Delusions of persecution and poisoning in patients with schizophrenia: sociocultural and religious background

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Key words: *schizophrenia; sociodemographic status; religiosity; delusions of persecution; delusions of poisoning; cultural psychiatry.*

Summary. *This article presents data on the phenomenology of delusions of persecution and poisoning in patients with schizophrenia and determines parallels between sociodemographic status and personal religiosity and this type of delusions. We have studied the content of delusions in patients with schizophrenia looking for persecution and poisoning themes using Fragebogen fuer psychotische Symptome (FPS). A total of 295 patients suffering from schizophrenia participated in this study; 74.7% reported delusions of persecution. The proportion of female patients (81.9%) who felt persecuted was almost one-third higher than the proportion of male patients (66.9%). The prevalence of delusions of persecution was lower in the group of persons for whom their faith was personally important (73.4%) than in the atheistic group (86.7%). Delusions of persecution and poisoning were strongly intercorrelated. Delusions of poisoning were reported by 57.8% of respondents: 54.8% by male and 60.6% by female patients. In multivariate analysis, delusions of persecution were more prevalent in women compared to men; in those with a chronic course of illness compared to those with periodic course; in those with small size of family compared to those with large family. The presence of delusions of being poisoned was related to older age of the patient, higher than secondary education, chronic course of schizophrenia, and younger parental age. Personal importance of the faith was not associated with prevalence of delusions of persecution and poisoning in patients with schizophrenia.*

Introduction

Fabrega did a remarkable statement that psychiatry of the 21st century would have to be different from the psychiatry of the 20th century and should integrate all facets of knowledge of the behavior sciences, biology, pharmacology, sociology, cultural anthropology, and to serve as scientific diagnosis and therapy in the light of an appreciation of the role played by cultural factors in shaping human behavior (1). D'Souza and George suggested a need to include the spiritual and religion dimensions while evaluating patients and providing psychiatric care (2). Jaspers, who was a psychiatrist and a philosopher, as well as a major contributor to the development of existential analysis, claimed the importance of cultural assessment of mentally ill individuals (3–5).

Intensive efforts in research on the etiology and pathogenesis of schizophrenia and related disorders have been performed since the days of Emil Kraepelin (6, 7) and Eugen Bleuler (8, 9), but still the topic has been only partially clarified up today (7). Many fundamental questions about the phenomenology of delusions remain unanswered (10). Stompe et al. noted that cross-cultural psychiatry studies also tried to analyze the impact of biological and environmental factors on the pathogenesis and phenomenology of schizophrenia (7, 11–13). Azhar et al. proved that culture influenced symptoms of mental illness and stated that cultural factors were found to be significant variable associated with symptoms (14). Bleuler (8, 9) described that societal developments are able to create an environment, which could shape in the psychopathological features, especially of the contents of delusions and hallucinations (15, 16).

All cross-cultural studies carried out so far showed that persecution is the most prevalent content of delusions in schizophrenia (7). At the beginning of a psychotic episode, the surrounding world becomes an incomprehensible menace (3, 8, 9, 17). It was shown that subjects suffering from schizophrenia react very sensitive concerning historical

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events and cultural novelties. While the frequency of major delusional themes is stable over longer periods, the specific shape of this content, for example "who is the persecutor," "what is the reason for the persecution," mainly depends on actual developments. Content of delusion is the area of interest of cultural psychiatry. Sociodemographic background of patients as well as their creed may have an impact on content of delusions, including delusions of persecution.

The aim of this study was to evaluate the prevalence of delusions of persecution and poisoning in patients with schizophrenia and to determine relationship of these phenomena with sociodemographic status and personal religiosity.

Material and methods

Data for this study were obtained from the research project, entitled "Research in Cultural psychiatry. Research of the content of delusions and hallucinations." Protocol of the study was approved by the Lithuanian Bioethics Committee. All patients of the study signed an informed consent form. Patients were included into the study if they met the following criteria: established clinical diagnosis of schizophrenia according to the International Classification of Diseases (ICD-10), age between 18 and 80 years, males and females who were capable for participating in a productive interview according to their mental state (18). Content of delusions, hallucinations, and first-rank symptoms was evaluated by means of the "Fragebogen fur psychotische Symptome" (FPS) – a semistructured questionnaire developed by the Cultural Psychiatry International research group in Vienna (19). The FPS was translated into Lithuanian using the method of double translation. The FPS consists of Introduction that contains questions on demographic and clinical data and of three modules describing different symptoms of psychoses as mentioned above. For this study, we used data from the Introduction of the FPS and from the module describing the content of delusions. From this module, we took the question describing the content of delusions of persecution, "Did anyone try to inflict harm on you? Or did you feel persecuted or threatened?" with two possible answers, "Yes" or "No." In a case of the positive answer, a patient was asked to describe specific content of delusion: a) "In which way do you feel persecuted?" b) "By whom do you feel persecuted?" c) "For what reason do you feel persecuted or threatened?" For the evaluation of delusion of poisoning, the following question was applied, "Did you gain the impression that someone would try to poison you?" Possible answers were "Yes" or "No"; if the answer was "Yes," then the question was "Who and why?"

In addition to the FPS interview, all patients were asked about their personal religiosity asking, "Are you religious person?" and "Is your faith personally important for you?"

We examined 295 patients with a mean age of 42.4 (SD 9.7) years (women, 51.5%) at the Mental Health Center in Vilnius, Lithuania.

Statistical analysis of the data

Categorical data were analyzed by χ^2 tests for 2×2 and 2×k tables and Fisher's exact test. Additionally Pearson and Spearman's rank correlation and logistic regression were performed. Continuous or ordinal data were analyzed using t test. Phi (φ) (when both variables are dichotomies) and Cramer's V (for larger tables) were used for analyzing the relationship between two nominal categorical variables.

The relationships of the analyzed determinants – age, sex, age at onset, duration of illness, birthplaces (urban, rural), marital status (married, single, divorced), education (no secondary, some postsecondary), course of the illness (chronic or in attacks), age of parents at birth, the faith and the personal importance of the faith – with the presence of delusions (dependent variable) were studied in two stages: using the univariate and multivariate (applying forward LR selection algorithm) logistic regression analysis. During the first stage of the analysis, we investigated all separate determinants, taking consideration the impact of age, and included separate determinants and age into the logistic regression model. The quantitative evaluation of the impact of the studied determinants on the delusions or hallucination development (No, Yes) was performed using the odds ratio (95% confidence interval, CI) that shows the increase in the risk of a subject to enter the group of those experiencing delusions with respect to the subject's attribution to some of the classification categories of the studied factors with respect to the reference category. After that, the stepwise (forward LR algorithm) procedure was used to include statistically significant variables into the model (P>0.10, excluded). Goodness of fit was assessed using the Hosmer-Lemeshow test. Level of statistical significance was set at 5%. Statistical analysis of the data was performed using the statistical software package SPSS 11.5.

Results

Sociodemographic characteristics of 295 surveyed patients with schizophrenia are presented in Table 1. There were no significant sex differences regarding age, age at onset of schizophrenia, education, duration of illness, or birthplace. However, significant sex differences were found regarding marital status and course of schizophrenia.

The distribution of patients experiencing delusions of persecution and poisoning by gender is presented in Fig. 1.

Table 1. Characteristics of patients with schizophrenia

Characteristic	All[a] N=295	Males[a] N=143	Females[a] N=152	χ^2, *df*	*P*[c]
Age (SD), range, years	42.4 (9.7) (20–74)	42.1 (9.9) (20–74)	42.7 (9.5) (22–68)		0.576[d]
Duration of illness, years[b]	18 (13)	18 (13)	18.0 (13)		0.605[d]
Age at onset, years[b]	25 (6)	25 (5)	25 (6)		0.902[d]
Age at onset:				5.9; 2	0.052
Early onset, ⩽20 years	21.0 (62)	17.5 (25)	24.3 (37)		
Middle onset, (21–<35) years	76.6 (226)	81.8 (117)	71.7 (109)		
Late onset, (35–<60) years	2.4 (7)	0.7 (1)	3.9 (6)		
Course of illness				5.19; 1	0.023
Chronic	130 (43.3)	51 (36.4)	75 (49.7)		
In attacks	165 (55.9)	89 (63.6)	76 (50.3)		
Marital status				7.2; 2	0.027
Married	28.8 (85)	21.7 (31)	35.5 (54)		
Single	18.3 (54)	18.9 (27)	17.8 (27)		
Separated or divorced	52.9 (156)	59.4 (85)	46.7 (71)		
Origin of patient				0.054; 1	0.926
Urban	76.7 (224)	7738 (109)	76.2 (115)		
Rural	23.3 (68)	22.7 (32)	23.8 (36)		
Education				0.07; 1	0.919
No postsecondary	32.2 (95)	31.5 (45)	32.9 (50)		
Some postsecondary	64.8 (200)	68.5 (98)	67.1 (102)		
Believer (Yes)	88.5 (261)	93.7 (134)	83.6 (127)	7.5; 1	0.006
Faith was of personal importance (Yes)	84.1 (248)	89.5 (128)	78.9 (120)	6.1; 1	0.020

[a]Values are given as percentage (number) except were noted.
[b]Median (interquartile range).
[c]Statistical significance of the differences between the genders was determined by chi-square tests.
[d]*t* test.

Nearly three-fourths (74.7%) of patients with schizophrenia felt being persecuted. Male respondents with such a feeling accounted for 66.9%, and the proportion of female respondents who felt being persecuted was significantly greater – 82% (χ^2=8.35, *df*=1, *P*=0.004). The threat of poisoning was felt by 57.8% of the respondents. Male respondents with such a threat accounted for 54.8% and female respondents for 60.6% (χ^2=1.32, *df*=1, *P*=0.250).

The distribution of patients experiencing delusions of persecution and poisoning by personal importance of faith is presented in Fig. 2.

Delusions of persecution were reported by 86.7% by those for whom their faith was not important and by 73.4% by those for whom their faith was important (tendency for significant difference, χ^2=3.44, *df*=1, *P*=0.064). The prevalence of delusions of poisoning was similar among religious group (66.0%) compared to 57.3% of atheistic subjects (χ^2=1.23, *df*=1, *P*=0.267) (Fig. 2).

Correlates of presence of delusions of persecution

The univariate analysis showed that in all the sample, the presence of delusions of persecution was related to female gender (*r*=0.169, *P*<0.01), being nonbeliever (*r*=0.15, *P*<0.01), small size of the family half a year before the last hospitalization (*r*=0.12, *P*<0.05), larger number of exacerbations (*r*=0.21, *P*<0.01), and chronic course of illness (*r*=0.23, *P*<0.01).

In female patients, the presence of delusions of persecution was related to young age of a father (*r*=0.17, *P*<0.05) and mother (*r*=–0.21, *P*<0.01) at birth and being nonbeliever (*r*=0.203, *P*<0.05).

In male patients, the presence of delusions of persecution was related to longer duration of illness (*r*=0.18, *P*<0.05), smaller size of the family half a year before the last hospitalization (*r*=0.24, *P*<0.05), larger number of exacerbations (*r*=0.34, *P*<0.01), and chronic course of illness (*r*=0.35, *P*<0.01).

Multiple logistic regression analysis showed (Table 2) that adjusted for age, gender, age at onset, origin, age of a father and mother at birth, education, and personal importance of the faith, the presence of delusions of persecution was more prevalent in women than in men (OR=2.2); in those with a chronic course of illness than in those with periodic course (OR=2.9); in those with small size of family half a year before hospitalization than in those with large family (OR=0.7); and in those with younger age of a father at birth (OR=0.95).

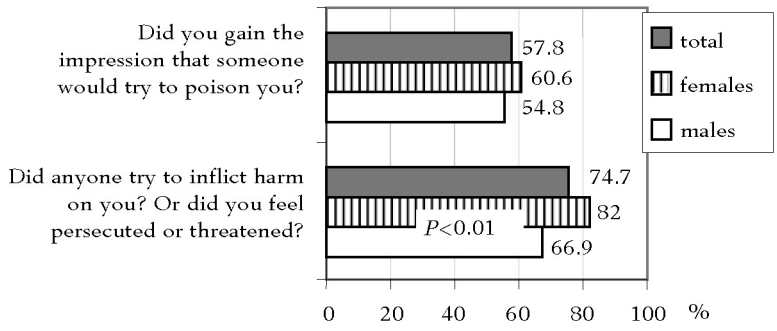

Fig. 1. Distribution of patients experiencing delusions of persecution and poison by gender

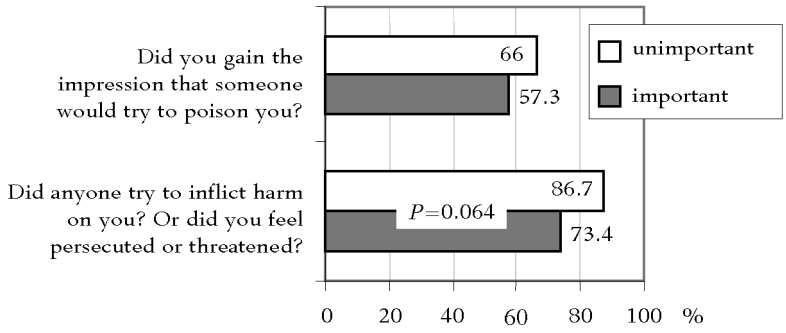

Fig. 2. Distribution of patients experiencing delusions of persecution and poison by importance of the faith

Table 2. Factors related to the development of delusions of persecution in patients with schizophrenia

Factor	Number of subjects	Multivariate adjusted[a] OR (95% CI)[b]	*P*
Gender			
Male[#]	143	1	
Female	152	2.21 (1.19–4.11)	0.012
Course of illness			
In attacks[#]	130	1	
Chronic	165	2.91 (1.80–6.52)	0.001
Age of a father at birth, years	295	0.95 (0.91–0.99)	0.032
Size of family half a year before hospitalization	295	0.69 (0.51–0.91)	0.010

Model Nagelkerke R^2=16.9%.
[a]Adjusted for age, gender, age at onset, origin, age of a father and mother at birth, education, personal importance of the faith.
[b]OR, odds ratio; CI, confidence interval; odds ratio was statistically significant when 1 was not included into its 95% confidence interval.
#Reference category.

Correlates of presence of delusions of poisoning

The univariate analysis showed that in all the sample, the presence of delusions of being poisoned was related to older age (r=0.16, P<0.01), longer duration of illness (r=0.17, P<0.01), younger age of father at birth (r=0.12, P<0.05), marital status (divorced) (r=0.1,6 P<0.05), urban origin (r=0.12, P<0.05), being nonbeliever (r=0.15, P<0.001), small size of the family half a year before the last hospitalization (r=0.17, P<0.01), more advanced education (r=0.27, P<0.01), larger number of exacerbations (r=0.26, P<0.01), and chronic course of illness (r=0.21, P<0.01).

Table 3. Factors related to the development of delusions of being poisoned in patients with schizophrenia

Factor	Number of subjects	Multivariate adjusted[a] OR (95% CI)[b]	*P*
Age, years	295	1.05 (1.01–1.08)	0.004
Age of a father at birth, years	295	0.93 (0.89–0.97)	0.001
Education			
No postsecondary[#]	95	1	
Some postsecondary	200	3.40 (1.85–6.10)	<0.001
Course of illness			
in attacks[#]	130	1	
chronic	165	2.87 (1.61–6.10)	<0.001

Model Nagelkerke R^2=21.7%
[a]Adjusted for age, gender, age at onset, number of exacerbations, age of a father and mother at birth, marital status, origin, education, personal importance of the faith.
[b]OR, odds ratio; CI, confidence interval; odds ratio was statistically significant when 1 was not included into its 95% confidence interval.
#Reference category.

In female patients, the presence of delusions of being poisoned was related to young age of a father (r=0.18, P<0.01) and mother (r=0.21, P<0.01) at birth, being nonbeliever (r=0.28, P<0.01), and having postsecondary education (r=0.26, P<0.01).

In male patients, the presence of delusions of being poisoned was related to older age (r=0.27, P<0.01), longer duration of illness (r=0.24, P<0.01), urban origin (r=0.17, P<0.05), larger size of the family in childhood (r=0.18, P<0.05), smaller size of the family half a year before last hospitalization (r=0.24, P<0.05), postsecondary education (r=0.28, P<0.05), larger number of exacerbations (r=0.43, P<0.05), and chronic course of illness (r=0.28, P<0.01).

Table 3 demonstrates that in the multivariate model adjusted for age, gender, age at onset, number of exacerbations, age of a father and mother at birth, marital status, origin, education, personal importance of the faith; the presence of delusions of being poisoned was related to age (OR=1.05), some postsecondary education (OR=3.4), chronic course of schizophrenia (OR=2.9), and younger age of father at birth (OR=0.93).

Discussion

We found that delusions of persecution and delusions of poisoning were strongly intercorrelated. Delusions of persecution are ideas that others try to harm, spy on, or otherwise influence or humiliate the patient, or interfere in his or her affairs. It is a false belief that one is being harassed, cheated, or persecuted, often found in litigious patients who have a pathological tendency to take legal action because of imagined mistreatment (20). Persecutory delusions are frequently very pervasive and actively incorporate features of the patient's life as evidence of persecution.

The term "persecution" in everyday usage characterizes all relationship in which one party, the persecutor, pursues the other, the persecuted, with malevolent intentions, cruelty, and hatefulness (21).

In the language of psychopathology, the term "delusion of persecution" has been used to refer the ideas and feelings described in patients with various diagnoses, including schizophrenia. Freud's hypothesis is that a delusion of persecution is the result of a defense against unconscious homosexual impulses (22). Jasper considered a positive side of religion and the message from Jesus as given the idea of personal freedom. With inner freedom, a man is free from a fear and obtains a power to overcome and stand any persecution of enemies (4, 21).

In our study, we found that delusions of persecution and poisoning were reported by patients with schizophrenia to whom their faith was of personal importance compared to whom it was not. This type of delusions was reported by both genders of patients with schizophrenia and was related to different age of their father at the patient's birth. Personal importance of the faith did not influence the formation of delusions of persecution. There was no association between the presence of delusions of persecution and age of patients. Delusions of persecution were more prevalent among female respondents than male respondents confirming a gender influence on psychopathology (23).

Lithuania has been a perfect place for formation of delusions of persecution. Fifty years of the Soviet occupation and political changes after it have created delusional anxiety (3, 8, 9). It is believed that unstable and uncertain environment keeps feeding delusional anxiety (16, 24, 25).

Specific conditions for the development of a certain content of delusions of persecution existed

in Lithuania during the Soviet occupation. These years have changed the relationship of people, their thinking and behavior, their system of values, and religious issues (15, 16, 20, 26). It was usual to live in permanent inner tension, as everyone knew what he or she was allowed to say and what was better to keep silent about in order not to deserve punishment, including deportation to Siberia. Religious activity was de facto considered as an offence, even leading to the loss of a job, imprisonment or even hospitalization in psychiatric clinics (15, 16, 26, 27). Membership in the Communist Party was a precondition for obtaining a certain scientific degree or career level or position. Psychiatry was abused in Soviet times and controlled by KGB.

It was very important to know what and when to say and what and when it was better to keep silent. Safe living was based on one principle: I speak differently from what I am thinking; I say only what is required, proper, and expected from me. Any initiative was undesirable and dangerous, provocative and, consequently, unsafe to be made. Such environment and mode of communication evoked distrust and paranoia, which spread as infection from person to person (26, 27). This was a background for the development of a certain type of paranoia, delusions of persecution, and so-called delusional environment long ago described by Bleuler (8, 9, 28).

Sociocultural background of the illness focuses on medical issues within the framework of society, functioning, level of education, family status (6, 19). Culture refers to unique behavior patterns and lifestyle shared by a group of people (19), it represents both family status and level of education, other issues and affects demographic characteristics.

Chronic course of schizophrenia as well as younger paternal age were found to be factors affecting the presence of delusions of persecution and delusions of being poisoned in patients with schizophrenia. Reichenberg et al. found that maternal and paternal age was associated with neurodevelopmental disorders such as autism (29). Byrne et al. found that advanced paternal and maternal age was associated with an increased risk of schizophrenia in univariate analyses. Controlling for socioeconomic factors and family psychiatric history, an increased risk of schizophrenia was identified in those patients whose fathers were 50-year olds or older. Sex-specific analyses revealed that the risk of schizophrenia was increased for males whose fathers were aged 55 years or more (incidence rate ratio [IRR], 2.10; 95% confidence interval, 1.35–3.28); for females, the risk associated with paternal age was substantial for patients whose fathers were aged 50 to 54 years (IRR, 2.22; 95% CI, 1.44–3.44) and 55 years or older (IRR, 3.53; 95% CI, 1.82–6.83) (30).

Malaspina et al. described a strong genetic component for risk of schizophrenia, but it is unclear how the illness is maintained in the population given the significantly reduced fertility of those with the disorder. One possibility is that new mutations occur in schizophrenia vulnerability genes. If so, then those with schizophrenia may have older fathers, because advancing paternal age is the major source of new mutations in humans (31). Perinn et al. investigated relation between advancing paternal age and schizophrenia, and it was hypothesized to involve mutational errors during spermatogenesis that occur with increasing frequency as males age. Point mutations are well known to increase with advancing paternal age while other errors such as altered copy number in repeat DNA and chromosome breakage have in some cases also been associated with advancing paternal age. Dysregulation of epigenetic processes may also be an important mechanism underlying the association between paternal age and schizophrenia. Evidence suggests that advancing age as well as environmental exposures alter epigenetic regulation. Errors in epigenetic processes, such as parental imprinting can have serious effects on the offspring both pre- and postnatally and into adulthood (32).

Our findings that young parental age is related with delusions of persecution and poisoning suggest that genetic or epigenetic involvement in schizophrenic patients with such type of delusions is less substantial, and environmental factors may play a significant role. An association of external factors with psychotic symptoms suggests more favorable course of the disease. This, in part, may be supported by our findings of better education obtained by patients with delusions of poisoning and by greater proportion of female patients in this group. It is well documented that the course of schizophrenia in women is more favorable compared to men (33), and better education suggests later debut of schizophrenia and better functional level of patients, but small size of the family half a year before the last hospitalization is a predictor for the development of delusions of persecution in patients with schizophrenia.

Conclusions

Delusions of persecution were more prevalent in women than in men with schizophrenia, in those with chronic course of illness than in those with periodic course, in those with small size of family half a year before hospitalization, and in those with younger age of a father at birth.

The presence of delusions of poisoning in patients with schizophrenia was related with older age, higher than secondary education, chronic course of schizophrenia, and younger age of a father at birth.

Personal importance of the faith was not confirmed to be an independent predictor of delusions of persecution and being poisoned in patients with schizophrenia.

Socialinio kultūrinio ir religinio pagrindo šizofrenija sergančių ligonių persekiojimo ir nuodijimo kliedesiai

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Raktažodžiai: šizofrenija, sociodemografiniai duomenys, religingumas, persekiojimo kliedesiai, nuodijimo kliedesiai, kultūrinė psichiatrija.

Santrauka. *Tyrimo tikslas.* Ištirti šizofrenija sergančių ligonių persekiojimo kliedesių pobūdį ir nustatyti jų sąsajas su socialiniais ir demografiniais duomenimis bei asmeniniu religingumu. Sergančiųjų šizofrenija kliedesių turinys buvo analizuojamas naudojant Vienos universiteto Tarptautinės kultūrinės psichiatrijos tyrimo grupės sukurtą klausimyną „Fragebogen fur psychotische Symptome (FPS)“, kuris buvo išverstas į lietuvių kalbą dvigubo vertimo metodu. Tyrime dalyvavo 295 sergantieji šizofrenija, gydomi Vilniaus psichikos sveikatos centre, iš kurių 74,7 proc. nustatyti persekiojimo kliedesiai. Moterų, jautusių persekiojimą, buvo daugiau (81,9 proc.) nei vyrų (66,9 proc.). Persekiojimo kliedesių dažnis buvo mažesnis tarp tikinčių ligonių (73,4 proc.) palyginus su netikinčiais (86,7 proc.). Tarpusavyje koreliavo persekiojimo ir nuodijimo kliedesiai. Nuodijimo kliedesiai vargino 57,8 proc. respondentų: 54,8 proc. – vyrų ir 60,6 proc. – moterų. Daugiamatė analizė parodė, kad šizofrenija sergančių ligonių persekiojimo kliedesius lėmė ne asmeninis religingumas, bet šeimos dydis pusmetį prieš hospitalizavimą, moteriškoji lytis, lėtinė ligos eiga, tėvo amžius gimus. Nuodijimo kliedesių dažnis nepriklausė nuo lyties, tačiau buvo susijęs su šizofrenija sergančiųjų vyresniu amžiumi, aukštesniu nei vidurinis išsilavinimu, lėtine šizofrenijos eiga ir jaunesniu tėvo amžiumi. Asmeninė tikėjimo svarba nei persekiojimo, nei nuodijimo kliedesių dažniui nenustatyta.

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