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**Relationship of Compliance and
Re-Hospitalisation of Patients with
Schizophrenia Spectrum Disorders,
Affective and Neurotic Spectrum Disorders
with Patient Satisfaction of Received Care**

Summary of the Doctoral Thesis
for obtaining a doctoral degree (*Ph.D.*)

Sector – Medicine
Sub-Sector – Psychiatry

Riga, 2021



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Abbreviations

B	regression coefficient
CSQ	Consultation Satisfaction Scale
DAI	Drug Attitude Inventory
Diag.	diagnosis
F06	SSK-10 classification diagnosis code – Other organic disorders
F07	SSK-10 classification diagnosis code – Organic personality disorders
F2	SSK-10 classification diagnosis code – Schizophrenia spectrum disorders
F3	SSK-10 classification diagnosis code – Affective spectrum disorders
F4	SSK-10 classification diagnosis code – Neurotic spectrum disorders
G2-G6	SSK-10 classification diagnosis code – Neurologic spectrum disorders
KBT	Cognitive behavioural therapy
MARS	Medical Adherence Report Scale
MISS	Medical Interview Satisfaction Scale
PEI	Patient Enablement Instrument
PEQ-ITSD	Patient Experiences Questionnaire for Interdisciplinary Treatment for Substance Dependence
PIPEQ	Psychiatric Inpatient Patient Experience Questionnaire
PIPEQ-OS	Psychiatric Inpatient Patient Experience Questionnaire on site
WHO	World Health organisation
r_s	Spearman correlation coefficient
SATISPSY22	Satisfaction with Psychiatry Care Questionnaire
SD	Standart deviation

SPKC	Disease Prevention and Control Centre
VSIA	Public limited company
W	mean indicator
X diagnoses	SSK-10 classification diagnosis code – Self-harming diagnoses codes

Introduction

Despite the growing global interest as to self-assessment of patient care and its relationship with patient compliance and also the outcome of the disease, uncertainties remain in the determination of this indicator. In 2017 Latvia participated in a cross-sectional international study with the participation of 11 countries regarding the determination of satisfaction among 30 discharged patients from a psychiatric hospital (Krupchanka et al., 2017), but more extensive studies have not been carried out directly in the psychiatric institutions treating adult patients, as well as there has not been adapted and validated instrument to assess satisfaction from the point of view of patients.

There are still views existing in the public as to the limited capacity of patients with psychiatric disorders to provide an assessment for received treatments just due to psychiatric disorders (Gayet-Ageron, Agoritsas, Schiesari, Kolly, & Perneger, 2011). These views are controversial, proved by other studies around the world, since these are the patients who provide the most comprehensive information about the treatment they received (Henderson, Phelan, Loftus, Dall'Agnola, & Ruggeri, 1999).

Doctor-patient relationships are important in the process of patient treatment because they can affect disease outcomes and increase compliance in treatment (Fuertes et al., 2007). However, it is particularly important to talk about it in the psychiatric sector. When working with patients in the psychiatric sector, assessing their mental status and proposing the necessary treatment, it is important to perform interviews, which is a major part of the treatment process during which a safe doctor-patient relationship is established. They also provide compliance for treatment and disease prognosis (Thompson & McCabe, 2012)(Zenger, Schaefer, Van Der Feltz-Cornelis, Brähler, & Häuser, 2014).

Considering the World Health Organization data, around 300 million people worldwide suffer from depression and around 800 000 dies as a result of

suicide. About the Thematic Report of the Centre for Disease Prevention and Control on the Mental Health of residents of Latvia in 2016, the figures representing the situation Latvia should be mentioned. For example, in 2016, the number of patients with psychiatric and behavioural disorders registered was 5473 in absolute figures, while the total number of patients in Latvia accounted for 89668, or 4635,5 per 100,000 inhabitants (Centre for Disease Prevention and Control, 2017).

Patients with schizophrenia spectrum, affective and neurotic spectrum disorders accounted for 39% of all psychiatric spectrum first-registered patients in 2016 (Centre for Disease Prevention and Control, 2017). Because of the above-mentioned, this study included problems with schizophrenia, affective and neurotic spectrum disorders. In patients with psychiatric conditions, mortality is 40–60% higher than in the general population, and mortality risks (World Health Organization, 2015) are also minimized by appropriate treatment and improvement of compliance. These figures further justify the need to improve compliance to achieve a better outcome of treatment and to reduce the disability caused by mental diseases. Given, that in psychiatry the outcome of treatment is closely linked to the trust-based relationship from the doctor's side, the relationship between the medical staff and the patient, the assessment of patient care is an important instrument for evaluating several compliance factors that, in turn, affect the results of treatment. In a study, comparing patient's own expressed needs in the treatment process, patients with psychiatric diseases consider cognitive aspects of treatment and involvement of the staff as the most important, while patients with somatic diseases evaluated the technical aspects of treatment (J. E. Ware & Davis, 1983)(L Boyer et al., 2009) being most important. Patients are interested in getting information about their health status, despite it, only a small proportion of patients receive or imagine that they might have an option for the treatment method (Billcliff, McCabe, & Brown, 2001).

Patient satisfaction is related to several patient behavioural models, for example, behaviour-oriented toward seeking help, or behaviour, associated with compliance to treatment. One of the most essential problems in psychiatry is the patient compliance to medicamentous treatment and further visits to the doctor. The literature emphasizes that the best instrument for finding the patient's views is a questionnaire, which can be combined with closed type questions and open-ended type questions (Crow et al., 2002) to obtain a more comprehensive picture of patient satisfaction. Norway was chosen for their study done in 2014 - a population study with a nationally representative group of 26 psychiatric health care hospital patients validated questionnaire – (Psychiatric inpatient patient experience questionnaire on-site - PIPEQ-OS) for the assessment of patient experience and satisfaction in a psychiatric profile hospital, that would allow to strengthen the international cooperation in this field and to compare the data as well.

Aim of Study

The study aims to assess patients with schizophrenia spectrum disorders, affective spectrum, neurotic and stress-related disorder spectrum patient – received care satisfaction and to detect care satisfaction correlations with socio-demographic factors, indirect compliance rates, and the number of rehospitalisations over the 12 months.

Objectives of Study

To achieve the aim of the study. the following objectives have been identified:

1. To perform the adaptation of a psychiatric hospital care satisfaction questionnaire in Latvia as a part of a pilot study.

2. To compare respondents and non-respondents groups by socio-demographic factors, disorder characterizing factors and previous experience in the psychiatric health care system.
3. To analyze patient-received care satisfaction with interaction with the staff, assistance structure and outcomes, using an adapted Psychiatric inpatient patient experience questionnaire on-site (PIPEQ-OS).
4. To find out how patients cooperate with the doctor during the treatment process after discharge from the hospital, the number of re-hospitalization within 12 months after the patient's discharge from the clinic, the number of outpatient visits and the continued use of medicines after discharge.
5. To explore the relationship between socio-demographic indicators (age, gender, education, employment, family status) and the indirect compliance indicators and recurrent hospitalizations and patient care satisfaction.
6. To compare the number of re- hospitalizations, the continuation of medication, the number of outpatient visits after discharge and their association with patients hospital care satisfaction in scales on scales of different diagnoses groups (i.e. schizophrenia spectrum, affective and neurotic spectrum disorders).
7. To provide recommendations based on research conclusions for interventions to promote compliance.

Hypothesis of Study

- Patient rated satisfaction is different among patients with schizophrenia spectrum, affective and neurotic spectrum disorder patients and is associated with socio-demographic factors, higher

indirect compliance indicators and a lesser number of repeated hospitalizations.

- Psychiatric Inpatient Patient Experience Questionnaire On-Site (PIPEQ-OS) can be used in patients with psychiatric spectrum disorders to explore self-rated satisfaction with care.

Novelty of Study

Despite the growing global interest in patient care satisfaction and its relationship with patient compliance and also disease outcomes, uncertainties still exist in determining the indicator. In 2017 Latvia participated in a cross-sectional international study with 11 countries regarding the determination of satisfaction of 30 discharged patients from psychiatric care hospital (Krupchanka et al., 2017), however more comprehensive studies just among adult patients psychiatric care services have not been carried out and there is no adapted and validated instrument to be assessed from patients' point of view. Establishing patient satisfaction relationship by indirect compliance indicators would allow the introduction of the necessary psychic health care initiatives, thus increasing compliance among patients with mental disorders. Earlier studies were also included in the list of a literature survey to cite studies on the definition of satisfaction concept, explanations, study process development, possible study aspects, as well as the key factors and their role concerning the development of psychiatry care. In drawing up the literature survey, it was also decided to explore older sources as well, to provide a more comprehensive overview of the concept of satisfaction and compliance.

1 Material and Methods

An adaptation of a Psychiatric Inpatient Patient Experience Questionnaire On-Site (PIPEQ-OS) was carried out as a part of a pilot study. The pilot study took place in one subacute ward in Riga, the capital of Latvia, VSIA “Riga Psychiatry and Narcology Centre” (Bērziņa-Novikova & Taube, 2019). The questionnaire contains 21 questions, that can be filled quickly, thereby raising the prospect for higher patient response. The questionnaire for patients with mental illnesses on hospital care satisfaction was used to assess several aspects of care, such as personnel interaction with the patient, evaluation of outcomes in the hospital. The questionnaire of patients with mental illnesses on patient satisfaction covers issues that describe general hospital care, such as the choice of food in the hospital, which is not always included in other patient satisfaction assessment instruments (Gigantesco, Morisini, & Bazzoni, 2003).

Results of adaptation of questionnaire are described in the results section. In the adaptation process, a cross-sectional study was performed in which Psychiatric Inpatient Patient Experience Questionnaire On-Site was used anonymously. The questionnaire was translated from English into Latvian and Russian, with a translation back in the original language, performed by two independent interpreters of the Rīga Stradiņš University Language Centre. The relevance of the translation to the content of the survey issues was tested during patients cognitive interviews – 20 randomly selected patients participated in cognitive interviews. Patients were of different ages, different education, as well as of box genders. The pilot study included patients who were in subacute hospital psychiatric care. Questionnaires were offered to all patients, except patients with mental retardation and dementia syndrome. The further analysis excluded answers which were filled out incorrectly – answers to the test question which was formulated contrary to all other questions in the questionnaire or were equal to the evaluation of other questions. The data statistical analysis followed,

using the descriptive statistical data processing methods. The analysis of instrument factors and internal consistency coefficient analysis was performed (Cronbach's alpha analysis).

Following the pilot study and adaptation of the questionnaire, a cross-sectional study was performed using the above-mentioned Psychiatric Inpatient Patient Experience Questionnaire On-Site (PIPEQ-OS). The information on the question was presented in writing at the beginning of the questionnaire. Respondents were explained that when completing and returning the questionnaire, they agreed to participate in the study. RSU Ethics Committee permission for participation in the study was obtained on 21.12.2017. An attachment to the questionnaire on socio-demographic data was created. Initially, the study included patients hospitalized in three psychoneurological centres in Latvia, such as VSIA "Riga Psychiatry and Narcology Centre", hospital "Ģintermuiža" and VSIA "Strenči Psychoneurological Hospital", over the period from January 1, 2018, till December 31, 2018. In each of the hospitals, there were patients both from acute and subacute hospital departments. Patients with acute psychic conditions were hospitalized in acute wards, while patients with lesser acute conditions, affective disorders and neurotic and stress-related disorders were hospitalized in subacute wards. Subacute ward patients were offered a more unrestrained regimen, the department was of an open type where the staff did not have to accompany the patient during a walk.

This tool was offered by the department nurses to be applied for all patients, except for those who could not be included due to exclusion criteria. Patients with intellectual disorders and dementia syndrome were excluded from the study. When offering to complete the questionnaire, patients were asked to do it individually, without any other persons' presence, thus reducing the potential impact on self-assessment results. At the beginning of the questionnaire, details of the study were outlined and described, stating that a

patient on completing and returning it, agrees to participate in the study. After completing the questionnaire, patients were asked to leave it in a specially designed closed box, from which it was removed by the researcher once a week. Wrongly filled up questionnaires (not all questions answered, the questionnaire was damaged) were excluded from the further analysis in the doctoral research. Then the data statistical processing followed. Programmes for data processing used: IBM SPSS Statistics v.26, Excel 2019.

Methods used for data processing:

1. Descriptive statistics: mean value, standard deviation, observation rate, relative frequency (in percentage %)
2. For comparison of continuous variables of unpaired samples:
 - t-test or Welch test (for comparison of 2 average groups)
3. For comparison of two categories of variables
 - chi-square test
4. The relationship of qualitative variables with explanatory variables
 - Linear regression
5. For the measure of quantitative variable association
 - Spearman' coefficient

1.1 Primary study data

Primary study data will be acquired from patient questionnaire replies. The social demographic data of the Appendix of the questionnaire, created by ourselves, identified the data on the patient's gender, age, acquired education level, employment and family status. From a Psychiatric Inpatient Patient Experience Questionnaire On-Site, we acquired the data on patient satisfaction of the received treatment in each included question, as well as later, when

dividing the questions by scales, namely, scale - outcomes, scale - structure and the treatment process, and scale - interaction with the patient.

1.2 Secondary study data

Each completed questionnaire was accompanied by a protocol, filled in by the researcher on the date of indirect compliance indicators, which were derived from some future outpatient visits after the discharge, the use of medication after the discharge, which was determined after withdrawal of medicine over 12 months after discharge from the hospital. An attached protocol also entered the data on repeated hospitalizations and the duration of hospital treatment episodes. Secondary data sources are VSIA „Rīga Psychiatry and Narcology Centre” internal data base “Department”, from which information was obtained on the diagnosis of the study subject, the duration of treatment episodes, the number of previous hospitalizations, the length of illness, the number of re-hospitalizations within 12 months after the discharge, withdrawal of prescribed medicines from the pharmacy. Variables and parameters used for the analysis (only in quantitative study cases).

1. Social demographic data: gender, age, employment, education, family status.
2. Questions in a Psychiatric Inpatient Patient Experience Questionnaire On-Site on satisfaction with treatment, divided into 3 scales:
 - Questions related to the interaction of personnel with a patient
 - Questions related to the structure and services of care
 - Questions related to outcomes
3. Indirect compliance indicators: the number of outpatient visits within 12 months period after the discharge and the withdrawal of medicines from the pharmacy within 12 months after the discharge

4. The number of re-hospitalizations within 12 months' after the discharge.

1.3 List of methods of statistical analysis and justification for the choice

The study introduced the questionnaire for psychiatric department patients. For the study data analysis the following statistical methods were used:

Cross-links were created on a socio-demographic basis. Quantitative data were analyzed by a dispersion analysis method (ANOVA).

Correlation analysis (Spearman' correlation coefficient) was applied to determine the relationship between the morbidity data and respondents' socio-demographic data and the data of patient satisfaction with treatment.

Regression analysis was applied to assess the effects of socio-demographic and patient treatment satisfaction rates on the data of repeated patient hospitalizations after the discharge, the duration of hospitalization, the number of outpatient visits after the discharge, the use of medicines after the discharge.

All demographic information was described in respondent and non-respondent groups separately, as well in each chapter. For quantitative variables, a t-test or Welch test will be used according to their conditions, chi-square test for categorized variables to specify which variables vary statistically in both groups.

The ANOVA statistics identified differences between the diagnoses and indirect compliance.

2. Results

2.1 Pilot study results

During the pilot study 297 patients, discharged from the department, involved in the study of VSIA “Rīga Psychiatry and Narcology Centre” had been offered to complete the Psychiatric Inpatient Patient Experience Questionnaire On-Site. The number of collected questionnaires was 231, which shows that 78% of hospitalized patients had agreed to participate and it was relatively a high response rate of self-filled questionnaires. The survey of satisfaction with hospital care by patients with psychic disorders showed a satisfaction rate in the study of 74.6% (Bjertnaes, Iversen, & Kjollesdal, 2015). From all of the collected responses (231 questionnaires) – 12% (n = 27) were not used for the data processing, on the basis that they had been filled wrongly regarding the questions asked, and also some of the questionnaires which had been completed only partially, while 88% (n = 204) of the questionnaires were analyzed.

The analysis of data loss on each issue showed that there were a total of 4 questions with a high data loss (missing answers, or marked by N/A). The largest loss of answers was in question 5, representing 44.2% of all questionnaires included in the study. This question is worded as follows:” Do you believe that doctors/personnel worked well with your relatives?” It is interesting that in the Norway study PIPEQ-OS the instrument validation also had the highest data loss and “N/A” answers (Bjertnaes et al., 2015). Also the test question, that is question 16, data loss was 33%. The verification question was worded as follows: “Do you think that while in hospital you have been treated incorrectly? (considering your own experience). It is worth mentioning question 6, where the data loss was 4.9%. This question asks the patient opinion whether the medical staff has prepared the person for the time after the discharge. Question 9 with 15.7% of data loss was about the possibility for the patient

himself/herself to influence the choice of medicines. The data on these issues as to the instrument in our study is similar to that found by the Norwegian colleagues (Bjertnaes et al., 2015). The highest number of respondents answered (81.2%) positively to question 12 (“Do you feel safe”). 76.8% of all patients who completed the questionnaire confirmed that they were satisfied with the admission to the department. 77.8% of patients admitted that they had an opportunity to discuss their health with doctor/medical personnel. Most of half patients admitted that they have had sufficient time to contact medical staff (question 2), that the medical staff understood the patient condition (question 3) and the medical staff had sufficiently prepared the patient for the time after hospital (question 6). Patients also highly evaluated the relevance of the received treatment to the patient situation, possibility to affect the treatment regimen, sufficient information given on the health status. More than 50% of patients highly appreciated the offered activities and privacy.

As a result of factor analysis, the load of factors showed a 4-factor presence in the questionnaire and corresponding to it, each factor with the included units was analyzed below. The following factors analysis showed three important factors that reached Cronbach’alpha 0.7 index. As shown in Table 2.1 sufficiently clear three-factor structure was obtained. The obtained three-factor structure corresponds to the original questionnaire structure. The Cronbach alpha coefficients of the original questionnaire factors are shown in Table 2.1. Interaction with the patient as the first factor reached Cronbach’alpha value 0.814, the second factor that combines issues, connected with the structure of care, environment and services reached Cronbach’alpha value of 0.83. Outcomes as the third factor reached 0.87 of Cronbach’alpha value.

Table 2.1

Results of Factor Analysis

Instrument factor	Cronbach' alpha coefficients	Cronbach' alpha coefficients in the original study
Interaction with a patient	0.81	0.86
Structure and institution	0.83	0.79
Outcomes	0.87	0.91

The obtained results showed that the acquired questionnaire factors structure is consistent with the three-factor structure of the original questionnaire, Cronbach'alpha coefficients show a very good internal coordination and consistency of the questionnaire scales which allow the use of the questionnaire among the tested patients (Bērziņa-Novikova & Taube, 2019).

2.2 Results of doctoral study

In regional psychoneurological hospitals the response indicators were low – 39% VSIA “Strenči Psychoneurologic Hospital” and 11% VSIA “Hospital “Ģintermuiža”. “The data proved unrepresentative and were excluded from the further analysis. The study involved 1335 people. The respondent rate was 62% (823 people), but 38% (512 people) did not fill the questionnaire, respectively. The highest rate of respondents was in one of the subacute neurosis wards (ward 20), where the questionnaire was completed by 82% (337 people), 68% (225 people) from ward 12 (subacute neurosis type ward), and the lowest rate or 44% (261 people) were in the acute ward with newly hospitalized patients (ward 17).

2.2.1 Characteristics of respondents and non-respondents

The mean age in the respondent group was higher than in a non-respondent group, the percentage of women was higher than men, 65% (n = 531) and 35% (n = 292), respectively. Non-respondents had the basic, secondary and

other types of education more frequently than respondents. Respondents more frequently were with an unemployment status, they were pensioners and patients with disability. Respondents much rarer responded “no answer”, “never been married” than non-respondents. Diagnosis F06, F07 (organic affective and organic personality disorders), F4 (neurotic spectrum and stress-related disorders) and “other” statistically significantly more commonly could be observed among those patients who had not completed the self-assessment questionnaire. From co-diagnoses non-respondents more frequently had X diagnosis (self-harming defined diagnosis), but respondents most frequently had some somatic diagnoses (cardiovascular, endocrine system diseases). On average respondents were hospitalized for a longer period than non-respondents, respondents on average had spent a longer period in a psychiatric health care system. Respondents had received earlier assistance more frequently than non-respondents, thus they were more often hospitalized previously, and they also had in their anamnesis more common outpatient visits to a psychiatrist. Respondents differed from non-respondents statistically significantly by their referral to psychiatric health care outpatient departments and by the number of outpatient visits, which had been attended by respondents more frequently.

When summarizing results, it turned out that non-respondents were younger, more often with the basic and secondary education, being married, much rarer had received an earlier psychiatrist’ assistance, as well as much rarer were referring for assistance in the out-patient department. Non-respondents had a shorter treatment time in the hospital, a shorter time spent in the psychiatric health care system, as well as much often had somatic disorders or neurotic and stress-related disorder spectrum diagnoses, and also more often had a self-harming co-diagnosis.

2.2.2 Analysis of Psychiatric Inpatient Patient Experience Questionnaire on the satisfaction of received treatment by patients with psychiatric disorders

Two patients were excluded from further assessment. One of them has answered less than half of the questions and another answered the same to all questions, including the check-up question which was formulated controversially to other questions. 821 questionnaires were assessed. The scale included answers from “0” and “1” to “5”, where zero represents “Not applicable”, one – “not at all” and five means “to a great extend”. In the question about relatives: “Did you think the personnel interacted enough with your relatives? 34.6% of respondents answered “not applicable”.

The majority of respondents generally assessed the care to be satisfactory (question 20). In the question “Did you feel safe in the institution?” patients most often noted the Licker score of 5 (“To the greatest extent”), as well as with the highest rating were noted the questions: “Was your hospital welcome satisfactory?”, “Did you have the opportunity to tell the medical staff something important about your condition?”. Respondents were mostly satisfied with the time the medical professionals devoted to the conversation and noted that the medical staff understood their situation. Less valued, but not underestimated, were issues that concerned informing patients about the diagnosis and treatments available. Patients noted mostly with 4 and 5 points the question of the relevance of treatment to their situation. Slightly less frequently, the highest assessments were based on questions that related to the outcome factor, namely whether treatment in the hospital allowed them to better understand their situation, to cope with it and to assess below whether the treatment helped to believe that life would improve. Respondents assessed the possibility of influencing the choice of medicines (question 9), which is the most common question after a low-rated control issue. Also, less satisfied respondents were about the possibility of

influencing treatment regimens (question 8). The food offered was appreciated as mediocre.

The Psychiatric Inpatient Patient Experience Questionnaire On-Site also looked at the total score (average of the questions answered). Median score 4.45. All patients were divided into 2 groups, those who rated the treatment highest. and those who rated it lowest. Patients with greater scores or equal to 4.45 points from the group with the highest ratings and those with a score of fewer than 4.45 points form the group with the lowest ratings. In total, the highest-rated group had 418 patients and 403 patients in the lowest rating group. Both these groups are compared in Tables 2.2 and 2.3.

Table 2.2

Patients' higher and lower satisfaction rate of received treatment in respect to sociodemographic indicators using t-test and Chi-square

	Lower ratings	Higher ratings	p-value
Age W, (SD)	40.8 (16.3)	49.0 (16.5)	< 0.001
Hospital ward, n (%)			
subacute ward	125 (31.0)	211 (50.5)	< 0.001
subacute ward	116 (28.8)	109 (26.1)	
acute ward	162 (40.2)	98 (23.4)	
Gender, n (%)			
Man	163 (40.4)	128 (30.6)	0.003
Woman	240 (59.6)	290 (69.4)	
Education, n (%)			
Unfinished basic	11 (2.7)	5 (1.2)	0.001
basic	33 (8.2)	29 (6.9)	
Unfinished secondary	32 (7.9)	13 (3.1)	
secondary	78 (19.4)	83 (19.9)	
Secondary professional	85 (21.1)	124 (29.7)	

Table 2.2 continued

	Lower ratings	Higher ratings	p-value
Unfinished higher	47 (11.7)	29 (6.9)	
higher	110 (27.3)	130 (31.1)	
other	7 (1.7)	5 (1.2)	
Employment, n (%)			
Paid job, self-employed	141 (35.0)	156 (37.3)	< 0.001
unemployed	94 (23.3)	75 (17.9)	
pensioner	41 (10.2)	78 (18.7)	
Student or pupil	40 (9.9)	19 (4.5)	
disability	77 (19.1)	84 (20.1)	
other	10 (2.5)	6 (1.4)	
Family status, n (%)			
No answer	1 (0.2)	3 (0.7)	< 0.001
Married/co-residing	97 (24.1)	136 (32.5)	
Married/residing separately	6 (1.5)	20 (4.8)	
Never been married	177 (43.9)	106 (25.4)	
divorced	54 (13.4)	72 (17.2)	
Civil marriage	34 (8.4)	30 (7.2)	
Widow/widower	19 (4.7)	40 (9.6)	
other	15 (3.7)	11 (2.6)	
Place of residence (county, region, town), n (%)			
Rīga, Rīgas regions	323 (80.1)	311 (74.4)	0.049
Kurzeme	32 (7.9)	42 (10.0)	
Zemgale	25 (6.2)	21 (5.0)	
Vidzeme	16 (4.0)	24 (5.7)	
Latgale	7 (1.7)	20 (4.8)	

In the age indicator, those who scored higher were statistically significantly older patients. Patients in ward 20 (one of the subacute departments) were with the highest ratings. Men were more likely to score it lowest. Unfinished basic, incomplete secondary, incomplete higher and other education were more common among the lowest evaluators than the highest evaluators. The unemployed, students or pupils, as well as other employment categories, were more likely the lowest evaluators than the highest ones. Higher evaluators more than lower evaluators had no answers, married or living together, or alone, divorced or widowed. The lowest evaluators were more likely to come from Riga and Riga region, as well as from Zemgale in comparison to the highest evaluators.

The study further looked at higher and lower satisfaction directly in the disease-related factors. Hospital and outpatient, as well as only outpatient assistance, were previously received more frequently by those who provided a lower assessment of the issues. Patients with organic psychiatric disorders (F06, F07) and affective spectrum disorders (73 diagnoses) were more likely to receive higher scores than lower scores, while patients in the diagnosis groups F4 (stress-related disorders) and F2 (schizophrenia spectrum disorder) were generally assessed lower. Co-diagnoses like somatic and neurological (G2, G4, G 6, G 7) were more common with the highest evaluations. A comparison of the highest and lowest estimates concerning the search for further assistance and the factors of indirect compliance are presented in Table 2.3.

Table 2.3

Comparison of higher and lower ranked patient groups concerning the search for assistance within 12 months after discharge with indirect compliance indicators t-test and Chi-square

	Lower ratings	Higher ratings	p-value
Hospitalized further on within 12 months, n (%)			
no	279 (69.2)	283 (67.7)	0.638
yes	124 (30.8)	135 (32.3)	
Number of further hospitalizations within 12 months, W (SD)	0.5 (0.9)	0.5 (0.8)	0.844
Turn to out-patient department further on within 12 months, n (%)			
no	158 (39.2)	208 (49.8)	0.002
yes	245 (60.8)	210 (50.2)	
Number of further out-patient visits within 12, W (SD)	4.5 (5.5)	3.8 (5.3)	0.089
Number of withdrawal of medicines within 12 months after discharge,, W (SD)	2.8 (1.6)	3.3 (1.3)	< 0.001

Assessing statistical significance of differences on subsequent treatment in groups with higher and lower ratings in a Psychiatric inpatient patient experience questionnaire. In a Psychiatric inpatient patient experience questionnaire, it was found that those who rated the received treatment higher had a statistically significant increase in withdrawal of medicines. By the type of received assistance, hospital assistance was received more frequently by those who in a Patient with mental illness of hospital care satisfaction questionnaire showed higher rating score, however, this correlation is not statistically significant. Further on, statistically more frequent calls for out-patient assistance were from those whose rating of treatment was lower. Patient hospitalization rate further on within the year did not show statistically significant differences in both groups.

2.2.3 Determining relationship of socio-demographic indicators with indirect indicators of compliance and satisfaction questionnaire scales

For the relationship of socio-demographic indicators with compliance indicators, linear regression models were designed, each for compliance indicator a regression model comprising all socio-demographic indicators (age, gender, education, employment and family status) was designed. Only some of the variables or some of their categories showed a statistically significant relationship with compliance indicators. Socio-demographic indicator relationships are shown in Table 2.4.

Table 2.4

Relationship of socio-demographic indicators with three scales of a Psychiatric inpatient patient experience questionnaire using linear regression

	Interaction with a patient*		Structure and institutions**		Outcomes***	
	B	p value	B	p value	B	p value
Age	0.008	0.001	0.010	< 0.001	0.004	0.096
gender: man						
woman	0.078	0.138	0.033	0.492	0.068	0.235
Education: unfinished basic						
basic	0.569	0.003	0.268	0.126	0.291	0.161
Unfinished secondary	-0.012	0.952	-0.143	0.434	-0.263	0.223
secondary	0.324	0.071	0.174	0.292	0.099	0.610
Secondary professional	0.362	0.043	0.243	0.140	0.199	0.306
Unfinished higher	0.343	0.067	0.159	0.357	0.081	0.691
higher	0.334	0.063	0.157	0.341	0.120	0.540
other	0.177	0.495	-0.040	0.868	0.385	0.174

Table 2.4 continued

	Interaction with a patient*		Structure and institutions**		Outcomes***	
	B	p value	B	p value	B	p value
employment: paid employment, self-employed						
unemployed	-0.106	0.117	-0.066	0.284	-0.191	0.009
pensioner	-0.134	0.155	-0.118	0.175	-0.119	0.247
Student or pupil	-0.180	0.100	-0.017	0.864	-0.073	0.542
disability	-0.073	0.304	-0.035	0.599	-0.135	0.082
cits	-0.134	0.444	-0.239	0.137	-0.013	0.945
Family status: married, co-residing						
Married, residing separately	0.253	0.071	0.160	0.214	0.110	0.470
Never been married	-0.131	0.080	-0.125	0.069	-0.147	0.071
divorced	-0.044	0.560	0.032	0.645	-0.022	0.784
Civil marriage	-0.204	0.035	-0.052	0.559	-0.104	0.321

* $R^2 = 0.123$, $F(19.803) = 5.334$, $p < 0.001$

** $R^2 = 0.144$, $F(19.803) = 6.417$, $p < 0.001$

*** $R^2 = 0.076$, $F(19.803) = 3.124$, $p < 0.001$

Age showed a statistically significant relationship with two scales of an adapted Psychiatric inpatient patient experience questionnaire on-site, namely, interaction with the patient and structure and institutions. Age on both scales has also a positive relationship, that is, as age increases, satisfaction with both scales increase as well. Basic and secondary professional education groups are statistically significant concerning the scale “interaction with a patient”. Patients with basic and secondary professional education level on the scale provided a higher rating in comparison to patients with unfinished basic education. Employment showed statistical significance concerning one of three scales from a Patient with mental illness of a hospital care satisfaction questionnaire. The unemployed people underestimated the outcomes of salaried workers. Those living in the family, or in civil marriage underestimated the scale “interaction

with a patient” rather than “married/co-residing”, which was statistically significant.

The relationship of socio-demographic indicators with indirect compliance indicators, namely, the frequency of further out-patient visits, withdrawal of medicines from the pharmacy, as well there was studied the relationship with the further hospitalization frequency within a year. Age showed a statistically significant relationship with the frequency of withdrawal of medicines from the pharmacy. With the increase of age by a year, the number of medicines withdrawn on average increased by 0.019 times. Gender also showed a statistically significant relationship with compliance indicators in the three models. Women, on average, were hospitalized by 0.150 times more than men within a year. Women had also more out-patient visits within a year (on average 1.242 times more) than men. Women withdrew medicines by 0.3 times more than men. Three categories of education (secondary professional, unfinished higher and higher) were statistically significant about the duration of current hospitalization. Employment also showed some statistically significant relationships with compliance indicators. People with a disability had a greater number of further hospitalizations than employed paid workers, more frequent out-patient visits than employed paid workers and the duration of hospitalizations was longer too. They also withdrew medicines by 0.575 times more frequently than employed paid workers. The unemployed stayed in the hospital longer than 3 days than employed paid workers. Students and pupils withdrew medicines by 0.643 times less than employed paid workers. Patients with the defined family status “never been married or married ”stayed in the hospital longer than “married, co-residing” ones.

2.2.4 Relationship of scales of a Psychiatric inpatient patient experience questionnaire with indirect compliance indicators and number of rehospitalizations in different diagnoses groups

To determine the relationship between different indicators in different diagnoses groups, the correlations within each diagnosis were examined and shown in Table 2.5, 2.6, 2.7.

Table 2.5

Relationship of scales of a Psychiatric inpatient patient experience questionnaire with further hospitalization rates in different diagnoses groups with Spearman correlation

		Number of further hospitalizations within 12 months			
		F06, F07	F2	F3	F4
Interaction with a patient	r_s	-0.096	0.098	0.016	0.081
	p value	0.359	0.076	0.785	0.415
Structure and institutions	r_s	-0.118	0.097	0.019	0.046
	p value	0.260	0.079	0.744	0.645
Outcomes	r_s	-0.035	0.036	-0.052	-0.020
	p value	0.737	0.513	0.380	0.844
N		93	325	286	104

F06 – ICD-10 classification code for – Other organic disorders

F07 - ICD-10 classification code for – Organic personality disorders

F2 - ICD-10 classification code for – Schizophrenia spectrum disorders

F3 - ICD-10 classification code for – Affective spectrum disorders

F4 - ICD-10 classification code for – Neurotic and stress related disorders

Table 2.6

Relationship of scales of a Psychiatric inpatient patient experience questionnaire with further out-patient visits in different diagnoses groups with Spearman correlation

		Number of further out-patient visits within 12 months			
		F06, F07	F2	F3	F4
Interaction with a patient	r_s	-0.134	0.022	-0.146	0.021
	p value	0.200	0.691	0.014	0.832
Structure and institutions	r_s	-0.104	0.039	0.172	0.023
	p value	0.319	0.480	0.004	0.818

Table 2.6. continued

		Number of further out-patient visits within 12 months			
		F06, F07	F2	F3	F4
Outcomes	rs	-0.105	-0.059	-0.119	-0.027
	p value	0.318	0.289	0.045	0.783
	N	93	325	286	104

F06 – ICD-10 classification code for – Other organic disorders

F07 - ICD-10 classification code for – Organic personality disorders

F2 - ICD-10 classification code for – Schizophrenia spectrum disorders

F3 - ICD-10 classification code for – Affective spectrum disorders

F4 - ICD-10 classification code for – Neurotic and stress related disorders

Table 2.7

Relationship of scales of a Psychiatric inpatient patient experience questionnaire with the withdrawal of medicines in different diagnoses groups with Spearman correlation

		Withdrawal of medicines within 12 months after discharge			
		F06, F07	F2	F3	F4
Interaction with a patient	rs	0.043	0.207	0.151	0.171
	p value	0.680	0.000	0.010	0.082
Structure and institutions	rs	0.168	0.184	0.236	0.116
	p value	0.108	0.001	0.000	0.242
Outcomes	rs	0.133	0.073	0.089	-0.003
	p value	0.205	0.188	0.133	0.972
	N	93	325	286	104

F06 – ICD-10 classification code for – Other organic disorders

F07 - ICD-10 classification code for – Organic personality disorders

F2 - ICD-10 classification code for – Schizophrenia spectrum disorders

F3 - ICD-10 classification code for – Affective spectrum disorders

F4 - ICD-10 classification code for – Neurotic and stress-related disorders

No correlation was found to be statistically significant on the three scales about the further number of subsequent hospitalizations within 12 months. The number of further subsequent out-patient visits within 12 months showed statistically significant correlations with all scales of a Psychiatric inpatient patient experience questionnaire, namely, “interaction with a patient”, “structure and institution”, as well as in “outcomes” in the diagnosis group F3 or affective disorder group. All these correlations, although statistically significant, are not

high at the absolute value, of these three the maximum correlation coefficient is 0.172, which is a very weak correlation. Two of these correlations are negative, which means, that as one indicator grows, another one – declines. Interaction with a patient and outcomes negatively correlated with F3, or affective spectrum diagnoses to further subsequent visit rate. One is a direct or positive correlation, which means that as one indicator grows, another indicator grows as well, and that is the correlation associated with structure and institution scale. Thus, in F3 diagnosis patients, statistically more significant satisfaction was in the scale of interaction with a patient and outcomes scale, associated with further out-patient visit rate within 12 months. There is a statistically significant relationship between interaction with a patient and withdrawal rate of medicines in diagnoses F2 and F3. Also, the structure and institutions scale in diagnoses F2 and F3 makes statistically significant correlations (relationships) with the withdrawal rate of medicines.

Differences in further subsequent hospital and out-patient visits, as well as withdrawal of medicines, were determined in different diagnoses groups. All three variables differ statistically significantly between diagnoses groups. Further subsequent hospitalizations differ between schizophrenia (F2) and neurotic spectrum (F4) disorders, and also affective (F3) and neurotic spectrum (F4) diagnoses groups (p values < 0.001 and 0.006 respectively). Patients with schizophrenia spectrum disorders (F2) were on average 0.345 times more frequently hospitalized than patients with neurotic spectrum disorders (F4), while patients with affective spectrum disorders (F4) were 0.255 times more frequently hospitalized than patients with neurotic spectrum disorders.

Differences in the number of further subsequent out-patient visits statistically significantly differed in the organic psychiatric disorder group (F06, F07) and schizophrenia spectrum disorder group, between schizophrenia spectrum and affective spectrum disorders, between schizophrenia and neurotic

spectrum disorders, as well as between affective and neurotic disorder groups. Patients with organic affective disorders (F06, F07) had on average by incomplete three out-patient visits less than patients with schizophrenia spectrum disorders ($p < 0.001$). Patients with schizophrenia spectrum disorders were estimated to have had out-patient visits by about 1.5 times more frequently than affective disorder group patients ($p = 0.008$). Also, schizophrenia spectrum disorder group patients had about 3.5 times more out-patient visits than neurotic spectrum disorder patients ($p < 0.001$). Patients with affective disorders, in its turn, had two times more out-patient visits than neurotic disorder patients ($p < 0.001$). Withdrawals differed between the organic psychiatric disorder patients and the neurotic spectrum disorder group, with the first on average approximately by one more time ($p < 0.001$). Patients with neurotic disorders also differed from schizophrenia and affective disorder spectrum in patients by 1.165 times and 1.228 times less, respectively, than those named (in both cases $p < 0.001$). Consequently, patients with neurotic spectrum disorders withdrew medicines statistically significantly less than patients in other groups of diagnoses.

2.2.5 Relationship of a Psychiatric inpatient patient experience questionnaire scale with indirect compliance indicators

To analyze a Psychiatric inpatient patient experience questionnaire on three scales and to determine their correlations with the number of further subsequent hospital and out-patient visits, and also withdrawal rate of medicines, associations shown by Spearman correlation coefficient. Results are summarized in Table 2.8.

Table 2.8

Relationship of scores of a Psychiatric inpatient patient experience questionnaire with indirect compliance indicators with Spearman correlation

		Number of further out-patient visits within 12 months	Number of further hospitalizations within 12 months	Number of withdrawal of medicines within 12 months after discharge
Interaction with a patient	r_s	-0.074	0.043	0.174
	p value	0.034	0.227	< 0.001
Structure and institutions	r_s	-0.081	0.036	0.186
	p value	0.021	0.302	< 0.001
Outcomes	r_s	-0.102	-0.015	0.073
	p value	0.004	0.662	0.039
N		808	808	808

Further subsequent out-patient visits within 12 months, as well as how often, was the withdrawal of medicines showed statistically significant correlations on all three scales. In out-patient visits, all correlations are negative, which means, that as the scores on the scales grow (increasing satisfaction), fewer out-patient visits are done, but in withdrawal of medicines the correlations are opposite. The number of further subsequent hospitalizations did not show statistically significant correlations to scales in a Psychiatric inpatient patient experience questionnaire.

3 Discussion

Low response rates from regional hospitals may be explained by the fact that these types of self-assessment questionnaires are not common to patients. The staff might have been less motivated because these kinds of studies had not been carried out until now. Such response rates in regional psychoneurological hospitals should be evaluated critically and separately, as well as further response and satisfaction influencing factors in regions should be studied to get an idea of the data of patients with mental disorders in Latvia.

In the case of studies using satisfaction instruments, response rates may vary, and in the case of 60–90% respondents do not participate in the questionnaire, (Bø et al., 2016b), but in the context of the doctoral work, the response rates were higher, at 62%. The response rates in the pilot study were higher, which can be explained by socio-demographic attachment, which might have affected the patient opinion as to the anonymity of the questionnaire. In Norway, in a study of validation of a Psychiatric inpatient patient experience questionnaire, the response rates were also higher – 74.6% (Bjertnaes et al., 2015). Overall, in the literature, the response rates for self-assessment instruments are described as being low, which, as usual, is the largest of limitations ierobežojumiem (Ito, Shingai, Yamazumi, Sawa, & Iwasaki, 1999) (Perneger, Chamot, & Bovier, 2005) because low response rates can affect patient satisfaction and thus lead to a selection error (Mazor, Clauser, Field, Yood, & Gurwitz, 2002).

The literature describes a variety of indicators, characterizing how many patients do not engage and do not give answers, they vary from 5 to 20%. However, despite it, study results are interpreted even at lower response indicators (Sheikh & Mattingly, 1981). In the meta-analysis Grooves et al. Informed about the relationship between response indicators and selection error,

the scientists with his co-authors admitted that higher response indicators can potentially reduce the occurrence of selection error (Groves & Peytcheva, 2008). Thus, high response indicators in our study, in comparison to the world data, could minimize this error, however, the meta-analysis data should be interpreted with caution.

The differences of response indicators could be related to several aspects, for example, to the very type of the distribution of the Questionnaire (Tyser, Abtahi, McFadden, & Presson, 2016), individual attitude to the questionnaire, the impact of public attitude, which would also play the role of the staff attitude at the very beginning of treatment, the structure of the questionnaire and its design.

The distribution of the questionnaire before discharge increases the satisfaction indicators, allowing to obtain a piece of more precise information (Boyer et al., 2009). Analyzing the structure of the questionnaire itself, such as the appropriate length of the questionnaire, the information offered at the very beginning, formulation of questions could be the reason to promote a great number of responses in the questionnaire of the doctoral study (Bø et al., 2016b). According to the literature data, patient involvement and assessment can be influenced by the presence of marked cognitive disorders, because patients with such disorders perceive the questions with difficulties, in our case such patients were excluded from the study by exclusion criteria (Gayet-Ageron et al., 2011). It is important to stress that nonrespondents were having fewer out-patient visits after discharge, while in the respondent group the higher satisfaction was related to a lesser seeking rate for assistance after out-patient discharge, which makes us conclude, that more frequent out-patient visits after discharge are not related to the refusal to participate in the questionnaire nor to patients' satisfaction.

3.1 Respondent and non-respondent groups

There is a difference in the literature in the studies on age differences between respondent and nonrespondent group. Our study data shows that the nonrespondent group was statistically more likely to have younger patients, in contrast to some literature data, for example, as Kj oller et al found in the study that by an increase of age the patients' involvement in the questionnaire reduced (Kj oller & Thoning, 2005). In the Ito et al.study, differences among respondents and nonrespondents were found only in the variable "age", where among respondents prevailed younger age patients, however, among other socio-demographic indicators no differences were found (Ito et al., 1999).

There are also studies where significant age differences were not found in the mentioned age groups(Osler & Schroll, 1992). The data acquired within the doctoral study are similar to other literature data in which a higher age was seen just among the respondents(Rosenheck, Wilson, & Meterko, 1997) (Jacoby & Bamford, 1992), in its turn, younger age patients might be less motivated or not appreciate the importance of self-assessment questionnaire as such (Pietila, Rantakallio, & Laaraa, 1995).

The fact that statistically significantly younger age patients prevailed among nonrespondents may be explained by younger age patients being likely less frequently encountered the questionnaires before, which could have influenced them to involve, as well as that there were persons among them with stress-related disorders, including, adaptation disorders, who are usually discharged from hospital within some days, or even next day. They may as well not accept the idea of being "patients", or to be in treatment, therefore they could likely to refuse from completing the questionnaire, or do in a hurry. These conditions do not allow us to declare that the patients of the described group who did not fill the questionnaire could have estimated the treatment more negatively.

But that points to one of the further study directions. In order to analyze just the younger age patients satisfaction with treatment in different diagnoses groups, it could be necessary to make an adequate treatment type specifically for separate age group patients.

Gender in respondent and nonrespondent groups in the doctoral study did not appear to be statistically different. The literature, however, emphasizes the role of gender, as to how many patients give a response, because Kjølner et al, for example, found the age to be significantly related to respondents, but only about gender, because with age, the responsibility indicators increased just among male representatives (Kjølner & Thoning, 2005), thus, when analyzing gender relationship with non-involvement in the questionnaire, excluding it from other factors, such a relationship may also not be identified.

Involvement of patients in the study with basic, secondary or other education could be related to a lower socio-demographic situation, lower prosperity level, which by the literature data, affects response indicators, lowering them just in using self-assessment instrument (Pietila et al., 1995) (Cox, Rutter, Yule, & Quinton, 1977). Unemployment in the literature is related to lower response criteria due to adaptive behaviour disorders (Sheikh & Mattingly, 1981) (Jacomb, Jorm, Korten, Christensen, & Henderson, 2002), which appeared to be contrary to our study findings, in which patients with unemployment status were represented more in the respondent group.

A higher rate of involvement in the doctoral study was also among patients with disability, the data similar in other studies, where it is explained by a greater number of complaints due to the effect of physical disability, for example, patients with neurological disorders (Sheikh & Mattingly, 1981). The lower response rates among pupils and students could be explained by the lack of experience in health care, a pupil'/student'own attitude to the questionnaires as such. Among nonrespondents more frequent were those who were unmarried,

similar to those in other studies (Reijneveld & Stronks, 1999) (Rosenheck et al., 1997). Such findings may be described by the fact, that those patients who were unmarried could be less satisfied with the life in total, and it could indirectly affect the person involved in the care satisfaction questionnaire (McCabe, Saidi, & Priebe, 2007) (Fakhoury, Kaiser, Roeder-Wanner, & Priebe, 2002), for example, Cox et al reported on differences of involvement indicators among those respondents who were married, but who experienced difficulties in relationship with a partner (Cox et al., 1977). It is worth adding that we could avoid the influence of this factor on involvement and self-assessment scores, offering an anonymous questionnaire without individual involvement in the interview.

In the analysis of diagnosis and involvement, nonrespondents were more frequently seen to have the organic affective and organic personality disorder diagnosis, as well as neurotic spectrum and stress-related disorder diagnosis contrary to the literature data because schizophrenia and its spectrum disorders were more common among nonrespondents (Barker, Shergill, Higginson, & Orrell, 1996b) (Boyer et al., 2009)(Bø et al., 2016b)(Gayet-Ageron et al., 2011).

As regards the relevance of patient' health status to response indicators, there are contradictory data in the literature (Vestbo & Rasmussen, 1992), therefore it would not be inappropriate to conclude the negative effect of diagnosis on the patient' involvement, but the impact of these factors within specific studies can be assessed.

Patients with affective spectrum disorders in the doctoral study were statistically likely more common among respondents, which looks similar to the literature data (Rosenheck et al., 1997), and also the patients' refusal was likely not connected with a certain diagnosis (Eaton, Anthony, Tepper, & Dryman, 1992) (Clark, Aneshensel, Frerich, & Morgan, 1983). In one longitudinal study in Australia depression and anxiety symptom relationship with non-involvement

was not found, while a lower employment level and education level appeared to be connected with higher patient refusal scores (Jacomb et al., 2002). Possible differences between diagnoses in the literature are explained by patients with schizophrenia spectrum disorders, suspicion and psychotic disorders, which might hinder their involvement in the questionnaire in hospital, especially after hospitalization against one's will.

The data from several studies point to the importance of the therapeutic contact between the doctor and the patient (Kirsh & Tate, 2006) (Priebe & McCabe, 2006), which may not have occurred initially in patients with acute psychosis on the first admission in the ward. In the current study work, most of the respondents were patients with one or another somatic co-diagnosis, while among the nonrespondent group – with self-harming diagnosis. Nonrespondent frequency in this group can be explained by the fact, that patients could have been hospitalized with an acute stress reaction, which most commonly was combined with self-harming behaviour, in such a condition patients could not perceive the benefit of health care self-assessment, that undermined their involvement (Pietila et al., 1995).

According to several study data, respondents had more frequent previous out-patient visits to the doctor, which was also found in our study, however, the data in my doctoral study are contrary to other literature data relationship with previous hospitalization rate in respondent and non-respondent groups. (Etter & Perneger, 1997) (Barker et al., 1996b) (Boyer et al., 2009). The fact that patients with neurotic or stress-related disorder spectrum had fewer previous visits for assistants means that such disorders develop as a result of stress, thus, in difference to affective and schizophrenia spectrum, they may have less attended a psychiatrist, and more often turned to a psychotherapist or a psychologist, however, such a piece of information has not been included in our study.

The following rarer visits might be partially explained by the fact that patients with neurotic spectrum disorders turned for psychotherapeutic assistance, at the same time, we cannot also exclude that after these visits patients continue looking for a psychiatrist in regions in out-patient departments. We did not include this information which can also be one of the limitations when interpreting the data.

In our study work, we found the difference as to the duration of treatment in both groups, which is also found in the literature data (Gayet-Ageron et al., 2011). Patients who had a shorter treatment time, and it could last up to two days, could consider it not important to fill the self-assessment questionnaire, or if they were discharged spontaneously of their own will, and they wanted to leave the ward faster, which also made it difficult in offering them a self-assessment questionnaire and in receiving an answer.

Summarizing also the literature data on the respondent group, it leads to a possible further research direction for the assessment of those patients, who were lesser involved in the self-assessment of treatment, because such a behaviour can be explained by various factors, not only the lowest self-assessment of care. One can find contradictory data in the literature too since there are authors who associate the lowest scores in the self-assessment with non-respondents (Nguyen, Attkisson, & Stegner, 1983), and also the authors whose studies show that patients who were rating the treatment higher, were lesser returning the questionnaires (Ware & Davis, 1983).

Recent studies note that the diversity of involvement in the patient groups is not associated with mandatory selection error particularly in self-assessment of treatment (Gayet-Ageron et al., 2011). The younger patient age in respondent and non-respondent groups in our study, as well as neurotic disorder spectrum diagnosis, could point to the group which needs more attention because as a

result of their refusal and lower evaluation their opinion would be of importance when assessing the received treatment.

Differences of other factors whether were not confirmed as statistically significant (gender, place of residence) or were explained, as well as proved, that non-respondent characterizing factors (organic psychiatric disorder diagnoses) in the respondent group were not associated with the lower rating in the self-assessment instrument. For example, non-respondent group patients were most commonly with the higher education, but in the respondent group, the patients with secondary education had higher evaluation of treatment. Some factors according to the literature data are not statistically associated with lower response indicators (duration of hospitalization). The unemployed, on the other hand, who were more common in the respondent group rated the treatment lower. The before-mentioned allows us partially judge the possibility of a lower selection error in the current doctoral study.

3.2 Patient satisfaction with treatment indicators and associated factors

In the literature, it is described that patients, in general, having a kind of psychiatric disease, are rating the treatment lower than people without any signs of disease (Desai, Stefanovics, & Rosenheck, 2005) (Hermann, Ettner, & Dorwart, 1998). But, even in the very psychiatric diagnoses groups there exist variations in satisfaction. Similarly to several other studies (Müller, Schlösser, Kapp-Steen, Schanz, & Benkert, 2002) (Bø et al., 2016a)(Middelboe, Schjødt, Byrting, & Gjerris, 2001) (Smith et al., 2014) (Howard, El-Mallakh, Kay Rayens, & Clark, 2003) (Krupchanka et al., 2017) (Haahr, Simonsen, Røssberg, et al., 2012), we found out, that majority of patients, in general, have shown satisfaction with the treatment and received assistance. The highest satisfaction could be partially explained by the PIPEQ-OS instrument being given for filling

it on a day before discharge, not for filling it at home (Kinnersley, Stott, Peters, Harvey, & Hackett, 1996) because filling of the questionnaire in the hospital before discharge increases response indicators and the patients' impressions are still urgent. (L Boyer et al., 2009). Quintana with co-authors found out that filling of self-assessment questionnaires for the second and third time was associated with lower satisfaction scores, which has to be taken into account when offering to fill the questionnaire (Quintana et al., 2006).

Greater satisfaction was shown by patients of ward 20, which is one of the open type subacute wards. In ward 12 the ratings were lower, although it is also a subacute ward. Such a difference, in this case, can be associated with the personnel's activity in the study and the motivation to get involved in the assessment of care. A pilot study was carried out in ward 20, which explains why the ward personnel could faster involve in the distribution of the questionnaires to patients, while, in the wards, where the pilot study was not carried out, the personnel needed more time. We cannot exclude the possibility considering the study design, that the lesser involvement of the personnel could be related to just with the extra work to one' duties, which is also mentioned as one of the factors in the literature, which could be the reason for the patients' and personnel's involvement (Rendell, Merritt, & Geddes, 2007).

According to the literature, there is also treatment heterogeneity which might affect the results since the population-specific instrument has to be made (Boyer et al., 2009) (Macdonald, Sibbald, & Hoare, 1988) (Eytan, Bovet, Gex-Fabry, Alberque, & Ferrero, 2004), but other studies do not confirm the superiority of a specific instrument over the universal instrument (Peytremann-Bridevaux et al., 2006). One more explanation for it why subacute ward patients, in general, rated the care higher was that patients in this ward were hospitalized voluntarily, while patients in ward 17, which is also an acute ward for first-admitted patients, they were hospitalized against their will by Treatment Law

article 68, which explains the lesser satisfaction among those patients who were imposed some limitations l̇dzekli (Barker, Shergill, Higginson, & Orrell, 1996a) (Sørgaard, 2007) (Smith et al., 2014) (Strauss et al., 2013) (Iversen, Høyer, & Sexton, 2007) (Katsakou et al., 2010) (Middelboe et al., 2001), or they were hospitalized against their will in an acute state stāvokli (Vermeulen, Schirmbeck, van Tricht, de Haan, & Genetic Risk and Outcome of Psychosis (GROUP) investigators, 2018).

Acute ward most commonly had patients with schizophrenia spectrum disorders, with the diagnosis “acute polymorphous psychotic disorders”, which most often calls for a hospitalization against one’s will, and the psychotic condition itself in the literature is associated with lower satisfaction (Bø et al., 2016b).

We have to note that in the acute ward, more often than in the subacute ward were found neurotic and stress-related disorder diagnoses patients, who get into the acute ward as a result of not being able to adapt to everyday stress, or due to a psychotraumatizing situation, are often associated with aggression or auto aggression, calling for a hospitalization against their will till the situation is cleared and their psychoemotional condition improves.

It is worth noting that in subacute wards patients have an access to psychologist and psychotherapist consultations, which in the literature is associated with high patient satisfaction with the received treatment (Stamboglīs & Jacobs, 2020). It is important to mention the role of the environment in the ward and interaction of patients and the personnel, which in the study on the assessment of the forensic expertise ward by patients had been estimated as a significant factor in the assessment of treatment quality (Bressington, Stewart, Beer, & MacInnes, 2011).

Analyzing the questionnaire issues and patient satisfaction scores in them, several questions were identified which showed lower satisfaction. Most

of all the patients underestimated the relative involvement in the care. The pilot study and the validation study of a Patient with mental illness of a hospital care satisfaction questionnaire (Bjertnaes et al., 2015) also pointed to a similar finding, stressing the necessity to go into the issue more in-depth.

Results of the doctoral study are explained either by non-involvement of the relatives, since no such possibility is given, for example, there are no relatives or it is impossible to reach them in regions, or patients themselves prohibit to share the information with the relatives not to complicate their relationship, or the relatives either do not want to involve due to stigmatization or relationship problems. According to the literature data, lower satisfaction among patients just on the issue of the relative involvement in the treatment process and as to received information on treatment had been noticed even earlier (Lovell, 1995) (Ruggeri et al., 2003) (Howard et al., 2003) (Haahr, Simonsen, Rossberg, et al., 2012).

Patients' expectations in the literature are associated with the outcomes (Noble, Douglas, & Newman, 2001), which, in their turn, have been found to correlate with satisfaction (Holloway & Carson, 1999), therefore it is important to inform patients on the hospitalization process. Family support is considered to be one of the factors which influence patient compliance during the treatment and the regimen administered by the doctor (Cameron, 1996), therefore this finding allows us to define one of the directions which can likely be affected and improved, thus promoting patients to continue to take medication, and in case of need, are seeking medical specialist advice.

Patients' ratings were lower also in the issues on the chances to affect the treatment regimen and information accessibility on the treatment and health status, the data which are similar to other studies (Howard et al., 2003) (Barbato et al., 2014) (Leavey, King, Cole, Hoar, & Johnson-Sabine, 1997) (Ratner, Zendjidjian, Mendyk, Timinsky, & Ritsner, 2018). This is an important finding

since information accessibility is part of the doctor-patient relationship, which play an important role in satisfaction and outcomes (Zawisza, Galas, & Tobiasz-Adamczyk, 2020) (Fleury, Grenier, & Farand, 2019) (Jiang et al., 2019). Polloc and co-authors in their study with the focus groups found out that, despite the fact, that patients themselves and their relatives highly appreciated the necessity for the information, the personnel attitude to the fact is cautious, being connected with negative effects of patients psychoemotional condition (Pollock, Grime, Baker, & Mantala, 2004). Lesser patients' information on medicines and their adverse effects as described in the literature can be associated with weaker compliance in the treatment process, which is an essential problem in psychiatry, where, for example, patients with depression in 40% of cases stop during 12 months stop taking medicines. (World Health Organization, 2003). Sever studies emphasize the necessity to render sufficiently comprehensive information to the patients on their treatment process, choice of medications and their use, as well as to educate patients just about the disease (Barker et al., 1996a) (Awara & Fasey, 2008) (De Las Cuevas, De Leon, Peñate, & Betancourt, 2017).

Längle et al in his study found out that patients, in general, were less satisfied with the medicamentous therapy (Längle et al., 2003), therefore it is important to investigate the patients' point of view, since their views on the disease outcomes may differ from those of the doctor, which may cause also problems to create and maintain the therapeutic relationship (Bridges et al., 2013).

Patient involvement in decision taking as to the choice of a therapeutic method also indirectly affects the treatment outcomes (Roth & Crane-Ross, 2002), and also the doctor behaviour in the treatment practice concerning the perception of the patients' opinion is estimated as particularly important from the patients' point of view (Groenewegen, Kerssens, Sixma, Van Eijk, &

Boerma, 2005). A more favourable staff is that who is more involved in the treatment process and communication with the patient, this factor positively influences patient satisfaction (Ware, Davies-Avery, & Stewart, 1978).

Summarizing results on higher or lower satisfaction concerning patients' socio-demographic characteristics, the picture of a more satisfied patient would be as follows: an elderly patient, a woman with a higher, secondary professional or secondary education, salaried worker, a person with a disability or a pensioner, relationship history (married, divorced, widowers/widows).

Age in several studies showed the direct correlation with the satisfaction of care, thus, with the increase of age, there increase the scale points in self-assessment questionnaire (Awara & Fasey, 2008) (Barker et al., 1996b) (Rosenheck et al., 1997) (Stamboglis & Jacobs, 2020), but patients of younger age underestimated the treatment experience, that is similar to the studies in China (Xie et al., 2019). Such a finding could be explained by the fact, that people of an older age would have lower expectations from the treatment (Duggins & Shaw, 2006) (Zawisza et al., 2020), a greater experience in the health care system, greater access to information, as well as, a more attentive attitude from the staff due to the patients' age and comorbidities (Xie et al., 2019).

Age as a factor, which is related to higher satisfaction with treatment has been widely studied, therefore the literature points to the studies where the relationship with satisfaction has not been found (Ratner et al., 2018) (Woodward, Berry, & Bucci, 2017). In the doctor study, the indicator of age was not divided, however, by investigating the satisfaction in a relationship with socio-demographic factors further on, one should take into account also the fact, that in other studies there was found a relationship between satisfaction and a certain age, it is, with the age by 65 years, satisfaction is growing, while with the further age increase, it decreases again (Jaipaul & Rosenthal, 2003). However

other factors could affect the drop of self-assessment points at the age over 80 years, for example, other comorbidities, general physical health status.

Women in the study showed a higher rating as to the received treatment, which is contrary to several studies published (Awara & Fasey, 2008) (Ratner et al., 2018) (Rahmqvist, 2001) (Stamboglis & Jacobs, 2020) (Hoff, Rosenheck, Meterko, & Wilson, 1999) (Allan, Schattner, Stocks, & Ramsay, 2009) (Greenwood, Key, Burns, Bristow, & Sedgwick, 1999). And still, referring to Woodward et al. systematical study, the data as to the differences in satisfaction in both genders appear also to be contradictory, since 9 from 15 included studies did not show a statistically significant association between gender and satisfaction (Woodward et al., 2017), also other studies do not confirm the lack of differences (Gebhardt, Wolak, & Huber, 2013) (Hasler et al., 2004). It is important also to analyze the differences between indicators of gender more in detail in the defined health care aspects, since in respect to the effect of gender on satisfaction, Hulka et al, 1975 announced, that women showed greater satisfaction just on the treatment process, technical quality of treatment and the personnel attitude (Hulka, Kupper, Daly, Cassel, & Schoen, 1975) (Ware et al., 1978). Differences between women and men satisfactions as seen in the literature might likely be explained by socio-demographic differences in different countries, as well as by what needs are for a specific gender, the necessity for the information and specific expectations of genders, for example, men are grown up in the way which foresees their lesser turning for help and mostly relying on themselves (Elliott et al., 2012).

In respect to the education indicator in the doctoral study, it was found that patients with higher, secondary professional and secondary education had a higher satisfaction for the treatment, which is contrary to results of several studies, which have found out, that education level and education length did not

have any effect on satisfaction indicators (Woodward et al., 2017), (Ratner et al., 2018).

Other studies pointed that higher education might be associated with higher demands and thus also with lower ratings, if these demands were not satisfied (Woodward et al., 2017),(Ratner et al., 2018). The differences in the education indicator both in respondent and non-respondent groups therefore can be explained not only by the reason that representatives of secondary professional refused from the participation because of not being satisfied but it can partially be refuted because among the respondents in our study the patients with higher and secondary education rated the treatment higher.

Family status is often included in studies on satisfaction, however, in the systematic overview done by Woodward et al., it seemed likely less significant in respect to the relationship of treatment satisfaction in self-assessment (Woodward et al., 2017), although in two studies there appeared a positive association and health care was rated by those who were divorced, which is contrary to a different study, where researchers found out, that the married people were more satisfied with the treatment (Hoff et al., 1999).

Higher satisfaction in the domain just on cleanliness and comfort was found among patients who were divorced or had resided together, contrary to the data of studies mentioned before (Quintana et al., 2006). In another study no relationship had been found konstatēta (Köhler, Unger, Hoffmann, Steinacher, & Fydrich, 2015). Family status in two of the four studies, analyzed in the work by Ware et al. showed, that no association was existing (Ware et al., 1978). In our study, more satisfaction was shown by the patients who were married, then there followed by those who had lost a partner, or was divorced, in comparison to those patients, who had never been married. Differences in this indicator in different studies in the world could be explained by the study design and also by the fact that family status was specified in the study (Woodward et al., 2017).

However, the literature data makes it also clear why the family status was not found as an important factor that would affect satisfaction and thus also the involvement in the study.

Employment indicator in the literature the status of pensioner and the unemployed were related to lower self-assessment ratings in the satisfaction instrument (Ruggeri et al., 2003). According to the data acquired in the doctoral work, the patients with the unemployed person's status, and pupils/students, in general, had rated health care lower, and that partially corresponds to the literature findings. This factor can be explained by a condition, that satisfaction is associated with social life, financial situation (Blenkiron & Hammill, 2003). But among the respondents most commonly there were also the unemployed, and this allows us to refute the possible selection error in the current factor, which has occurred as a result of differences between respondents and non-respondents, because the unemployed underestimated satisfaction factor, though at the same time their involvement was higher, as seen from the study data of the doctoral work. The fact that pupils/students showed lesser satisfaction with health care is understandable by their lack of experience, traumatic incident, a completely new environment, and their expectations as to the treatment.

In the literature, the emphasis is put on the fact, that not only socio-demographic indicators can affect satisfaction, but the psychic condition as well, but it does not mean that results are not credible, but when interpreting the results concerning the diagnosis, several factors have to be taken into account (Chen et al., 2019). No differences were found in the literature as to satisfaction of patients with or without symptoms of depression (Gebhardt et al., 2013). Schizophrenia spectrum patients showed a lower satisfaction with their own or their relative's involvement in the treatment and medicamentous treatment if receiving typical antipsychotic preparations (Chue, 2006), the patients with schizophrenia spectrum disorders also showed lesser satisfaction indicators in

the communication factors with the medical personnel (Jiang et al., 2019). This means, that when analyzing results, one has to take into account different treatment aspects. In other studies, there was a difference found in self-assessment of patients with schizophrenia without hospitalization against their will in anamnesis just in the evaluation of the medical personnel' professional skills, which was by them rated higher (Henderson et al., 1999). A more severe psychopathological condition in the literature is related to lower satisfaction indicators (Ruggeri et al., 2003) which can partially be due to total dissatisfaction with life, but as described in the study by Atkinson et al., the patients with effective spectrum disorders showed lower results in the life quality assessment, in comparison to the patients with schizophrenia spectrum disorders (Atkinson, Ph, Zibin, Sc, & Chuang, 1997). Such study data make us think, that it cannot to a full extent depict satisfaction indicators, because higher life quality indicators in schizophrenia spectrum disorder patients can be explained with the rise of negative symptoms, including disorders of willpower (lesser demands to live). In a similar study by Blenkiron et al. the patients with psychosis, bipolar depression and unipolar depression were found to estimate the treatment higher (Blenkiron & Hammill, 2003). The following data are explained by researchers saying, that the psychiatric health care system is aimed at the treatment of chronic psychiatric diseases, therefore the organization in this field should be of high quality (Blenkiron & Hammill, 2003). In the study by Bø et al, however, the reduction of symptoms was seen not to affect satisfaction indicators directly, but it was affected by the patients' critical attitude to their psychic health, which turned out to be the highest decisive factor of satisfaction (Bø et al., 2016a).

The data are similar to the facts described in another study (Barker et al., 1996), as well as the patients' own evaluation of their health condition was associated with satisfaction (Nguyen Thi, Briançon, Empereur, & Guillemin, 2002). There is no agreement in the literature as to the effect of psychic

condition, the cognitive deficit in self-assessment in respect to treatment or quality of life because in the studies one can find the information, saying, that the cognitive ability of patients with psychosis can have a very little effect on the interpretation of results (Reininghaus, McCabe, Burns, Croudace, & Priebe, 2012), but there are also researchers who have investigated, that patients' cognitive functions could model the patient' subjective experience and psychosocial functioning (Brekke, Kohrt, & Green, 2001), and also more pronounced psychopathologic symptoms in the first psychosis patients were associated with quality of life assessment, rather than with neuropathologic deficit symptoms (Wegener et al., 2005). Other studies noted, that limitation associated with the effect of psychic condition on the evaluation can be refuted (Reininghaus & Priebe, 2012). While in some studies it is stressed, that patients with chronically proceeding psychic disorders were tended to estimate the received treatment and care lower (Reininghaus & Priebe, 2012), while in another study just the patients with personality disorders estimated the care lower, and, schizophrenia and affective spectrum patients' evaluation, in its turn, was not associated with lower satisfaction (Holcomb, Parker, Leong, Thiele, & Higdon, 1998). Nevertheless, patients with chronic and psychiatric disorders in the study of Bidaut-Russel et al. showed higher satisfaction with the treatment process (Bidaut-Russell et al., 2002). In our study patients with schizophrenia spectrum disorders and patients with neurotic and stress-related disorders rated the care lower, which coincides with the studies carried out in India (Holikatti et al., 2012) and Sweden (Kelstrup, Lund, Lauritsen, & Bech, 1993), while the higher evaluation of treatment was evaluated by patients with organic psychic disorders and affective spectrum disorders. We did not do a more detailed analysis on the distribution of the specific diagnoses, therefore one cannot check which diagnoses exactly determine lower self-assessment in each of diagnostic spectrum groups, which should be done in future studies, because Hasler et al.

found out that just the somatoform disorders from the neurotic spectrum undermine self-assessment of treatment, but adaptation disorders of the same neurotic disorders spectrum raised satisfaction (Hasler et al., 2004).

Differences in satisfaction in the diagnoses groups can be explained by patients point of views on whether they are having a psychiatric diagnosis, or not, what Barker et al. found out in the study with patients from different diagnoses groups, where, for example, patients with non-affective psychoses were less critical to illness, which was statistically significantly associated with lower satisfaction (Barker et al., 1996a). In the classification SSK-10, both of the groups mentioned are in neurotic and stress-related disorder group (World Health Organisation, 1993), thus, particular conclusions on individual diagnoses cannot be drawn without a more detailed study. Yet, this finding in the study allows partly to refute the selection error with differences in diagnoses in the respondent and non-respondent groups, where more of the nonrespondents were patients with organic and neurotic spectrum disorders. Thus, if patients with organic spectrum disorders were more represented among nonrespondents, but the treatment was rated higher by patients of this diagnosis of the respondent group, then the reason has to be searched for among other factors, not in the selection error, and it potentially points to one more theme for future in-depth studies of this issue. When analyzing co-diagnosis factor, the treatment was seen to be evaluated statistically significantly higher by patients with somatic diagnosis, which is contrary to that described in the literature, where patients whose rating of their health was from “bad” to “good”, underestimated the treatment, in comparison to those, who defined their health as “very good” (Bleich, Ozaltin, & Murray, 2009).

Among disease-characterizing factors, the higher self-assessment was statistically significant in patients, who had received treatment previously in hospital. It turned out to be contrary to the literature data, where previous

hospitalizations were associated with lower satisfaction indicators (Ruggeri et al., 2003). Our finding can be explained by a certain quantity of information on the treatment received before hospitalization and its organization, as a result, the patients could evaluate the treatment higher because of having an experience. The current duration of hospitalization did not prove to be statistically significant inpatient groups with lower and higher ratings, which is similar to findings of the study by Gebhart et al. (Gebhardt et al., 2013), but in the study in Germany on the assessment of nurses care and patient evaluation, it was found that a longer duration of hospital treatment increased the patients positive rating of treatment conformity to their individual needs (Köberich et al., 2016). All in all, the length of treatment by the study data is positively correlating with the patients self assessed for the received treatment (Vermeulen et al., 2018). Speaking about the interpretation of results, the patients' expectations could be then like one of the explanatory factors for the difference between the first admitted patients and chronic, repeatedly hospitalized patients (Williams & Wilkinson, 1995), and also for the difference both in self-assessment of treatment, and satisfaction indicators of quality of life (Singuru, Kavi, & Radharani, 2017).

3.3 Relationship of patients' satisfaction with treatment and indirect compliance indicators

The relationship between the patients' indicated scores in self-assessment and a future withdrawal of medicines proved to be statistically significant. The findings in the doctoral study are similar to results described in other studies, respectively, patient satisfaction is associated with compliance indicators, for example, the continuation of medicine use (Zendjidjian et al., 2014), and those satisfied with the relations with the medical staff positively correlated with patients' attitude to medicamentous therapy (Day et al., 2005). Continuation of therapy is especially important for younger age patients with first psychosis, in

whom the length of untreated psychosis and the doctor-patient relationship correlated with compliance for medicamentous therapy (Dassa et al., 2010). Thus, the patients' group is highlighted in the study which would need to pay more attention to the relationship aspect. It is also important to say that in the literature a higher satisfaction is associated with a higher score in the assessment of the quality of life, which, in its turn, affects compliance for treatment and behaviour in seeking assistance (Zendjidjian et al., 2014) (Ware & Davis, 1983). Interruption of medicine use remains still a topical problem in psychiatry and the studies, it is related to different factors, such as therapeutic relationship, perception of disease (Dassa et al., 2010) (Boyer et al., 2012) (Charpentier, Goudemand, & Thomas, 2009). Lower compliance is associated with higher exacerbation risks, rehospitalization, worsening of the course of disease (Leucht & Heres, 2006) (Bogner et al., 2017), therefore, by improving the quality of treatment, it is possible to contribute to compliance improvement, which is one of the most difficult tasks in the treatment of psychiatric patients.

An interesting finding was found in the doctoral study between a higher satisfaction for the received treatment and further out-patient visit rate, which in the doctoral study turned out to be negative. It means that those who underestimated the treatment had more frequent outpatient visits at the psychiatrists. This is explained by differences in the patient' psychic health status, which in the literature deals with a more negative assessment of the treatment, but with complaints continuing, patients could more frequently seek assistance. If we analyze the diagnoses, then patients with schizophrenia, who underestimated the treatment, were also among those who in future used to have more out-patient visits. We can add, that medicamentous therapy for patients with schizophrenia diagnosis is reimbursed, and they need to have regular visits to a doctor, which, perhaps, could have been associated with more frequent out-patient visits, rather than self-assessment scores. This explanation is justified

also by the fact, that patients with neurotic and stress-related disorders statistically significantly underestimated the treatment, but as to the frequency of outpatient visits, they were among the least active, comparing to other diagnoses patients.

3.4 Relationship of socio-demographic factors with satisfaction questionnaire scales

Age was found to be a positive relationship with two of the questionnaire scales, namely, interaction with the patient and the ward structure. The studies describe the differences in satisfaction for a specific treatment component, for example, more elderly patients demonstrated lesser satisfaction just in respect to the treatment accessibility and outcomes (Ware et al., 1978). In the doctoral study, there was not found a statistically significant correlation between age and outcome satisfaction. Higher assessment of elderly patients just in the interaction scale may be due to patients' expectations, experience in the medical institution and the contact with the medical staff. Patients with basic and secondary education from three instrument scales had higher rated the interaction with the patient, despite those patients with basic education in our study, in general, underestimated the treatment, but patients with secondary education in our study rated it higher. This finding is similar to Quintana et al. study, where the lower education level was associated with a higher rating in the satisfaction instrument (Quintana et al., 2006). In respect to patients' education indicator and its possible effect on satisfaction, the literature presents contradictory data, for example, Chang et al. study show, that education, proportionally in diagnoses groups, seems to have a poor relationship with satisfaction of treatment (Cheng, Yang, & Chiang, 2003), while, interaction with the personnel is considered to have the most important role in studies on the satisfaction of the treatment (Al-Abri & Al-Balushi, 2014),, which, in general, could be the explanation of patients' attention

toward this indicator (Tokunaga, Imanaka, & Nobutomo, 2000), which was already previously explained in the doctoral study in the chapter on the importance of information and therapeutic relationship at work with psychiatric patients.

Unemployed patients, in comparison to the employed ones, rated the outcomes statistically significantly lower, which can be partially explained by patients total dissatisfaction with their quality of life and economical condition, as well as patient expectations (Linder-Pelz, 1982) as to the outcomes after treatment, which in the literature is stressed as being a significant factor when assessing satisfaction (Carmel, 1985). Those in civil marriage rated the scale of the interactions in total, in comparison to the married ones. In the literature, one can not find the reason, since civil marriage in European and other worlds studies is not defined as a separate category and is included in either “married” or “in relationships”. It should be mentioned that no uniform opinion on the importance of socio-demographic factors in prognosis satisfaction exists, at the same time, some studies do not find any correlation (Tokunaga et al., 2000), and this makes us interpret the study findings more attentively as to the importance of these factors in patient self-assessment, thus also partially explaining, that the difference in respondent and nonrespondent groups may not point to obligatory selection error. However, it is worth exploring the relationship of socio-demographic factors with treatment more, which would allow identifying groups, whose education should be paid greater attention for improvement of the treatment process.

3.5 Relationship of socio-demographic factors and disease-characterizing factors with indirect compliance indicators and satisfaction in questionnaire scales

The older age patients' need for medicine use later treatment is a statistically significant fact and can be associated with their experience in health care, as well as somatic comorbidities, therefore the habit to turn to a specialist for them is the usual practice. Women in these studies used to the more frequent need for assistance in the out-patient department of a hospital, which can be explained by several reasons, including the public-accepted habit of seeking help. In the doctoral study, the women rated treatment higher, though there was no statistical difference, thus we cannot conclude the relationship of gender and higher ratings and, consequently, on the influence of indirect compliance indicators.

Findings that patients with disability are more frequently hospitalized, make out-patient visits and withdraw medicines in the pharmacy shops, can be due to state-reimbursed medicines for certain diagnoses causing disability, thus calling for patients regular out-patient visits to the doctor. The severity of the disease and its chronic course with exacerbations might explain patients more frequent visits to the doctor. Interestingly, ratings of health care by patients with disability were statistically significantly positive, in comparison to the unemployed patients. The fact that schizophrenia spectrum and affective spectrum disorder patients were more frequently repeatedly hospitalized during the year also justifies the above-mentioned explanation, while, neurotic and stress-related disorder, for example, adaptation disorders, maybe like situation reaction, which later did not become chronic, therefore their treatment calls for less frequent out-patient visits, more used is psychotherapy if it is accessible. Thus, the structure of the very treatment process, depending on a specific disorder could be associated with results in respect to further turning to a

psychiatrist in the out-patient department. One can similarly explain also the following, that patients with these diagnoses more frequently used to withdraw medicines from the pharmacy after discharge. However, the fact that there is a correlation with satisfaction in interaction and structure scales and further taking of medicines, which is statistically significant, points to the significance of this correlation, as well as the need to carry out investigations in future to identify other factors too, which in this diagnoses groups would affect satisfaction and compliance.

In our study we also found, that along with the increase of satisfaction with interaction and outcomes, there was a decrease in the number of further out-patient visits just in patients with affective spectrum disorders. The reason, why patients with affective spectrum disorders had a negative correlation with further out-patient visits by self-assessment indicators in interaction and outcomes factors could be explained, that patients could go for out-patient visits to psychiatrists in regions they had attended earlier before hospitalization, and whose visits are not registered in the Consultative Department database of Riga Psychiatry and Narcology Centre. Higher satisfaction with these factors can also be because of lesser complaints, and patients lesser turned to out-patient visits, receiving medical prescriptions from the family doctor, as well as hoping that such health condition would never recur, as a result, seeing no need for regular consultations with a psychiatrist.

Not less important is the finding, that all these three scales showed a positive correlation with further use of medicine. Our study data are similar to those described in the literature, for example, structure and institution scale in the literature is described to have the association with satisfaction (Young, Meterko, & Desai, 2000), which if being higher can affect compliance by indirect compliance indicators, for example, medicine withdrawal rate in the pharmacy. Also the fact, that interaction with patient and structure and institution scales

have a certain association with indirect compliance indicators, allows us to conclude, that one should develop therapeutic relationship development skills for the medical staff, and to improve their interaction process with patients, also an important thing according to study data is the arrangement of the department in the treatment process and the environment. Satisfaction, however, may bring different consequences in patients behaviour, because the less satisfied can turn to a doctor more frequently to have their expectations met, or to be in a constant treatment process, calling for a situation in which patients are seeking help without any acute need (Ware & Davis, 1983), like, for example, patients in subacute wards are tended to development of hospitals because of lesser regimen restrictions. Not less important is just the contact with the patient which might play a more significant role, since doctors who were observed to have a more sensitive approach in contact with a patient, reduced the possibilities to cancel further visits unplanned (DiMatteo, Hays, & Prince, 1986). Among patients with schizophrenia spectrum diagnoses and affective spectrum diagnoses a positive correlation was seen between satisfaction in interaction and structure scales, and further withdrawal of medicines in the pharmacy, because patients with chronic disorders had already adapted at a certain disease level and the need for regular medicine use. But patients with neurotic and stress-related disorders had lesser out-patient visits, which partially can be explained by lower compliance indicators of a hypochondriac and homomorphous cases (Keeley, Smith, & Miller, 2000), and another explanation for this finding might be, that among these patients there can be those with adaptation disorders as a result of stressful occasions, and for whom psychopharmacological medication is not necessary (Semple & Smyth, 2013).

3.6 Limitations

The doctoral study was carried out only in a hospital in Latvia. However, it was done in the capital of Latvia where a certain number of patients are from Riga and its vicinity, that is why we are aware of the limitations of attributing the results of the study to the whole territory of Latvia. The selection of respondents differs from non-respondent selection by socio-demographic data.

Such

self-assessment tools, however, can be applied to a wide population, including a variety of different diagnoses (Boyer et al., 2009). The data on satisfaction and patient characteristics of those who did not participate point to the fact, that we can partially refute the argument that the drop-outs of the study were those who had already previously underestimated hospital health care. Refusal to participate in the doctoral study can be related to the following reasons: patients were discharged very fast, namely, one or two days after hospitalization, patients were not used to filling questionnaires, patients were not critical enough on the presence of the disease, therefore they were not accounting themselves to the patient group, and we are also aware, that it was impossible to completely eradicate the personnel involvement factor, which initially influences the situation of how fast the instruments were offered to patients for completion, but it could depict the hardships in the process implementation, which in future studies should be eradicated (Allan et al., 2009).

Patient satisfaction questionnaires show the tendency to answer too positively to please doctors or to avoid trouble, but we in our study tried to reduce such disturbances in the research process, because PIPEQ-OS was offered for completion being alone, and patients left questionnaires in a specially closed box, which was checked by a researcher once a month. Our study is of a cross-sectional design, therefore we could get only an idea on the existence of

relationship positive and negative correlation, but we could not conclude as to which factor affected which.

Psychiatric Inpatient Patient Experience Questionnaire On-Site was adapted within the pilot study, but not validated, as well as there is a missing “gold standard” against which this tool can be validated in the Latvian population since there is no consensus in the literature as to satisfaction study inpatient population with mental disorders. In the study, there were defined indirect compliance indicators, which might not depict the whole compliance process.

Patient expectations were not measured, which, by several works of literature, sources could potentially affect satisfaction with treatment, but it pointed to the further study direction and the necessity for qualitative research.

Conclusions

In the doctoral study, patient satisfaction was explored. Satisfaction related factors were studied and patients' satisfaction correlations to indirect compliance components like subsequent outpatient visits and withdrawal of medicines after discharge from the hospital were identified. They can be used to improve the treatment process and more effectively involve the medical staff to raise patient compliance in the treatment, which could affect the treatment outcomes and adaptation of patients with psychic disorders.

The study hypothesis was partially confirmed. We found differences in satisfaction rates among different diagnostic groups, as well as we found patients' self-rated satisfaction correlations to socio-demographic factors and indirect compliance factors. No correlation to further hospitalization rates the next 12 months after discharge was found. More detailed conclusions are listed below :

1. The satisfaction of received treatment was higher in patients with affective spectrum diagnoses.
2. Lower satisfaction with received hospital treatment was observed in patients with schizophrenia spectrum diagnoses and patients with neurotic and stress-related disorders spectrum diagnoses.
3. The number of subsequent hospitalizations over 12 months did not show a statistically significant correlation with the satisfaction of received hospital treatment.
4. In patients with affective spectrum disorders and in patients with schizophrenia spectrum disorders who much higher rated the received hospital treatment in structure and facilities scale and interaction with patient scale, a positive correlation was found to be related to the

subsequent frequency of withdrawal of medicines after discharge within 12 months.

5. The higher satisfaction of patients for treatment was statistically significantly associated with the negative correlation with the number of outpatient visits over a further 12 months.
6. The higher satisfaction for the received treatment was statistically significant with an incidence of withdrawals of medicines over a further 12 months.
7. Psychiatric Inpatient Patient Experience Questionnaire On-Site (PIPEQ-OS) is appropriate for use in patients with psychiatric disorders in acute and subacute inpatients mental health care facilities.

In the doctoral study socio-demographic factors associated with lower and higher patient satisfaction of the received treatment. Because of the lowest satisfaction in younger patients, attention should be paid to contact directly with these patients, as their compliance is also affected in this way and it is possible to involve these patients in the treatment more effectively by reducing adjustment problems and disability, as well as suicidal risk, which is associated with lower compliance in the literature, especially among younger people.

Patients with neurotic and stress-related spectrum diagnoses were both less involved in evaluating the treatment received and with lower satisfaction for received treatment. Thus, as a part of the doctoral study, a group of patients was identified, whose treatment evaluation and factors associated with it should be further investigated. It can also be concluded that this group should be paid more attention in providing information on their condition, possible ways of receiving assistance and on further tactics in the case of sustaining therapy, as this group of diagnoses was also associated with a lower number of outpatient visits after discharge. The education of these patients, the therapeutic relationship building mechanism should contribute to the work of the health care sector.

The lower self-assessment of patients on the involvement of relatives in the treatment process and on the appropriate provision of information indicates the need for improvement during inpatient treatment. In turn, a finding of lower satisfaction with the information received indicates the activation or adaptation measures specifically for patient needs.

The patients' assessment of insufficient preparation for the period after discharge requires an intensification of patient support measures and to take into account the continuity principle. According to study results in patient satisfaction we can conclude that a psychologist' and occupational therapist' work becomes very topical, as well as the issue of time-distribution with a patient in the ward during inpatient treatment, and a certain time should be devoted to the talk with a patient before the discharge. Access to community-based care for patients at the national level should be in line with the deinstitutionalization policy of the Ministry of Health. It is important to mention that the assessment of patients for certain aspects of treatment allows for a lower involvement of the staff due to the high workload, which points to the need for further research in this area, as well as to increase the number of medical personnel and the need for burnout prevention so that the staff and doctors could contribute to the good of patients.

Taking into account the different results of the literature sources, patient' self-assessment factors should be further investigated, including longitudinal studies, all psychoneurological hospitals in Latvia should be involved to be able to generalize the data, as well as to study self-assessment of patient treatment in outpatient consultative units. Patients' self-assessment of treatment is associated with indirect compliance indicators.

Practical recommendations

1. It is necessary to develop specific psychoeducational programmes directly for hospital units. The results of the study implied a lack of information on the disease, treatment options, psychopharmacological treatment. More time should be devoted to talking to patients about rehabilitation at an individual level (the patient's attitude to illness) and social level (antistigma, improving social inclusion).
2. In the world, cognitive behavioural therapy interventions(CBT) are widely used, aimed at improving the compliance of patients with mental diseases(Gray, Wykes, & Gournay, 2002), therefore one of the practical recommendations would be to make CBT sessions available to patients during inpatient treatment to improve patient's understanding of the disease and the need for treatment, treatment methods, including the use of medicines, as well as improving the level of compliance. Interventions based on affective, behavioural and psychoeducational elements by the literature data improve the efficacy of medication use (Dolder, Lacro, Leckband, & Jeste, 2003).
3. Resources should be invested in improving the availability of outpatient departments and doctors, in general, to promote continuity of treatment as a long-term therapeutic relationship with one psychiatrist in the literature are associated with higher levels of treatment among patients with chronic psychiatric conditions (Priebe, Richardson, Cooney, Adedeji, & McCabe, 2011). It would be recommended to contribute to the development of state-funded outpatient centres, which would also include improving the availability of psychological support and psychotherapy for patients.
4. Patient satisfaction with the treatment received in different mental health care institutions in the field of qualitative studies should be further investigated.

Qualitative studies have shown the importance of evaluating patients' treatment when factors can be identified which cannot be identified by quantitative research methods. Outpatient studies on factors affecting patient satisfaction and compliance should be carried out.

5. It would be recommended to develop programmes for medical staff education in qualitative interaction strategies with patients.
6. It would be recommended to develop educational seminars or courses for the medical staff on psychiatric disorders, their prevalence and methods of contact-making in their daily work with patients with mental disorders.
7. Psychological support groups for the prevention of burnout, crisis intervention programmes, communication capacity improvement programmes for the staff working with patients with psychiatric diseases (Zhang, Song, Jiang, Ding, & Shi, 2020). The fact that the staff interactions with the patient affect compliance indicators, as indicated by both the literature data and indirect compliance indicators in the doctoral study, the more active introduction of the personnel in the prevention of burnout syndrome in hospitals is indicated, as psychologically burned-out staff (depressed, restless, tense, insensitive) could lower satisfaction among patients (Ware et al., 1978), (Vahey, Aike, Sloane, Clarke, & Vargas, 2004). Therefore we would offer to develop, for example, a staff support event plan, educational materials or self-help training.
8. To raise patient awareness to improve the level of compliance in the light of the results of the study, it is advisable to develop and implement in the ward handouts with more relevant information on diseases and available treatment methods. More psychoeducation conversations about the involvement of relatives in treatment could be integrated into the treatment process, as well as the need to educate the relatives themselves. Of course, this is also done, but as the results of the study show, patients are less satisfied with this, so

that intervention programmes or methods could be developed to involve patients relatives more in the treatment process. There is also a need to create information material for patients, as well as to intensify psychoeducation of patients by doctors and the medical staff.

9. Inpatient care satisfaction questionnaire for patients with psychiatric conditions can be used to measure satisfaction in mental health care patients in other inpatient wards in the Latvian psychiatric hospitals.

Publications

Scientific publications in international database editions

1. Berzina, N., Petrošina, E., Taube, M. 2020. The assessment of factors associated with patient satisfaction in the evaluation of mental health care centre. *Nordic Journal of Psychiatry*. 75(2), 79–86. DOI: 10.1080/08039488.2020.1795715 (SJR 0.93, SNIP 0.98)
2. Berzina-Novikova, N., Taube, M. 2019. Evaluation of the Patients' Satisfaction with Psychiatric Health Care Services with an Adapted PIPEQ-OS Tool. *Proceedings of the Latvian Academy of Sciences. Section B. Natural, Exact, and Applied Sciences*. 73(4), 348–355. DOI:10.2478/prolas-2019-0054 (SJR 0.12, SNIP 0.211)
3. Taube, M., Berzina-Novikova, N. 2018. Improving the quality of psychiatric care in Latvia by measuring patient experiences. *Health Policy*. 122:7, 765-768. DOI:10.1016/j.healthpol.2018.03.011.

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1. Berzina-Novikova, N., Taube, M. Patient satisfaction questionnaire adaptation process – Experience from Latvia. *European Psychiatry 48S*, 2018: lpp. S585. Abstract Book.

Presentations at international scientific conferences

1. Berzina-Novikova, N., Taube, M. 2017. Mental health and quality of care. 19th Conference of Bridging Eastern and Western Psychiatry. Depressive Disorders: an update, Riga, Latvia.
2. Berzina-Novikova, N., Taube, M. 2018. Successful help for patients in psychiatric health care services – what does patients' experience reveal? DGPPN Psychiatry and Psychotherapy Congress in Germany, Berlin.

Presentations at local scientific conferences

1. Berzina-Novikova, N., Taube, M. 2019. Psychiatric health care evaluation from patients' perspective – what do we know? RSU Konference “Knowledge for use in Practice”, Riga, Latvia.
2. Berzina-Novikova, N., Taube, M. 2019. Psychotic patients' opinion does matter. Conference of Latvian Medical Association.

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