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Relations between the Course of Illness, Family History of Schizophrenia and Family Functioning in Persons with Schizophrenia

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A B S T R A C T

The aims of this study were to identify the aspects of family functioning which are associated with the course and remission of schizophrenia and to explore relations between aspects of family functioning and family history of schizophrenia. The subjects were 90 patients, treated at the Clinical hospital centre in Rijeka, Croatia, with diagnosed schizophrenia (F20.0 to F20.5) and without psychiatric comorbidity. The patients were organized into three groups depending on the treatment status during the calendar year that preceded the year in which the survey took place: patients with schizophrenia who received an outpatient care and were maintaining favourable remission, patients who were hospitalized once to twice and patients who were hospitalized at least three times in the precedent calendar year. The treatment status was used as an indicator of the course of the illness. A Family Functioning Scale was applied and the data on the absence/presence of schizophrenia in the family history were collected through the examination of previous medical records. The lowest prevalence of familial schizophrenia was found among the patients who were maintaining favourable remission. Among the three groups statistically significant differences were found regarding the following family functioning variables: expressiveness, family sociability, democratic family style. Also there were observed statistically significant differences in the family functioning depending on the presence/absence of the schizophrenia in the family history that included following domains: family cohesion, external locus of control and democratic family style. Our study gives support to the conclusion that family functioning of persons with schizophrenia differs depending on the course of the illness and presence/absence of schizophrenia in the family history.

***Key words**: schizophrenia, family functioning, family history of schizophrenia, outpatient treatment, remission*

Introduction

Schizophrenia is a multilevel disorder characterized by disturbances in the processes of thought, emotions and interpersonal relations[1]. The onset is influenced by biological[2], psychological and social factors and their interaction is rather specific and individualistic. It has already been confirmed that the risk of developing schizophrenia is 10 to 15 times greater in the offspring of the parents suffering from this disease, than in general population[3]. However, the attention is now being given to the following issue: What is the contribution rate of genetics and to what degree is the onset influenced by social and family environment?

Significant contribution to the schizophrenia research was delivered by the adoption studies commenced by Kety and colleagues[4] and Rosenthal and colleagues[5] in Denmark as well as the Finnish adoption study by Tienari and colleagues[6]. Tienari and his colleagues[7,8] conducted a study on the adopted Finnish children and examined interactions between heredity and psychosocial risk factors related to the onset of the schizophrenia spectrum disorders. Their study has proved that the risk of schizophrenia onset is greater in those children with heredity predisposition who lived in foster families presenting a higher level of negativity. Such negativity in-

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cluded both family contradictions (flattened affect, lack of humour) and problems within the family itself (generation enmeshment, chaotic family structure, unusual communication). No risk increase was evidenced in healthy families, which indicates that certain forms of family dynamics are associated with schizophrenia, while healthy family dynamics actually act as a protective factor[7]. Therefore, the studies mentioned highlight the importance of the interaction between genetic vulnerability and disturbed upbringing environment in the onset of schizophrenia[9,10].

The actual interactions within the family structure are quite significant and contribute both to a better comprehension of the illness and effective treatment strategies[11–13]. Family environment has a key role in supporting individuals with schizophrenia or other chronic mental illness. More than 60% of the patients get back living with their relatives after the occurrence of the first episode of illness, while additional 40–50% such patients do the same after several subsequent hospitalizations[14,15]. Some authors state that 90% of patients suffering from severe mental illnesses live with their relatives[16].

Considering the fact that individuals with schizophrenia have rather inferior ability to adapt to environment and to the family, the integration of such patients greatly depends on the family attitudes as well as attitudes of his/her living environment[16]. The responsibility of families of individuals with schizophrenia is constantly increasing, one of the reasons being the hospitals' tendency to reduce both bed number and bed days[17,18]. A direct consequence of such a trend is additional burden falling on such families[19]. Therefore, it is necessary to develop and apply appropriate intervention strategies in the families of individuals with schizophrenia. The aim of this study was to detect and to examine the variables of family functioning which are associated with the course and remission of schizophrenia, and to determine differences in family functioning of patients with familial and sporadic schizophrenia.

Materials and Methods

Participants

The research was conducted at the Clinic for Psychiatry, Clinical Hospital Centre Rijeka, Croatia and included the random sample of patients previously diagnosed with schizophrenia (F20.0 to F20.5) based on the DSM-IV classification. The inclusion criteria were the age between 18 and 65 at the time of the research and the ability to understand both the instructions and the purpose of the research. The exclusion criteria were comorbidity and the presence of severe psychotic symptoms. According to these criteria, 90 participants (M=51; F=39) were identified. All the patients examined accepted to take part in the research and signed an informed consent. These participants were then subdivided into three groups depending on the treatment status in the last calendar year:

- Patients who received an outpatient care and achieved favourable remission (N=30)
- Patients who had 1 to 2 hospitalizations during the precedent calendar year (N=30)
- Patients who had 3 and more hospitalizations during the precedent calendar year (N=30)

On the basis of gender, sample was characterized by uneven (M=51; F=39) prevalence of female and male participants. The onset age of examined patients was between 15 and 31, the average age being 22.5 months (M=22.45, δ=3.342). At the time of research the age of the examinees was between 18 and 37, the average age being 27.3 months (M=27.03, δ=3.577). As to their level of education, 16 patients completed elementary and secondary school, 59 completed high school, 8 had an associate degree, while 7 had a university degree. Regarding the family history of schizophrenia, 52 participants haven't got presence of schizophrenia in their family history, while remaining 38 patients had relatives suffering from schizophrenia disorders spectrum. The prevalence of different levels of kinship with the affected relatives was as follows: 11 – fathers, 5 – mothers, 2 – sisters, 1 – brother, 8 – grandmothers, 9 – aunts/uncles, 1 – great grandmother and 1 – father's cousin. As to their marital status, 5 examinees were married, 80 were unmarried and 5 were divorced. The number of hospitalizations varied from 1 to 16, the average number was 4 hospitalizations (M=3.84, δ=2.77). Finally, the average time since the last hospitalization was M=15.53 months, δ=17.33, ranging from 1 to 96 months.

Instruments and procedures

A socio-demographic data were obtained through the self report instrument specifically constructed for the purpose of this research. The questionnaire contained the following information about the patient: sex, age, the form of the schizophrenia process, time of the onset of the illness (onset age), the number of hospitalizations, presence/absence of schizophrenia in the family history, level of kinship with the affected relatives, marital status and the level of education. The questionnaire was completed in direct contact with the patient by conducting a face to face interview.

The Family Functioning Scale[20] is a self-report questionnaire which consists of two subscales: Positive and Negative family relations. On both subscales the examinees indicated the extent to which the statement was true for their family. Each statement offered a 4-point response which ranged from 0 = totally disagree, 1 = mostly disagree, 2 = I do not know / I cannot assess, 3 = mostly agree, 4 = totally agree. The family functioning scale measured 15 domains of family functioning: cohesion, expressiveness, conflict, family idealization, democratic family style, disengagement, family sociability, intellectual-cultural intellectual orientation, active-recreational orientation, external locus of control, enmeshment, organization, permissive family style, religious orientation and authoritarian family style. Each of the 15

factorial-determined scales of this questionnaire comprises five items. Scores on each scale range from 5 to 20; high scores signify a strong presence of the given family characteristic.

Results

Statistically significant differences between the groups on socio-demographic and treatment related variables

Three groups showed statistically significant differences on the following socio-demographic and treatment related variables: educational level and time elapsed since the last hospitalization ($F_{(2,89)}=32.3480$, $p<0.001$). Pearson's chi-square test ($\chi^2_{(2)}= 5.883$; $p=0.054$) showed that the group of the patients with 1–2 hospitalizations and group of patients with 3 or more hospitalizations significantly differ according to educational level. In the group with 1–2 hospitalizations, 23.3% of participants completed secondary and elementary school, 53.3% completed high school and 23.3% had associate or university degree. At the same time, in the group with 3 or more hospitalizations, 20.0% of participants completed secondary and elementary school, 76.7% completed high school and only 3.3% had associate or university degree. While investigating differences between outpatients group and group with 3 or more hospitalizations, Pearson's chi square value ($\chi^2_{(2)}= 5.709$; $p=0.058$) was not significant at the 5% probability level but the Likelihood ratio chi square ($\chi^2_{(2)}= 6.291$; $p=0.043$) showed significant differences between these two groups. In the group of outpatients, 10.0% of participants completed secondary and elementary school, 66.7% completed high school and 23.3% had associate or university degree. These proportions can be compared to above mentioned proportions in the group with 3 or more hospitalizations.

Regarding the relations of aforementioned variables that are found to differentiate the groups and family functioning, it is observed: variable time elapsed since last hospitalization has no statistically significant relations with the family functioning while educational level is related to family functioning. Conducting ANOVA analysis, we found that next domains of family functioning were affected by educational level of the participant: family idealization ($F_{(2,29)}=4.9534$, $p=0.0147$), permissive family style ($F_{(2,29)}=4.1885$, $p=0.0260$), enmeshment ($F_{(2,29)}=6.5079$, $p=0.0049$) and intellectual-cultural orientation ($F_{(2,29)}=3.9815$, $p=0.0305$). Observed relations, although important in the light of other discussions, will not be discussed in further detail in this paper. The goal was just to clarify that further mentioned relations of family functioning and variables that are the focus of this paper couldn't be intermediated by group differences in socio-demographic variables found to contribute to family functioning. That is so because abovementioned socio-demographic variables are related to domains of family functioning that are different from domains found to have significant relations to the course of the illness.

Relation between the course of the illness and family functioning

Groups were divided on the basis of treatment status and we used treatment status as an indicator of the course of the illness. Outpatients maintaining remission had more favourable course of the illness than patients with 1–2 or 3 and more hospitalizations. Since rehospitalisations are most frequently induced by exacerbations of the disorder, a group with three or more hospitalizations was regarded as having less favourable course of the illness in comparison to group with 1-2 hospitalizations.

One-way analysis of variance compared the three groups of patients regarding their family functioning and revealed statistically significant difference on the subscales of *expressiveness* ($F_{(2,89)}=3.3457$, $p=0.0398$, Table 1), *family sociability* ($F_{(2,89)}=4.3807$, $p=0.0154$, Table 1) and *democratic family style* ($F_{(2,89)}=5.2906$, $p=0.0068$, Table 1).

Post-hoc comparisons (Neuman-Keuls test) revealed that outpatients (Group 1) scored statistically higher results on the subscale of expressiveness compared to patients with three or more hospitalizations (Group 3) and statistically higher results on the subscale of family sociability than the subjects with 1–2 hospitalizations (Group 2). The group with the highest number of hospitalizations (Group 3) had statistically lower result on the democratic family style compared both to the outpatient group and to the group with 1–2 hospitalizations (Group 2), while the difference between group 1 and 2 on democratic family style was not found.

Differences between the groups regarding prevalence of schizophrenia in family history

Regarding the family history of schizophrenia, the overall χ^2-test (Table 2) showed that our groups differ according to presence of schizophrenia in family history. Running individual comparisons between our groups, we found significant differences ($\chi^2_{(1)}= 6.787$; $p=0.009$) between the group of outpatients and the group of participants with three or more hospitalizations.

Relation between the family history of schizophrenia and family functioning

T-tests were used to explore differences in family functioning between patients with presence of schizophrenia in family history and patients with absence of schizophrenia in family history. The results achieved on the Scale of family functioning are taken as a measure of family functioning.

Among the patients who received outpatient care ($N=30$), those with absence of schizophrenia in family history showed a statistically higher result only on the subscale of cohesion ($t=2.21$, $p=0.036$) in comparison to patients who had presence of schizophrenia in their family history.

In the group of patients with 1–2 hospitalizations in the preceding calendar year ($N=30$), t-tests showed that

TABLE 1
ONE-WAY ANOVAS WITH GROUP MEMBERSHIP (COURSE OF THE ILLNESS) AS INDEPENDENT AND DOMAINS OF FAMILY FUNCTIONING AS DEPENDENT VARIABLES

	ANOVA	DF	$\overline{X}$	F	p
Expressiveness	Among the groups	2	3.511	3.346	0.040
	Within the group	87	1.049		
	Total	89			
Family sociability	Among the groups	2	3.011	4.381	0.015
	Within the group	87	0.687		
	Total	89			
Democratic family style	Among the groups	2	5.078	5.291	0.007
	Within the group	87	0.960		
	Total	89			

TABLE 2
PRESENCE OF SCHIZOPHRENIA IN THE FAMILY HISTORY IN EACH OF THE THREE GROUPS OF PATIENTS

Participants groups	Presence of schizophrenia in family history		
	No	Yes	Total
Outpatients (Group 1)	22 73.3%	8 26.7%	30 100.0%
1–2 hospitalizations (Group 2)	18 60.0%	12 40.0%	30 100.0%
3 hospitalizations and more (Group 3)	12 40.0%	18 60.0%	30 100.0%
Total	52 57.8%	38 42.2%	90 100.0%
Significant difference testing	χ^2=6.923	Df=2	p=0.031

there are no significant differences on any of the subscales of family functioning depending on presence/absence of schizophrenia in family history.

In the group with three or more hospitalizations (N=30) participants without schizophrenia in family history showed statistically higher results on the subscales of external locus of control (t=2.11, p=0.044) and democratic family style (t=2.20, p=0.036) than those patients who had presence of schizophrenia in family history.

Discussion and Conclusion

The course of the illness and family functioning

We found that our groups significantly differ according to the next domains of family functioning: expressiveness, family sociability, democratic family style. Outpatients who were in stable remission (time elapsed since the last hospitalization is 30,43 months) differ from patients whose disorder has less favourable course in the way that they perceive their families as more expressive and sociable. Patients in the group with the highest number of hospitalizations perceive their families as having the least democratic style in comparison to other groups. We cannot state that number of hospitalizations perfectly relates to the severity of symptoms. While the difference between outpatients and other two groups is clear, the less obvious is difference between groups with 1–2 hospitalizations and 3 or more hospitalizations in terms of severity of symptoms. Does the higher number of hospitalizations also reflect more severe clinical presentation? Besides the clinical presentation and symptoms severity other factors influence number of hospitalizations such as family support or lack of the same, characteristics of the person' s social surrounding, organizational aspects of the psychiatric care system, syndrome of hospitalism. Although the number of hospitalizations is related with the severity of clinical presentation, we can't precisely state to what extent.

Up to now, literature has confirmed that characteristics of family environment and social support influence the course of the disorder. Family expressiveness is a variable confirmed by many studies as having positive impact on the course of schizophrenia[21–24].Expressiveness reflects the degree to which family members are encouraged and allowed to freely and directly express their feelings and attitudes. The importance of the expressiveness for later emotional functioning is pointed by the research results that found higher prevalence of alexithymia in families with low emotional expressiveness[25]. Other studies have found that the frequency of relapses and re-hospitalizations is connected to the perception of family control[26]. Schizophrenic patients, who perceive their parents more controlling, more frequently have relapses[27,28].

In our study the domain of family functioning most similar to the dimension of control was authoritarian family style. We didn't find statistically significant differences between our groups on this domain of family functioning. However, we found that our groups differ on the opposite dimension, democratic family style. In the research conducted by Canive[26] et al. on the Spanish patients, patients' perceptions of family control and intellectual-cultural orientation predicted re-hospitalizations. Intellectual-cultural orientation wasn't differently perceived among our groups. The same study revealed that parents and patients have markedly different perceptions of their family environment. Parents' views were predictive of psychotic relapses and intensity of negative symptoms while patients' perceptions predicted re-hospitalizations. Altogether, fathers' views were the best predictors of clinical status. Specifically, fathers' perceptions of family conflict and moral-religious emphasis predicted psychotic relapse in the direction that the higher the conflict dimension and moral-religious emphasis the higher the likelihood of psychotic relapse. Fathers' scores on family cohesion predicted higher negative symptoms in unexpected direction; higher perception of cohesion was related to more intense negative symptoms.

It has been reported that strategies used by relatives to cope with schizophrenia are influenced by the patients' symptomatology. The coercion is more prevalent coping strategy when ill family member is experiencing formal thought disorders, high level of social disability and high frequency of relapses[29,30]. Hence, while the patient's disability and severity of his illness increases, family puts more effort to control him and introduces more rules and structure into family functioning. This pattern is expected and logical explanation would be that without strict rules and procedures, functioning of the families with so severely disabled member would be importantly disturbed. Besides this, the sense of control over threatening situation, in this case severe mental illness and disability, levels down the distress experienced by family members. According to Lazarus and Folkman's[31] coping theory, person's appraisals of demanding situations are mediators of affective and behavioural responses. The reaction to the demanding situation depends on how threatening the person perceives the situation and how he judges his abilities to cope with or control the situation[32]. It would be useful to reach to a conclusion whether higher family control in the cases of persons with more severe clinical presentation is just coping strategy for dealing with highly dysfunctional member or it is precedent cause of deterioration and disability of these patients. The differences in methodologies of studies exploring relation between family environment and clinical representation and sometimes methodologies unsuited to detect causation make it difficult at this point to reach the final judgment on the abovementioned subject.

Large number of studies reported that negative affective style has impact on the course of schizophrenia. It has been reported that patients whose parents critical, hostile or emotionally over involved attitudes on the part of a family member toward a relative with a disorder or impairment. Emotional overinvolvement includes exaggerated emotional response, over-intrusive or self-sacrificing behaviour, and over-identification with the patient[14]. Persons with high emotional expressiveness tend to attribute the problematic behaviour of the sick relative to internal causes which are under his control[33,34]. Criticism and negative affect represent high levels of stress for schizophrenic patients and that effect is strengthened by frequent presence of higher interpersonal sensitivity among these patients. Schizophrenics, also, as a part of their illness, have difficulties in tolerating exaggerated emotions, either negative or positive (overinvolvement). However, the impact of higher emotional expressiveness is not specifically related to schizophrenia but also to other disorders[35]. Although we can speculate this impact is stronger in the case of schizophrenia because of just mentioned characteristics of the illness. Domains of family functioning in our study that mostly resemble to criticism and hostility part of emotional expressiveness are family conflict and authoritarian family style. Our results didn't support existence of differences between groups on these family measures. Aspect of family functioning that bears the most resemblance to the part of emotional expressiveness concerning over-involvement and over- intrusiveness is a measure enmeshment. This aspect of family functioning reflects a dysfunctional type of family relations in which family members rarely spend time alone or apart from other members, they feel guilt if they spend time without the family and actually experience difficulties while separated. Our results didn't confirm differences in this family functioning aspect between our groups. Altogether, our findings suggest the possibility that the course of illness is more impacted by the presence/salience of positive affective responses and positive communications in which patients emotions are allowed and encouraged (family expressiveness) and his contributions to family functioning and problem solving needed and respected (family democratic style) than by the presence and salience of negative affective responses (family conflict) and communication patterns that degrade patient's importance and independence (family authoritarian style). Another explanation for our findings concerning democratic style would be the possibility that perceptions of less democratic family style among patients with 3 or more hospitalization are just a reaction to parents/spouses who foster in great deal hospitalizations of their sick members so patients consequently experience lower engagement in family decision-making.

Important differences found regarding the family sociability are expected since this dimension in part reflects the existence of social support resources. Our measure of family sociability encompasses existence of family's friends, organization of social gatherings and participation in the same, generally sociability and gregariousness

of the family as a whole. Higher family sociability implies broader social network, and thereby indirectly a greater source of available social support. Erickson[35] has reported that social support from extra-familial social network measured immediately prior to patients' first lifetime treatment predicts adaptive (social and occupational) functioning of schizophrenic patients 5 years after the initial treatment.

The broader range of social network, larger size of extra-familial network, higher level of social support are related to better insight into the illness, better treatment outcomes (lower number of hospitalizations, shorter duration of hospitalizations, lower number of relapses, milder course of the illness), less criticism or rejection from patient's family, smaller burden for the families (the negative impact of the illness on the financial standing of the family, daily routine, leisure devoted to contacts with the patient, limited social contacts)[36]. Burden and distress for the families of schizophrenics is substantial. Oldrige and Hughes[37] reported two times greater frequencies of anxiety, depression and insomnia in families of persons suffering from schizophrenia in comparison to general population. It was also reported that at least 25% of key relatives of patients with schizophrenia in the community present nervous tension at a clinical level[38]. The major changes for the families are additional caregiver roles and constraints in social, leisure and work activities[39,40]. Besides, disruptions to family relations occur, e.g. neglecting other family members. On the other side, there is subjective burden in form of psychological reactions that family members experience, e.g. feelings of loss, depression, anxiety and embarrassment in social situations[39,40]. Chakrabarti and Kulhara[41] found in their comparative study that burden associated with caring for mentally ill persons is largest in families of schizophrenics. Certainly that larger social support can decrease this burdens and along with it stress and its' negative impacts on families, ill persons and the course of their illness. Social network is capable of providing psychological support in terms of intimate friends with whom person can share emotional burden, practical support in carrying out daily routines, help in the case of emergencies concerning the patient and likewise. Taking part in social gatherings has potential to weaken the influences of substantial stigmatization observed towards people with schizophrenia[42]. So it seems feasible that family sociability can influence the course of the illness as evidenced by highest family sociability among the group of outpatients. Although, our outpatients have reached satisfying remission and by means of this are more capable of communicating efficiently; their families are less burdened by care duties so have more time to spend on social gatherings. Patients in with less favourable course of the illness spend more time inside of hospitals, so they are less present in families and have fewer opportunities to participate in social gatherings. All these factors could contribute to registered differences on the *family sociability* measure.

Presence of schizophrenia in family history and family functioning

The group of outpatients who achieved stable remission is at the same time the group with lowest prevalence of familial schizophrenia. This result by itself suggests that presence of schizophrenia among relatives can be aggravating factor for the course and remission of the disorder. Among the patients with familial schizophrenia, 50% of relatives having the same disorder are actually the members of patient's close family (mothers, fathers, brothers, sisters), 45% are members of broader family (grandmothers, aunts, uncles) but still the family in which fathers or mothers grew up and only 5% are members of broader family in which patient's parents weren't raised (great grandmother, father's cousin). Patients in our sample mostly live with their parents, 88% of them are unmarried while 6% are divorced and 6% married. Since most of our patients live with their parents and 50% of them have relatives in the closest family (mother, fathers, brothers, sisters) suffering from the same disorder, we can expect that amount of stressful factors is substantially larger in these families in comparison to families in which only one member is schizophrenic. In families with more than one schizophrenic member the burden is at least doubled with higher number of care-giving duties, greater constraints on social, work and leisure activities of healthy members and higher risks for neglecting other family members.

Similarly to findings of Mimica[43,44] et al. who reported, while investigating catatonic schizophrenia in Croatia, that not all types of schizophrenia are equally genetically determined, other authors found that some symptoms are more related to genetic aetiology. More prominent and frequent negative symptoms, higher severity of dysphoric mood factors, higher frequency of severe thought disorders were found among persons with familial schizophrenia in comparison to cases of sporadic shizophrenia[45–48]. Docherty[48] has found that both person with schizophrenia and their parents were more likely to make statements that were disorganized, unclear, and, in particular, have obscure referents in comparison to the parents of persons without psychiatric diagnoses. It seems possible that persons with schizophrenia and their parents share a genetic vulnerability that is often manifested by ambiguous or disorganized speech[48].

Some researchers reported that negative symptoms, behaviours related to low activity and poor self-care appear to family members as more distressing than aggressive or psychotic behaviours[49–51]. Other studies found that patient's anxiety-depressive symptoms, as reported by relatives, significantly correlate with broader range of different relatives' distress indicators (total distress scores, relatives' anxiety and copying failure subscales) in comparison to other symptoms[52]. Also these correlations were more constant across different assessment periods in comparison to the correlations found between other symptoms and relatives' distress subscales[52]. Authors also documented that attitudes toward the future of schizophrenic family member depend on the levels of

dysfunction on the field of self-care, underactivity and social withdrawal[53]. While dysfunctions in mentioned areas rise, key family members become less optimistic about the future of their sick members[53]. These more negative attitudes regarding the future have capacity to intensify impacts of other stressful factors associated with caring for schizophrenic member. This conclusion arises from the proof that stress intensifies as person perceives less control over the threatening situation[31]. Psychotic symptoms emerge periodically and react better to medicaments while negative symptoms are more resistant to medicaments and are present for longer periods of time. Besides this, negative symptoms are more demanding in terms of caring and nursing. In addition, low levels of activity, alogy and avolition complicate family communications but also contribute to patient's social isolation and his difficulties of social communication. Alongside the possibility that families of patients with familial schizophrenia in our sample are exposed to higher levels of distress (heavier burdens associated with caring and nursing for more than one ill member, possibly more severe negative symptoms and formal thought disorders found to be the most potent cause of distress for other family members), it was proved that reactivity to stressors differs in familial and sporadic schizophrenia[54,55]. According to stress-vulnerability hypothesis[55], increasing levels of stress are more apt to result in increased symptoms in those individuals who have underlying genetic vulnerability for developing disorder in comparison to individuals without genetic vulnerability. In relation to stress reactivity of different symptoms, it was reported that positive symptoms are more reactive to stress[56].

Taken altogether, we expected that higher levels of stress in the families of patients with familial schizophrenia will lead to substantially more dysfunctional family environment in comparison to families of patients with sporadic schizophrenia. We found few significant differences between patients who had presence of schizophrenia in family history and those without of presence of schizophrenia. In comparison to patients with familial schizophrenia, patients with sporadic schizophrenia asses the family cohesion as higher, perceive more democratic family style, have more external locus of control (believe that events in their families are rather influenced by external factors and that their families have only a slight influence on things that happen to them). We expected to find more disturbed family relations in families that have several ill members and by means of it numerous sources of distress. However, we didn't find significant differences on any of the measures that reflect more severely disturbed family relations such as: all-encompassed resignation (measure disengagement), over-involved behaviours (measure enmeshment), sizeable negative affect or aggressiveness (measure family conflict). Research findings confirmed that more extreme levels of subjective and objective burden are associated with resignation on the part of relatives of schizophrenic patients[40]. Our results suggest possibility that in the families of persons with familial schizophrenia sense of closeness is lost, relations are more distant and emotional bonds are weaker. This possibility is strengthened by the fact that observed differences in the *cohesion* were found inside of the group of outpatients whose illness was in remission. We suggest the possibility that observed lack of cohesion may be strongly influenced by characteristics of the schizophrenia, namely the avoidance of overworked stimuli or emotions. On the other side, these families less rely on democratic forms of family management and this is maybe necessary prerequisite in order to introduce discipline and structure in otherwise chaotic dynamics of families with several mentally ill and dependent members.

Interesting was the finding that families without prior presence of schizophrenia in family history have more external locus of control. For effective copying with demanding situations, it is important that person believes that he controls the situations, therefore the internal locus of control is more valuable[31]. On the other side, studies have shown that in situations which are really beyond our control, it is better to see them as a result of some external factors because it helps us to reduce feelings of personal guilt or responsibility and consequential negative emotional responses[31]. Does the higher external locus in the families of patients with sporadic schizophrenia reflect better or worse copying strategy? Further researches on the familial locus of control and it's relation with adaptive functioning in families of persons with schizophrenia is needed to clarify our findings. However, literature has confirmed the presence of feelings of guilt amid caretakers/key relatives who can blame themselves for the negative state of wellbeing of their schizophrenic family member and consequentially become more distressed[57]. For example, anxiety-depressive symptoms cause considerable distress in key relatives possibly because they are also common in the normal population and are not easily recognized as illness related so they can easily be attributed to causes unrelated to illness, for example to relatives' actions. These false attributions can lead to feelings of guilt[52]. It was also reported that good cognitive functioning of the schizophrenic patients was related to higher distress amid key relatives[52]. Again possible explanation is that in the case of good cognitive functioning there are greater chances that relatives will attribute mental illness to internal causes (their actions, characteristics of their upbringing, unfavourable family climate) while in the case of impaired cognitive functioning it could be easier for a relative to infer that such a person has some general tendency to mental illness that is beyond patient's or relative's control[52]. In the case of our patients with familial schizophrenia the higher prevalence of guilt feelings is possible among parents (for example »I or my family passed defective genes to my child«). It is possible that patients make more accusations against their parents or relatives. Patterns of communication in which parents shift the blame to the patients in order to relieve feelings of guilt are feasible. These forms of family dynamics can influence the ill

member's perception in the direction that he attributes the causes of many events and dysfunctionalities to family itself and its members rather than to external factors.

A possible constraint of our results is a failure to measure severity and representation of the symptoms. Although it can be stated that number of hospitalizations is a good indicator of clinical status and course of the illness, nevertheless, some of our results would be additionally strengthened if we have introduced symptoms measurements. Following studies with similar research questions would benefit from taking into consideration above pointed constraints. We also highlight next limitations of our research: relatively small sample which does not allow generalizations, use of self-report scales, failure to investigate whether the family members suffer from other mental disturbances.

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POVEZANOST TIJEKA BOLESTI, OBITELJSKE ANAMNEZE SHIZOFRENIJE I OBITELJSKOG FUNKCIONIRANJA U OSOBA OBOLJELIH OD SHIZOFRENIJE

S A Ž E T A K

Ciljevi ovog rada su bili ispitati postoje li razlike u obiteljskom funkcioniraju kod ispitanika s različitim tijekom bolesti te ispitati razlikuju li se u funkcioniranju obitelji ispitanika s obiteljskom i sporadičnom shizofrenijom. U istraživanju je sudjelovalo 90 ispitanika kojima je ranije dijagnosticirana shizofrenija (F20,0 do F20,5) bez komorbiditeta po DSM-IV klasifikaciji, a liječili su se u KBC Rijeka. Ispitanici su podijeljeni u tri skupine, s obzirom na status liječenja u kalendarskoj godini koja je prethodila. Prvu skupinu čine shizofreni bolesnici u ambulantnom obliku liječenja koji su u zadovoljavajućoj remisiji (N=30), drugu skupinu čine bolesnici koji su tijekom prethodne kalendarske godine bili 1–2 puta hospitalizirani (N=30), dok treću skupinu čine oni bolesnici koji su u istom vremenskom periodu bili hospitalizirani tri ili više puta (N=30). Status liječenja je promatran kao deskriptor tijeka bolesti. Ispitanicima je administrirana Skala obiteljskog funkcioniranja. Podaci o obiteljskoj povijesti shizofrenije su preuzeti iz anamnestičkih podataka. Dobiveni rezultati pokazuju da je prisutnost shizofrenije u obiteljskoj anamnezi najrjeđa u grupi ambulantno liječenih ispitanika koji su u zadovoljavajućoj remisiji. Pronađene su statistički značajne razlike između tri grupe na sljedećim varijablama obiteljskog funkcioniranja: ekspresivnost, obiteljska društvenost, demokratski obiteljski stil. Također su, pronađene značajne razlike u obiteljskom funkcioniranju s obzirom na prisutnost/odsutnost shizofrenije u obiteljskoj anamnezi, a uključuju sljedeće domene obiteljskog funkcioniranja: kohezija, eksternalni lokus kontrole, demokratski obiteljski stil. Možemo zaključiti da se obiteljsko funkcioniranje shizofrenih pacijenata razlikuje kod pacijenata s različitim tijekom bolesti. Isto tako drugačije obrasce funkcioniranja pokazuju obitelji pacijenata s obiteljskom i sporadičnom shizofrenijom.