GOAL OF INVESTIGATION
The goal of this study was to find out and assess the content of delusions and hallucinations in the patients with schizophrenia, and to examine the impact of personal religiosity and culture on these psychotic phenomena.

OBJECTIVES OF INVESTIGATION
1. To evaluate the impact of personal religiosity on presence and the content of religious delusions in patients with schizophrenia.
2. To evaluate the impact of personal religiosity on presence and the content of the world end (apocalyptic) delusions in patients with schizophrenia.
3. To evaluate the impact of personal religiosity on visual hallucinations in patients with schizophrenia.
4. To evaluate the impact of culture on psychotic symptoms in schizophrenia.
5. To evaluate the specificity of paranoid-hallucinatory syndromes in schizophrenia in different cultures.
6. To evaluate the prevalence of delusions of guilt in Catholic patients with schizophrenia and to compare with delusions of guilt of Muslim patients with schizophrenia.

SCIENTIFIC NOVELTY OF THE STUDY
Information presented in this research is new both for the world’s and for Lithuanian psychiatry. The impact of personal religiosity on the psychotic phenomena was not studied, this is the first attempt. Data of Lithuanian patients with schizophrenia for the first time were represented at the international scientific discussion of transcultural psychiatry for comparative studies. Research data entered the international scientific dialogue and became an input for the database of the transcultural comparative studies. Subject of cultural psychiatry was introduced into Lithuanian psychiatry. Questionnaire on the research of the content of psychotic symptoms was adapted and suggested. This research about the psychotic phenomenology is the first one in Lithuania.

SUBJECTS AND METHOD
This research consists of two parts. The Lithuanian study is a part of the research project entitled “Research in Cultural Psychiatry. Research of the Content of Delusions and Hallucinations”. This part includes 301 patients with schizophrenia consecutively admitted to the Vilnius Mental Health Center (Lithuania) during the period of six months, from September 2006 until February 2007. Patients with schizophrenia, who met the inclusion criteria, 295 (98%). were included into the analyses (the mean age – 42.4 (SD 9.7) years; women – 152 (51.5%). The Protocol of the study was approved by the Lithuanian Bioethics Committee.

The second part, a sub-study, is a part of the International multi-centre comparative study on transcultural aspects of psychotic symptoms, performed by the International research group conducted by professor Thomas Stompe at the Vienna Medical University. The data were obtained from Austria, Poland, Lithuania, Georgia, Pakistan, Nigeria, and Ghana. Data on total 1080 schizophrenia patients from seven different countries, including 73 schizophrenia patients from Lithuania, were analyzed and compared.

QUESTIONNAIRE
Content of delusions, hallucinations and Schneider’s first rank symptoms were evaluated by the means of the „Fragebogen für psychotische Symptome“ (FPS) - a semi-structured questionnaire developed by the Cultural Psychiatry International research group in Vienna [Stompe et al., 1999; Stompe, 2001; Stompe & Ortwein , 2002b; Stompe et al., 2003; Stompe et al., Stopme et al., 2004b; Stompe & Bauer, 2004]. In addition to the FPS interview all patients were asked about their specified/identified religiosity. The FPS was translated into Lithuanian using of the method of double translation.
STATISTICS

All items were binary coded. The statistical analysis applied a \( \chi^2 \) test for 2x2 and 2xk tables, Fisher’s exact test, Pearson and Spearman’s rank correlation, and logistic regression. Continuous or ordinal data were analyzed using t test. Phi (\( \phi \)) (when both variables are dichotomies) and Cramer’s V (for larger tables) are used for analyzing the relationship between two nominal categorical variables. Discriminant analysis was used to estimate the culture-sensitive proportions of the total variance of the three groups (contents of delusions, hallucinations and Schneider’s FRS) of psychotic symptoms in schizophrenia. To identify existence of relatively stable paranoid-hallucinatory syndromes in schizophrenia a Principal-component analysis (PCA) was used to extract factors. For further analyses the standardized factor score were saved as regression coefficients (values between +1 and -1). To test the differences of the mean values between the samples of the single sites, One-Way ANOVA with Tukey post hoc tests were performed.

RESULTS AND DISCUSSION

Most unexpected finding of the research was delusions of infidelity which took the first highest place and comprised 81.3 %, followed by delusions of persecution, which took the second highest place and comprised 74.7%. From 295 respondents, there were 248 (84.1%) patients for whom their faith was of personal importance. Male patients and female patients differently represented the personal importance of their faith, 89.5% of men and 78.9% of women reported their faith as for personal importance.

Religious delusions were reported by 190 (64.4%) patients. There was not found a significant difference in the frequency of the development of religious delusions between male patients and female patients. Divorced patients independently from the age and gender more frequently experienced religious delusions as compared to married patients (gender and age adjusted OR=2.2; 95% CI, 1.3 to 3.9). Education was also associated with a frequency of the development of religious delusions (some postsecondary education vs. no postsecondary education OR=2.6; 95% CI, 1.5 to 4.3). Patients with rural birthplace had a lower risk of development of religious delusions (rural vs. urban OR=0.4; 95% CI, 0.3 to 0.8). Female patients most often considered themselves as Saints, whereas male patients most often considered themselves as being a God; being a saint man was a second popular theme among male patients with schizophrenia. After multivariate adjustment for important covariables, the personal importance of the faith was not associated with development of the religious delusions among the patients with schizophrenia.

World end (apocalyptic) delusions were reported by 69.8% of our total sample of patients with schizophrenia. In the group of patients for whom their faith was of personal importance (n=248) 76.2% felt the upcoming end of the world. The other group of the patients, for whom their faith was not of personal importance, (n=47) 36.2%, felt the upcoming end of the world, too. This was declared expressing both a religious idea of the end of world under the Sacred Scripture, relating to their imaginary higher being and the events met in everyday life, which could be similar to the catastrophe. Our analysis revealed that, being divorced/separated and having the personal importance of faith independently increased the frequency of the world end delusions. Religious, modern and global themes were found in the content of the world end (apocalyptic) delusions. There were cases, when respondents presented both religious and modern views of the world end.

Visual hallucinations were reported by 39.1% of patients and the frequency of presence of this type of hallucinations did not differ significantly among men and women. The multiple logistic regression analysis, upon inclusion into the model of the factors associated with the development of visual hallucinations in univariate analysis (age, sex, age onset of illness, the importance of faith, marital status and education) and regarding to its confounding effect, had proved the early onset of illness (until 21 vs. medium age-onset 21 to 35) and personal importance of faith (OR=2.9; 95% CI 1.4 to 6.3) to be the independent factors of development of visual hallucinations. Personal importance of faith was found as an independent predictor of development of visual hallucinations patients with schizophrenia.

Impact of culture on psychotic symptoms. Independent of culture, persecution was the most common delusional theme in all sites followed by grandeur. Pakistan, the only pure Islamic country, showed a pattern of delusional contents remarkably different from the other sites with Christian majorities: low rates of religious delusions, delusions of grandeur and delusions of guilt. In contrast to the African countries religious grandiosity (“Being and Angel or a Prophet” etc.) was not reported by Pakistani patients. Statistically significant differences in the frequencies of several kinds of hallucinations were found in this study. Auditory hallucinations in every country showed the highest prevalence. Visual hallucinations were most frequently reported by West-African patients (Nigeria, 45.8%; Ghana, 53.9%), the rate for Pakistanis was only 3.9%.

At least one First Rank Schneiderian (FRS) symptom across the regions was registered between 100% (Nigeria), 97.3% (Georgia), 96.3% (Poland), 90.4% (Lithuania), 90.3% (Austria), 83.5% (Pakistan), and 81.6% (Ghana). The frequency of the single FRS varied remarkably in the different subsamples. Those FRS associated with disturbances of the ego-boundaries (audible thoughts, thought broadcast, and thought insertion) most frequently occur in two West-African countries. The acoustic first rank hallucinations were most common in Nigeria and in Ghana; however, they were also very often reported in Poland and in Georgia. Somatic passivity was most frequent in Poland and in Lithuania.

The proportion of the variance of psychotic phenomena which cannot be correctly assigned to the country of origin of patients (culture-unspecific) is between 60 and 70%. Therefore the proportion of correctly classified cases is between 30 and 40%. This percentage is the upper border of the possible influence of culture. However, the likelihood to classify correctly by chance in our sample is 14.3 % (100:7 countries). This percentage has to be seen as a kind of “gray zone”, i.e. in 14.3% it cannot be definitely excluded that the ‘correct’ assignment has been achieved by chance.

So taking this into account, the average correct assignment of psychotic phenomena to countries of origin is between 16 and 40%. Only Pakistan had a special position with correct classifications between 20 and 60%.
Between 15% and 30% of the frequencies of contents of delusions, modalities of hallucinations and first rank symptoms may be caused by differences in the cultures of origin. In contrast between 70% and 85% of the variance of the prevalence of psychotic symptoms does not depend on the culture of origin.

Paranoid-hallucinatory syndromes in schizophrenia. Were found: (1) seven distinguishable syndromes - “religious grandiosity syndrome”, “low perception syndrome”, “coenesthetic hypochondria syndrome”, “apocalyptic guilt syndrome”, “persecutory syndrome”, “poisoning syndrome”, and “delusional jealousy” and (2) in fact statistically significant differences in six of seven syndromes pointing to a marked impact of culture on the characteristics of psychotic phenomenology. Several statistically significant differences were found by means of Tukey-test: Lithuanian patients showed higher mean values in the “apocalyptic guilt syndrome” than patients of all other sites. A more complex situation was found with the “persecutory syndrome”: higher mean values in Ghana compared with Austria and Pakistan and lower mean values in Georgia compared with Lithuania and Poland. The “poisoning syndrome” showed lower mean values in Austria compared with Lithuania, Ghana and Georgia.

Delusions of guilt of Catholic and Muslims patients with schizophrenia. Pakistani patients reported a low percentage of delusions of guilt compared to Polish and Lithuanian subjects, followed by similar percentages in African and Austrian patients. Neither sex nor ages was found to influence delusions of guilt.

Although Muslim patients from Pakistan show less delusions of guilt than those from Nigeria and Ghana. The same holds true for Protestants from Austria, Lithuania, Nigeria, and Ghana. However, the Catholic group displayed statistically significant differences caused by the high number of Lithuanians with delusions of guilt. Patients with a Christian background reported a higher prevalence of delusions of guilt; 16.3% Catholics and 7.3% Protestants as compared with their Muslim counterparts (3.8%). But even those European patients who consider themselves as non-religious (4.7%) showed delusional guilt more often than the Muslim group.

In conclusion, spirituality should be the main object in modern psychiatry, 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 behavioral sciences, biology, pharmacology, sociology, cultural anthropology, and to serve as providing expert scientific diagnosis and therapy in the light of an appreciation of the role played by cultural factors in shaping human behavior.

CONCLUSIONS
1. Personal importance of faith was not confirmed as an independent predictor of religious delusions in patients with schizophrenia, but marital status and educational level. Female patients most often considered themselves as Saints, whereas male patients most often considered themselves as being a God.
2. Schizophrenia patients for whom their faith is of personal importance feel the coming end of world more often than those for whom it is not. Higher prevalence of the world end delusions was found among divorced patients as compared to those who lived in the family. Female patients reported the world end delusions with religious content (apocalyptic) more often than the male patients. Male patients as compared to female patients more often reported world end delusion with global content.
3. Patients with schizophrenia for whom their faith was of personal importance compared to patients with schizophrenia for whom their faith was not of personal importance had higher prevalence of visual hallucinations. The early onset of illness (age until 20) and personal importance of faith were independent predictors of development of visual hallucinations.
4. In seven different countries with different cultural, ethnical and religious background majority of psychotic symptoms in patients with schizophrenia were culture unspecific. Schneider’s first rank symptoms were most culture specific as compared to content of delusions and hallucinations.
5. Content of paranoid hallucinatory syndrome of patients with schizophrenia was different in different countries. Differences in religious grandiosity, low perceptions, coenesthetic hypochondria, apocalyptic guilt, persecutory syndrome and poisoning syndrome, but not jealousy reached statistical significance. Lithuanian patients showed higher mean values of “apocalyptic guilt syndrome” than patients from all other countries.
6. Catholic patients with schizophrenia compared to Muslims patients with schizophrenia had higher prevalence of delusions of guilt. The highest prevalence of delusions of guilt was found in the Lithuanian group of patients reaching one quarter, and the lowest prevalence of delusions of guilt was found in Pakistani group of patients reaching one percent.

PRACTICAL RECOMMENDATIONS
1. Parallel to evaluation of psychopathology, cultural assessment of mentally ill patient, including his/her personal problems, religious beliefs and values system is recommended to perform when diagnosing, differentiating mental disorders and modelling treatment plan design.
2. Psychiatrist should be aware of religious anamnesis of his/her mentally ill patient. Religious beliefs of the patients should be respected.
3. It is recommended to provide treatment for mentally ill patient according his/her beliefs, values, cultural background and a need for spirituality parallel to pharmacotherapy and psychotherapy.
4. It is recommended to incorporate a course of Cultural Psychiatry into the teaching programmes for medical students.
5. It is recommended to incorporate a course of Cultural Psychiatry into the CPD programmes for psychiatrists.