positive Scale (P-PANSS), Negative Scale (N-PANSS) and General Psychopathology Scale (PG-PANSS).

All the participants filled out the Social Climate Scale (FES, Moos et al.[22]) that contains 90 items of dichotomic response grouped into 10 subscales: Cohesion (CO), Expressiveness (EX), Conflict (CT), Independence (IN), Achievement (AC), Intellectual-Cultural (IC), Social-Recreative (SR), Moral-Religious (MR), Organization (OR) and Control (CN). These subscales defined three fundamental dimensions: Relations (DR), Development (DD) and Stability (DS). Typified values were used[22]. The EE construct was defined based on previous studies[8,12,23], by the relationship between some subscales of the FES[12] and some measured with the Camberwell Family Interview (CFI)[24], specifically, the inverse relationship between the EX scale and Emotional overinvolvement of the CFI and the direct relationship of CT with that of the critical comments of the CFI. It should be clarified in regards to the EX scale and the EE construct that the first one fundamentally refers to the degree in which the family members are allowed to and encouraged to act freely and express their feeling directly while EE is related with the amount of critical comments, hostile attitudes and emotional overinvolvement shown by the family regarding the patient. Thus, EX would be a family aspect associated with better evolution in the patient while on most levels EE would be associated with worse evolution. In the case of higher levels of CT, this would coincide with higher levels of EE.

Table 1 Clinical and sociodemographic characteristics

	Patients (n = 41)		Relatives (n = 41)	
	SP (n = 24)	PP (n = 17)	RS (n = 24)	RP (n = 17)
Gender (% men/ woman)	83.3/16.7	70.6/29.4	37.5/62.5	29.4/70.6
Age*	30.4 (7.1)	32.4 (10.5)	44.3 (15.3)	41.9 (14.8)
Civil status (% single/ married-separated)	90.5/9.5	64.7/35.3	18.2/81.8	50/50
Study level (% primary/secondary)	45/55	53.8/46.2	56.4/43.6	50.1/40.9
Age of onset of symptoms*				
Years of evolution *	23.7 (7.1)	25.3 (7.8)	–	–
Años de evolution*	6.3 (6.0)	8.7 (10.1)	–	–
Number of admissions in the IPM*	3.7 (3.5)	3.6 (3.8)	–	–

* Mean (SD). IPM: Institut Pere Mata; SP: schizophrenia patients. PP: psychotic patients; RS: relatives of schizophrenics; RP: relatives of psychotics.

Data analysis

The analyses were conducted with the SPSS statistical program for Windows (version 13.0). The categorical variables were described in frequencies and percentages and the continuous ones in means and standard deviation (SD) for the descriptive analysis. The Student's t test was used for comparison of groups in qualitative variables when the normality hypothesis was fulfilled and the Mann-Whitney test when it was rejected. The chi-square test was sued to compare qualitative variables and the analysis of relationships was performed with Pearson's correlation.

RESULTS

Clinical and sociodemographic characteristics (table 1)

No significant differences were observed when the patients were compared (SP versus RP, in relationship to onset age of the symptoms (SP, x=23.77; RP, x=25.38), to years of evolution (SP, x=6.33; RP, x=8.74), and number of hospital admissions (SP, x=3.73; RP, x=3.59)

Social and family climate (table 2)

When the group of patients is compared with that of the relatives as a whole, the former scored higher on all the FES scales and dimensions, except for on EX, CT and SR, in which they scored lower.

In comparison with the controls, the patients had a statistically significant difference on the following subscales: OR ($p<0.01$), SR ($p<0.01$), MR ($p<0.001$), EX ($p<0.001$), AC ($p=0.05$) and on two of its dimensions, DR ($p=0.05$) and DS ($p<0.05$).

No significant differences were observed when comparing SP and PP, in relationship with the FES, as occurred between relatives of other schizophrenics (RS) and relatives of psychotics (RP). However, it remains relevant to state that the relatives of schizophrenics (RS) scored higher on all the scales and dimensions of the FES, except in the Control and Conflict and Stability Dimensions.

Tabla 2 Mean and standard deviation of the FES scores in patients, relatives and controls. Comparison of means between groups

FES dimensions	Patients (n=41) P	Relatives (n=41) F	Controls (n=30) C
CO	49.53 (11.68)	48.12 (10.54)	45.73 (10.89)
EX	46.41 (10.58)*	49.73 (10.69)	56.90 (9.03)
CT	48.34 (11.15)	48.36 (9.94)	52.10 (8.51)
IN	52.48 (9.02)	48.58 (10.84)	49.00 (13.98)
AC	50.43 (8.48)*	47.65 (9.27)	45.16 (12.62)
IC	49.58 (12.19)	48.26 (11.67)	54.10 (12.04)
SR	51.41 (9.80)*	51.75 (10.91)	59.33 (12.08)
MR	48.60 (8.49)*	45.95 (9.23)	40.56 (8.92)
OR	51.78 (9.63)*	48.90 (10.60)	44.73 (10.25)
CN	48.46 (7.51)	47.29 (8.84)	46.10 (13.47)
DR	14.56 (3.83)*	14.46 (3.16)	16.00 (2.22)
DD	25.14 (5.97)	23.19 (6.69)	24.56 (4.76)
DS	10.43 (2.48)*	9.75 (2.96)	8.63 (3.86)

$p<0.05$. *Between patients and controls. CO: cohesion; EX: expressiveness; CT: conflict; IN: independence; AC: achievement; IC: intellectual-cultural; SR: social-recreative; MR: moral-religious; OR: organization; CN: control; DR: dimension-relationship; DD: dimension-development; DS: dimension-stability.

Tabla 3 Correlations between FES and PANSS scores in the patient group

FES dimensions	Schizophrenic patients (n=24) PE			Psychotic patients (n=17) PP		
	P-PANSS	N-PANSS	PG-PANSS	P-PANSS	N-PANSS	PG-PANSS
CO	–	–	–	–	–	–
EX	–	–	–	-0.57*	–	–
CT	–	–	–	–	–	–
IN	0.59**	–	–	–	–	–
AC	–	–	–	–	–	–
IC	0.43*	–	–	–	–	–
SR	0.61**	–	–	–	–	–
MR	0.41*	–	0.41*	–	–	–
OR	–	–	–	–	-0.69**	–
CN	–	0.46*	–	–	–	–
DR	–	–	–	–	–	–
DD	0.63**	–	–	–	–	–
DS	–	–	–	–	–	–

*Significant correlation to 0.05 level (bilateral). **Significant correlation to 0.01 level (bilateral). CO: cohesión; EX: expressiveness; CT: conflict; IN: independence; AC: achievement; IC: intellectual-cultural; SR: social-recreative; MR: moral-religious; OR: organization; CN: control; DR: dimension-relationship; DD: dimension-development; DS: dimension-stability.

When we compared the patients with their respective relatives, we observed that the psychotic patients (PP) scored higher than the relatives of psychotics (RP) on the development dimension ($p=0.05$). On the rest of the scores, we also observed a tendency to score higher, although not significantly, in the psychotic patients (PP) than in the relatives of psychotic patients (RP). No differences were found between the schizophrenic patients (SP) and relatives of schizophrenics (RS) nor was a tendency observed for higher scores of the SP regarding the RS.

When the grade of association regarding the scales and dimensions of the FES between patients and their own relatives was analyzed, significant positive correlations were found between the organization (OR) of the patient and Cohesion (CO) of the relative ($r=0.45$; $p=0.003$); the Social-Recreative (SR) scale of the patient and the Independence (IN) of the relative ($r=0.46$; $p=0.002$); the Development (DD) of the patient and the IN of the relative ($r=0.45$; $p=0.003$), and between the SR scale of the patient and the DD one of the relative ($r=0.45$; $p=0.003$). On the other hand, we obtained a significant negative correlation between the Conflict (CT) of the patient and the CO of the relative ($r=-0.41$; $p=0.008$).

Relationships between FES and symptoms (table 3)

In a post-hoc analysis, the FES scale was analyzed based on the psychopathology present in the patients according to the predominance of positive or negative symptoms. No significant differences were obtained when compared on the FES scores based on symptoms. However, it was observed that the patients with predominance of positive symptoms score somewhat higher on all the scales except for that of EX.

When the correlation grade was studied between the PANSS and the FES, in the SP, the P-PANSS correlated positively with Independence (IN), Intellectual-Cultural (IC), Social-Recreative (SR), Moral-Religious (MR) and Development (DD) in the schizophrenic patient. On its part, the N-PANSS correlated positively with Control (CN) while the PG-PANSS did so with the MR. In the psychotic patient group, the positive dimension correlated negatively with Expressiveness (EX) and in the same way, the negative dimension did so with Organization (OR) (table 3). When the relationships of the FES of the relatives were analyzed with the PANSS of their patients, only EX correlated positively with the positive dimension of the PANSS.

When the Expressed Emotion construct was correlated with the PANSS in the patient group, there was only a positive correlation with the P-PANSS in the PP group ($r=0.56$; $p=0.020$).

DISCUSSION

In the present study, those aspects which, to a certain degree, contribute to a better understanding of the «dysfunc-

tional» family environment in patients with psychiatric diseases such as schizophrenia and other non-organic psychoses have been analyzed.

The scores obtained in the patient group compared to the controls allow us to have a glimpse on how the patients perceive greater social withdrawal, how they feel more controlled by their relatives, which leads them to a perception of their families as being more rigid, to evaluate religious ethical aspects, to consider that within their family there is little capacity to act and speak freely about their feelings, which could be related with the destructured family subtype. On their part, the relatives would perceive higher levels of conflict, higher levels of emotional expression, and greater interest in social-recreative activities in comparison with the patient group. As in the results obtained by Robert et al.[4], and by Phillips et al.[13], no significant differences were found in the perception of family climate in the patients and their relatives when these are studied as a whole nor when they are studied based on diagnosis. However, in this study, we found differences in the psychotic patient (PP) group regarding their relatives, this not being observed in the SP group. This could indicate that the patients with other psychosis (PP) would more strongly evaluate the personal development processes, they would consider themselves self-sufficient and capable of making their own decisions while they would show greater interest in political, social, cultural and recreative activities, granting importance to ethical-religious practices and values. In the beginning, the fact that such differences were not observed between the SP and relatives of the schizophrenic patients (RS) makes us propose its possible relationship with the concept of «schizotaxia» introduced by Meehl[25], and then reformulated by Tsuang et al.[26] to define a predisposition to the disorder on the basis of genetic and environmental factors. In the environment of the symptoms, this predisposition would be reflected in the relatives of the schizophrenic patients in a greater presence of negative and cognitive symptoms[27,28]. However, when the symptoms are studied with our data, we find that the values obtained with the PANSS on the negative symptoms scale are not significant and thus not sufficient to explain the similarity between schizophrenic patients and their relatives. When we study the negative symptoms between the patient group, the SPs obtain higher scores than the PP while this does not occur with the relatives of schizophrenics regarding the relatives of psychotic patients, an aspect that could be explained partially by the possible alteration of mood state motivated by the fact itself of having a severely ill relative, which could, on its part, promote the low view of the family climate in both cases.

The expressiveness scale, which would refer to the grade in which it is permitted and encouraged to act freely and openly express feelings within the family appears to be related with the positive symptoms. These data would agree with Spiegel et al.[29], who has described said scale as a protective factor against relapses in psychiatric patients. On the psychopathological level, within the SP group, the positive symptoms would seem to be associated with greater perception of self-confidence, with greater interest in recreative, political, social and cultural activities. On the other hand, the more defective or negative symptoms would seem to be related with a perception of interaction guidelines based on the control and on a stricter adaptation to rules and guidelines within the family environment. Thus, in this sense, we could think that the presence of this type of symptoms could be an aspect that would hinder the course of the disease itself. Furthermore, as Cañive et al.[17] have described, the cohesion grade between the family members and the level of conflict would be the aspects of the familial environment that would be associated most with the negative symptoms, specifically abulia, anhedonia, unsociability and affective flattening.

As Glynn et al.[30] have pointed out, the patients who live with family with high levels of EE have more positive symptoms in comparison with the low EE families. In our sample in the PP group, the perception of higher levels of EE within the family is associated with the presence of more florid symptoms. Elevated levels of EE have been linked with predominance of positive symptoms in psychotic patients, which can be associated with higher levels of relapse. Thus, high intrafamilial EE would be a factor that would correlate with the appearance of positive symptoms, which is the primary cause of readmission and the latter, on its part, would be related with the perception of more open familial environments.

The results of this study bring us closer and allow us to understand the relationship between familial environment and mental disorder a little more. In this case, the study of psychotic patients and their relatives brings us closer to a familial perception in which there is a greater level of conflict, greater rigidity in relationship to compliance of guidelines and rules and greater need for planning and structuring the activities. All this could be related with a more dynamic paranoid, characteristic in this type of diseases.

However, we consider that future replications would be needed since there are some limitations such as sample size, lack of control group of relatives, and the fact that the EE construct values are not obtained in a standardized way. On the other hand, there is the fact that the data was gathered at the time of hospitalization, which may affect the results due to the situation itself of the admission.

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