

A 45-year follow-up study of adolescent schizophrenia. Part IV: Clinical status and level of social adaptation 5 years after the first hospitalization in the context of illness course and long-term social functioning of patients

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Summary

Aim. Research on predictors of adolescent schizophrenia, especially those based on long-term follow-up studies, is rare in the literature. In our analysis, we examine the relationship of the clinical status and level of social adaptation 5 years after the first hospitalization with clinical and social indicators of the illness course.

Method. 69 patients at the average age of 16 years (time point 0), hospitalized due to schizophrenia (retrospectively re-diagnosed according to ICD-10 criteria) and re-examined 5 years later (time point 1 – personal examination of 41 individuals), were re-evaluated for clinical and social parameters 45 years after their initial hospitalization (time point 2 – personal examination of 21 individuals). In addition to the personal survey, other methods of data collection were used, including hospital queries.

Results. The clinical picture of schizophrenia 5 years after the first hospitalization described by the severity of psychopathology, as well as other parameters of the clinical status (e.g., insight, clinical improvement, relational abilities, GAF), revealed numerous and various correlations both with the symptomatic picture and clinical course of schizophrenia 45 years after the first hospitalization as well as with distant social functioning of the subjects. In the analyses, high prognostic significance was also revealed by the level of psychotic relapse, the presence of auto-aggressive tendencies, and the quality of school and professional adaptation assessed at time point 1.

Conclusions. The level of functioning achieved by the patient in clinical and social areas during the first 5 years after their initial hospitalization proved to be an important prognostic factor in adolescent schizophrenia.

Key words: schizophrenia, adolescence, prognosis

Introduction

Notes outlining the general theoretical context of the research project are included in the introduction to Part I of the cycle [1]. Part IV of our follow-up study deals with the predictive value of the clinical picture and the level of social adaptation assessed 5 years after the first psychiatric hospitalization caused by an episode of schizophrenia. Schizophrenia, as we understand it nowadays, most often turns out to be a chronic illness that fits into very diverse, individually changing patterns of course. However, it is quite commonly accepted that the first couple of years of the development of the disorder are crucial for its later course and distant prognosis [2]. During this period, the dynamics of this development seems to be the highest, sometimes resulting in early deterioration difficult to fully reverse at a later time point [3].

Although many such findings are based on adult patient studies, they are also confirmed by follow-up studies encompassing the EOS (early onset schizophrenia) population [4–6]. The choice of the five-year follow-up period made by the first authors of our project [7], inspired to some extent by the standards found in oncology (where after 5 years without a relapse of the tumor, the patient can be cautiously called cured), proved to be accurate after years. In the light of these data, the mental state and level of school and professional adaptation after 5 years from the first hospitalization seem to be of great value as potential predictive factors for the further course of EOS. Surprisingly, we did not manage to find any analyses in the literature attempting to investigate the existence of such relationships in a similar way. Although it is known that previous educational achievements [8, 9] and professional experience [9–11] correlate favorably with the subsequent professional functioning of patients, firstly, the quoted studies refer to schizophrenia as a whole and not specifically to adolescent schizophrenia or EOS, and secondly, they are not of follow-up nature.

Material and method

The general methodology of the research project and the scenario of the study at individual points of the assessment are described in the chapter devoted to the methodology contained in Part I of our cycle [1]. Here, we only point out that the starting group examined at time point 0 consisted of 69 people who were first hospitalized psychiatrically due to adolescent schizophrenia. 41 persons from this group were personally examined 5 years later (time point 1) and 21 persons another 40 years later (time point 2). At each of the time points, a similar examination pattern was attempted. In addition, lots of data were obtained through mailed questionnaires and analysis of medical records.

The psychopathology of schizophrenia recorded at individual time points of the study was divided into the following categories: “autism”, “apathy and abulia”, “symptoms of splitting”, “formal thought disorders”, “catatonia symptoms”, “hebephrenic symptoms”, “delusions”, and “hallucinations”. The severity of each symptom was assessed by personal examination using a four-point order scale. The sum of the whole schizophrenic psychopathology (“sum of schizophrenia symptoms”) was also calculated

by adding together the severity of all eight groups of symptoms. "Cognitive deficits" were assessed using the same four-point scale. "Cognitive deficits" here mean the impairment of cognitive functions such as thinking, memory, and judgement, understood as secondary to the development of the schizophrenic process. In the evaluation of this variable at time point 2, attempts have been made to take into account the impact of possible other somatic and, in particular, neurological conditions on the cognitive functions of the subjects, while retaining the possibility of waiving the evaluation in doubtful cases. The number of hospitalizations and the total number of days spent in hospital ("days in hospital in total") were assessed on quantitative scales, taking into account only inpatient hospitalizations in general psychiatric wards. The other order variables included were classified on a three-point ("regression"), five-point ("relational abilities", "education", "professional life") or six-point ("insight", "clinical improvement") scale, with the following values at the top of the scales, respectively: deep regression, ability to establish mature bonds, higher education, very good professional life, full insight, and full remission.

The scale system was taken from the TSAF and FAF forms constructed in Turku (see Part I of our cycle), and adapted by our predecessors examining the patients at time point 0 and 1, in order to maintain methodological continuity of the study. Regression was understood as a return to previous developmental patterns of mental functioning, particularly in the area of defense mechanisms and relations with the object, entailing confusion and helplessness. Insight was understood as the awareness of mental illness. The following variables assessed at time point 1, which described the presence of certain psychopathological tendencies between time points 0 and 1, were dichotomized: "tendencies for mood disorders", "self-destructive tendencies", "tendencies to abuse psychoactive substances" – with the presence of such tendencies presenting the top of the scales. The presence of "symptoms", "aggravation", and "psychotic relapses" between time points 0 and 1 was classified as an eight-point order variable – with the absence of such states at the bottom of the scale, and with the persistence of psychotic symptoms in high severity and only slight fluctuations at the top of the scale. In between these extremes, there is a gradually increasing number of recurrences.

Variables evaluating the level of school and occupational adaptation during the first 5 years after hospitalization were included in the following categories: "school performance", "secondary school selection", "school delay", "profession", "career history", "work type", "job satisfaction", "material independence". They were dichotomized with the following values at the top of the scales, respectively: no learning difficulties, independent choice of school, no school delays, having a profession, permanent work with no difficulties, work at the level of one's abilities and in accordance with their education, satisfactory work, and the fact of earning money oneself. Also, the following variables were dichotomized: "moving out of the F20 category", "psychotherapy during follow-up", "marriage", "death before time point 2", "death before the age of 50" – with the following values at the top of the scales: change of the diagnosis from schizophrenia to another psychopathological syndrome between time points 1 and 2, psychotherapy between time points 0 and 1, getting married, death before time point 2, and death before the age of 50.

The GAF (Global Assessment of Functioning) is a hundred-point order scale combining the assessment of the severity of psychopathology and the level of social functioning. The conditions of this study were considered to allow for an assessment with an accuracy corresponding to the five-point range. The “number of children” was regarded as a quantitative variable. It is worth noting that most of the parameters relating to the premorbid period and time points 0 and 1 were evaluated at these two time points, in direct contact with patients and their parents. The only exceptions were: “age of onset”, “number of hospitalizations”, “total days at hospital” and “GAF”, which were assessed retrospectively on the basis of clinical descriptions prepared by the first researchers and data obtained in hospital queries.

Statistical methods

Due to the multitude of dependent variables and potential predictors that we decided to take into account, we stopped the analyses at the level of bilateral correlations without moving to the level of regression analysis, which would have required a significant pre-selection of data. We considered non-parametric tests (Spearman’s coefficient) to be more adequate than parametric tests because of the lack of clarity about the normal distribution of the examined traits, a large amount of data outliers from the average, and also because of the large amount of dichotomous and sequential data, thus not typically quantitative data. The statistical significance level was assumed to be $p < 0.05$, however, due to interesting trends emerging from the analyses at a weaker significance level (< 0.1) we decided to also present them, bearing in mind the weak statistical basis of such conclusions. For analyses, we made use of statistical software IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp., Released 2012.

Limitations of the work

We recognize very serious methodological limitations of our work. 50 years have passed since the period when the first data were collected. During this time, the entire psychiatry has changed significantly, including the understanding of schizophrenia. The decisions of the first researchers concerning the diagnosis of the patients, the division of the symptoms of schizophrenia into categories, how to account for categories such as regression, insight, or relational abilities (to remain with selected examples only) were certainly anchored in the (not only psychiatric) culture and knowledge of those times. The mere re-diagnosis of psychopathological syndromes according to ICD-10 criteria (although, thanks to the reliability and inquisitiveness of the first researchers’ descriptions, it seems relatively reliable) certainly does not eliminate these differences entirely. The construction of the scales, which have been preserved for methodological continuity, is not devoid of a certain arbitrariness.

Undoubtedly, the weakness of the work is the fact that, except in particularly doubtful cases, the results of the examination of individual persons were not discussed, and the researchers individually and independently made decisions about scores in

particular categories. The work is also limited by the fact that the number of people surveyed personally is clearly decreasing over time: at time point 0 there were 69 people, at time point 1 – 41, and at time point 2 – only 21. It should be noted that only 12 people (9 women and 3 men) were examined personally at each of the points of the study. The fact that a lot of data (concerning the course of treatment, education, work, personal life, survival) could be obtained from other sources can only be a partial compensation, burdened by its own limitations. Examples include the analysis of love life, taking into account only the dimension of marriage, or the analysis of the number of children, not taking into account the impact of pharmacotherapy on this aspect of life.

From the statistical point of view, the work stops at a rather superficial level of analysis, which has already been discussed and justified in the previous subsection. Another undoubted weakness is the lack of a control group. When discussing the limitations of the work, it is worth noting that the analyzed material was developed by researchers to whom psychodynamic theories of schizophrenia etiopathogenesis are particularly close. From our point of view, the psychodynamic paradigm is a very useful model in which – without any claim to superficial and often apparent integration – psychoanalytical, neurobiological, and medical perspectives can meet [12, 13].

Results

The first area of analysis is the correlation between the clinical picture of the illness assessed 5 years after the first hospitalization and its picture recorded 40 years later, i.e., 45 years after the first hospitalization. This is illustrated in Table 1.

Table 1. **Clinical picture of the illness at time point 1 and at time point 2**

	Autism 1	Apathy, abulia 1	Symptoms of splitting 1	Formal thought disorders 1	Catatonia symptoms 1	Hebephrenic symptoms 1	Delusions 1	Hallucinations 1	Sum of schizophrenia symptoms 1
Autism 2	0.57+	0.41	0.61*	0.49	0.28	-	0.04	0.28	0.67*
Apathy, abulia 2	0.46	0.32	0.55+	0.14	0.37	-	0.27	0.37	0.56+
Symptoms of splitting 2	0.28	0.27	0.13	0.47	0.41	-	-0.26	-0.14	0.33
Formal thought disorders 2	0.47	0.49	0.22	0.57+	0.46	-	-0.15	0.05	0.51+
Catatonia symptoms 2	0.42	0.35	0.29	-0.03	0.60*	-	-0.25	-0.13	0.38
Hebephrenic symptoms 2	0.34	0.42	0.16	0.36	0.37	-	-0.40	-0.33	0.34
Delusions 2	0.05	-0.08	0.29	0.03	-0.13	-	0.17	-0.13	0.05

table continued on the next page

Hallucinations 2	0.14	0.09	0.32	0.25	-0.09	-	-0.17	-0.09	0.18
Sum of schizophrenia symptoms 2	0.47	0.44	0.42	0.38	0.48	-	-0.16	-0.04	0.54+

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$

Catatonia, autism and formal thought disorders turn out to be the symptoms that maintain the highest continuity in the picture of the illness between time point 1 and time point 2. All symptomatic categories at time point 1 for which correlations have been calculated, except delusions and hallucinations, show some positive predictive potential for psychopathology at time point 2. Delusions and hallucinations at time point 1 generally reduce the probability of late psychopathology except in the area of autism and especially apathy and abulia. The sum of symptoms at time point 1 is a predictor of the severity of late symptoms, especially autism.

Table 2 describes the relationships between different forms of psychopathology at time point 1 and certain indicators of the later course of illness and treatment.

Table 2. Clinical picture of the illness at time point 1 and several indicators of the later course of the illness and its treatment

	Autism 1	Apathy, abulia 1	Symptoms of splitting 1	Formal thought disorders 1	Catatonia symptoms 1	Hebephrenic symptoms 1	Delusions 1	Hallucinations 1	Sum of schizophrenia symptoms 1
Cognitive deficits 2	0.45	0.28	0.36	0.44	0.41	-	-0.16	-0.14	0.49
Number of hospitalizations 2	-0.22	-0.13	-0.09	0.03	0.15	0.18	-0.05	-0.07	-0.11
Days in hospital in total 2	-0.15	-0.03	-0.06	0.13	0.15	0.22	0.01	-0.06	-0.03
Insight 2	-0.66*	-0.29	-0.54+	-0.42	-0.24	-	-0.15	-0.24	-0.58*
Regression 2	0.52+	0.39	0.54+	0.55+	0.29	-	-0.07	0.29	0.60*
Relational abilities 2	-0.55+	-0.28	-0.65*	-0.38	-0.25	-	-0.24	-0.25	-0.50*
Moving out of category F20	-0.08	-0.21	-0.14	-0.43*	-0.09	-0.15	0.00	-0.12	-0.23

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$

The most negative influence on the level of insight and relational abilities is shown by autism and splitting symptoms. Both of these independent variables and formal thought disorders predict to a similar extent a deeper level of regression at time point 2. Also, the cumulative severity of schizophrenia symptoms at time point 1 reveals unfavorable correlations with late regression, insight and relational abilities. Similar

distant correlations of catatonia, hallucinations and delusions seem to be weaker, especially for delusions. The translation of the values of all the variables into the number and length of psychiatric hospitalizations during 40 years of illness proved to be weak. The only symptom of time point 1 whose presence in a statistically significant way reduces the probability of the patient's recovery from the diagnosis of schizophrenia are formal thought disorders.

Table 3 illustrates the relationship between the clinical picture at time point 1 and several indicators of later social functioning.

Table 3. Clinical picture of the illness at time point 1 and several indicators of the later social functioning

	Autism 1	Apathy, abulia 1	Symptoms of splitting 1	Formal thought disorders 1	Catatonia symptoms 1	Hebephrenic symptoms 1	Delusions 1	Hallucinations 1	Sum of schizophrenia symptoms 1
GAF 2	-0.68**	-0.55*	-0.65*	-0.58*	-0.28	-0.41	-0.23	-0.07	-0.73***
Professional life 2	-0.51***	-0.52***	-0.52***	-0.40*	-0.18	-0.01	-0.33+	-0.18	-0.55***
Marriage 2	-0.54***	-0.44**	-0.41*	-0.34*	0.21	-0.05	-0.32+	-0.21	-0.50***
Number of children 2	-0.54***	-0.41*	-0.38*	-0.43*	0.26	-0.04	-0.37*	-0.17	-0.50**
Death before time point 2	0.12	0.12	0.19	0.11	-0.10	0.03	0.19	0.22	0.19
Death before age of 50	0.01	0.15	0.07	0.09	-0.08	0.10	0.11	0.32*	0.11

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$

Four groups of symptoms of time point 1 have the most adverse effect on the overall level of psychosocial functioning at time point 2 (GAF): autism, splitting symptoms, formal thought disorders, and apathy and abulia. The influence of the psychopathology at time point 1 on professional life is similar. The most negative predictor for marriage is autism, followed by apathy and abulia, splitting symptoms, formal thought disorders, and delusions. The severity of psychopathology at time point 1 is rather poorly correlated with the survival of the patients, with the exception of hallucinations, which statistically significantly correlate with the early death. The sum of schizophrenia symptoms at time point 1 turns out to be a significant and definitely unfavorable prognostic factor both in terms of personal life, work, and the cross-sectional dimension represented by the GAF scale.

The tale below shows the influence of other indicators that describe the mental state of the person examined at time point 1 on the parameters describing the later course of the illness (Table 4).

Table 4. Mental state at time point 1 and later course of the illness

	Clinical improvement 1	Insight 1	Relational abilities 1	Psychotherapy in follow up 1	GAF 1	Dementia symptoms 1
Cognitive deficits 2	-0.29	-0.75***	-0.29	-0.29	-0.36	0.41
Number of hospitalizations 2	0.08	0.11	0.17	-0.03	-0.08	0.09
Days in hospital in total 2	0.03	0.01	0.11	-0.04	-0.14	0.17
Insight 2	0.64*	0.47	0.34	0.12	0.30	-0.53+
Regression 2	-0.32	-0.79***	-0.30	-0.22	-0.26	0.29
Relational abilities 2	0.59*	0.63*	0.40	0.22	0.18	-0.25
Moving out of category F20	0.24	0.10	0.05	-0.16	0.11	-0.21

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$

In the case of the severity of late cognitive deficits, the most important is their negative correlation with the level of insight at time point 1. Other parameters of time point 1 reveal much weaker correlations in this aspect. A good clinical improvement at time point 1 correlates positively with the level of insight and relational abilities at time point 2. A good insight at time point 1 translates markedly into a lower level of late regression and higher relational abilities at time point 2. Other predictive factors are less important but it may be stated that cognitive deficits and relational abilities at time point 1 have turned out to be slightly more important than GAF 1, especially the fact of using psychotherapeutic assistance in the first five years of the follow-up.

How do the examined selected parameters of time point 1 correlate with later social functioning? This is illustrated in Table 5.

Table 5. Mental state at time point 1 and indicators of the later social functioning

	Clinical improvement 1	Insight 1	Relational abilities 1	Psychotherapy in follow-up 1	GAF 1	Cognitive deficits 1
GAF 2	0.50+	0.55*	0.37	0.26	0.64***	-0.61*
Professional life 2	0.51***	0.41*	0.40*	0.25	0.58***	-0.20

table continued on the next page

Marriage 2	0.39*	0.28	0.45**	-0.13	0.37*	-0.31+
Number of children	0.32+	0.38*	0.55***	-0.18	0.33+	-0.15
Death before time point 2	-0.08	-0.31*	-0.14	-0.02	-0.23	-0.08
Death before age of 50	-0.03	-0.14	-0.06	0.20	-0.07	0.00

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$

The most significant prognostic factors are the GAF score, the level of insight, relational abilities, and the quality of clinical improvement noted at time point 1. The GAF score, level of insight and quality of clinical improvement are the most significant indicators of future professional life, and correlations of relational abilities are most significant for marriage and the number of children. Cognitive deficits at time point 1 correlate negatively with GAF 2 and the possibility of getting married. The positive correlation between life expectancy and the quality of insight at time point 1 is noticeable. The use of psychotherapy in the first follow-up period, again, proves to be a minor factor.

An important element of the assessment of the mental condition covering 5 years after the first hospitalization, a rather cross-sectional than scoring assessment, may also be the analysis of the occurrence of tendencies for other types of psychopathology, apart from schizophrenia, and the analysis of the level of persistence and recurrence of psychotic symptoms. The influence of these factors on distant functioning is illustrated in Table 6.

Table 6. Presence of certain psychopathological tendencies and level of psychotic relapse in the context of the later course of the illness and social functioning of the subjects

	Tendencies for mood disorders 1	Self-destructive tendencies 1	Tendencies for abuse of psychoactive substances 1	Symptoms, aggravations and psychotic relapses 1
Cognitive deficits 2	-0.13	-	-0.09	0.49
Number of hospitalizations 2	-0.14	-0.05	-0.03	-0.02
Days in hospital in total 2	-0.16	-0.04	-0.14	0.00
Insight 2	-0.22	-	0.29	-0.54+
Regression 2	-0.22	-	-0.24	0.56+
Relational abilities 2	0.11	-	0.40	-0.59*
Moving out of category F20	0.38*	-0.15	0.18	-0.08
GAF 2	0.07	-	0.24	-0.67**

table continued on the next page

Professional life 2	0.23	0.28	0.27	-0.40*
Marriage 2	0.15	0.07	0.27	-0.27
Number of children	0.13	0.27	0.20	-0.56***
Death before time point 2	-0.21	0.33*	0.14	0.18
Death before age of 50	-0.16	0.46***	-0.06	0.07

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$

Tendencies for mood disorders manifested by patients during 5 years after their first hospitalization reveal favorable correlations except for late insight. They often announce a later change of the diagnosis, probably towards affective disorders. Auto-aggressive tendencies are very clearly correlated with earlier death of patients. However, they also show positive correlations with the level of professional functioning and the number of children. Patients with tendencies to abuse psychoactive substances seem to have a more favorable prognosis in all aspects except that they die slightly earlier. However, those correlations do not reach the level of statistical significance and the aforementioned trends towards a more favorable prognosis are most evident in the areas of relational abilities, insight, quality of professional life, and the possibility of developing a marital relationship, and in the result of the GAF scale. In the case of distant consequences of psychotic relapse and persistence of symptoms during the first 5 years, this situation is different. It is a very strong and very unfavorable predictor. It announces a whole range of negative consequences, with some correlations revealing very high significance. This applies in particular to the overall GAF 2 score and the number of children and, to a lesser extent, the ability to contact, professional functioning, insight, and regression.

Let us now move on to the analysis of the links between the level of social adaptation achieved at time point 1 and the distant functioning of the respondents. The first considered area is the correlation between the values of parameters evaluating the level of school and professional adaptation of the examined persons at the stage of the five-year follow-up and certain indicators of the later course of the illness and its treatment. Such correlations are illustrated in Table 7.

Table 7. Level of school and professional adaptation of the subjects at the stage of the first follow-up and several indicators of the later course of the illness

	School performance	Secondary school selection	School delay	Profession	Career history	Work type	Job satisfaction	Material independence
Cognitive deficits 2	-0.35	-0.40	-0.20	-0.13	-0.17	-0.40	-0.36	-0.16
Number of hospitalizations 2	-0.21	-0.20	0.01	-0.23	-0.48***	-0.22	-0.15	0.05

table continued on the next page

Days in hospital in total 2	-0.30+	-0.30+	-0.04	-0.21	-0.47***	-0.23	-0.29+	0.05
Regression 2	-0.47	-0.43	-0.31	-0.22	0.04	-0.43	-0.32	-0.34
Insight 2	0.22	0.06	0.22	0.38	0.43	0.68*	0.49	0.50
Relational abilities 2	0.35	0.18	0.35	0.47	0.11	0.55+	0.36	0.44
Moving out of category F20	0.18	0.38*	0.13	0.09	0.30+	0.19	-0.05	0.05

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$

School functioning has not turned out to be a significant predictive factor. The lack of learning problems, the independence of school selection and the lack of school delays correlate negatively with cognitive deficits, the number and length of hospitalizations and the level of regression, and positively with the level of insight and relational abilities. The picture of these correlations is cohesive and consistent with expectations, but their strength does not reach statistical significance. A positive and significant correlation is noted between the independent choice of a secondary school and the later moving out of the diagnostic criteria of schizophrenia. Acquiring a profession and continuous, satisfactory work at the level of one's abilities and education turned out to be more important predictive factors than favorable school adaptation. These factors correlate positively with late insight, relational abilities and the perspective of moving out of the diagnostic scope of schizophrenia, and negatively with cognitive deficits, the number and length of hospitalizations and the level of regression. Significant correlations are found between the career history and the number and length of hospitalizations. Work in accordance with one's capabilities and education appears to be an important predictor of completer insight into the illness when entering seniority. The possibility of earning money oneself five years after the first hospitalization seems to be a slightly weaker predictor, although its links with late regression, insight and contact abilities also reveal some protective significance.

Table 8 illustrates the relations between the values of indicators describing the level of school and professional adaptation of the respondents at the stage of the first follow-up and some indicators of their later social functioning.

Table 8. Level of school and professional adaptation of the subjects at the stage of the first follow-up and several indicators of the later social functioning

	School performance	Secondary school selection	School delay	Profession	Career history	Work type	Job satisfaction	Material independence
GAF 2	0.55*	0.54*	0.57*	0.40	0.39+	0.71***	0.54	0.51
Amount/quality of work 2	0.44*	0.31	0.24	0.34+	0.34+	0.39*	0.71***	0.47*

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Marital status 2	0.02	-0.13	0.02	-0.07	0.08	-0.02	0.33+	0.19
Number of children 2	0.15	-0.09	-0.15	-0.11	0.16	-0.05	0.15	0.22
Death before time point 2	-0.21	-0.32*	-0.15	-0.14	-0.21	-0.04	-0.15	-0.12
Death before age of 50	-0.11	-0.24	-0.22	-0.06	-0.11	0.14	0.05	0.08

Spearman's correlation coefficient

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$

Both school and professional functioning correlate positively with distant GAF scores, with this correlation being most significant for working in accordance with own abilities and education level. Similarly, both types of social functioning at time point 1 correlate markedly positively with the overall balance concerning professional life, achieved at time point 2. The most important factor predicting successful professional life is obtaining satisfaction from work at the stage of the first follow-up. The correlations of most of the analyzed parameters with the possibility of getting married and life expectancy are clearly weaker. Regarding survival, a significant positive correlation between the independent choice of a secondary school and the possibility of reaching the age implying entering seniority is noticeable. The same tendency, although weaker, applies to all discussed parameters describing school and professional adaptation.

Discussion

Our data show that the severity of psychopathology at time point 1 correlates positively with the severity of psychopathology at time point 2, and also shows an unfavorable correlation with the clinical course of the illness, especially in the areas of insight, regression and relational abilities. However, particularly striking are the unfavorable correlations of the severity of symptoms at time point 1 with late social functioning, both professional and personal, as well as with GAF 2 scores. It can be said that the strongest correlations are revealed by the parameter of the collective severity of the psychopathology at time point 1, as well as the severity of classic Bleuler's symptoms (autism, apathy/abulia, splitting symptoms, formal thought disorders). The analyses contained in Parts I and II of our study give rise to the conclusion that the subjects with such a classic Bleuler's image of the illness often displayed features such as social withdrawal, secrecy, sadness, and low life drive in their premorbid development [1], and the onset of schizophrenia often had a hidden, time-dependent character [14]. It should be borne in mind that such a clinical outcome is only one among many forms of the course of schizophrenia that can be observed and traced by examining the fate of patients meeting the criteria for diagnosing F20 according to the ICD-10 system at the beginning of their medical history. After all, the diagnosis of schizophrenia means only the fulfillment of certain, predetermined (and currently quite broad and vague) requirements and criteria, and should, therefore, be a starting point rather than the endpoint of the diagnostic process for the clinician.

Returning to the analysis of the correlation of the severity of psychopathology at time point 1, some protective significance in the strictly clinical dimension can be attributed to delusions and hallucinations. In the strictly clinical dimension, some protective value can be attributed to delusions and hallucinations at time point 1. In the social dimension, on the other hand, the protective value of catatonic symptoms at time point 1, which even show positive correlations with personal life parameters, is worth noting. Interestingly, similar correlations were also revealed by catatonia at time point 0, which can be read in Part III of our study [15]. Catatonic symptoms, despite their superficial similarity to autism, have different internal dynamics. Catatonic patients do not necessarily abandon the relationship with the object, as they transfer it to their own body [16]. This probably makes it easier for them to reproduce it in the social area. However, the psychopathology at time point 1 reveals much more negative correlations with the future fate of patients than the initial psychopathology examined in Part III of our study. Classic Bleuler's symptoms based on autistic withdrawal and splitting confirm their destructive potential, and correlations of productive symptoms suggest the presence of a sanitation component in their structure [12].

Referring again to the results described in Part III of our study [11] concerning the predictive potential of the initial psychopathology (time point 0 of the psychopathology), it can be said that the formal thought disorders observed at time point 1 lose the protective potential that their counterparts from time point 0 showed. Thus, in the initial period of the illness, the presence of splitting symptoms and formal thought disorders (in the case of the latter with a slightly longer perspective than in the case of the former) may indicate the struggle of the ego to reconstruct the relationship with the object, which may be based on mature defensive mechanisms, and can, therefore, translate into a certain improvement in prognosis. However, the same symptoms, when observed 5 years after the illness onset, lose their protective potential and are rather a component of a stable schizophrenia syndrome. Some pro-healthy significance can still be attributed to catatonia (as mentioned earlier) and hebephrenia, although much less can be said about the latter due to missing data resulting from the small size of the studied group. It is interesting, however, that the strict productive symptoms, i.e., delusions and hallucinations, at time point 1 seem to show more clinically beneficial correlations than their counterparts at time point 0. Perhaps it is this type of symptomatic expression that is the main carrier of pro-healthy tendencies within the ego at further stages of the illness. This would remain in line with clinical experience, as type I schizophrenia, which is mainly related to productive symptoms, according to Crow [17] is generally believed to be easier to manage and has a better prognosis.

A very important predictor of a favorable clinical course of schizophrenia is the level of clinical improvement at time point 1, and even more importantly, the level of insight presented at this stage. With regard to the social dimension, the importance of these factors is even more pronounced and they are accompanied by relational abilities, GAF 1 scores and the lack of cognitive deficits at the stage of the first follow-up. The pro-libidinal significance of insight is revealed in a way literally in the negative correlation of this parameter with the probability of death before reaching seniority.

The particular protective value of insight is understandable given that insight into the illness indicates the opportunity to influence it, in particular by working with a therapist.

The presence of self-destructive tendencies during the first years of the illness deserves to be treated very seriously because it increases the possibility of early death, often presumed to be suicidal. On the other hand, it is worth noting that late correlations of auto-aggressive tendencies with respect to professional and personal life have (in the absence of statistical significance) a rather favorable direction. The situation is similar for the tendency to abuse psychoactive substances. The aggressive relationship manifested in this way within the schizophrenic syndrome is, in its essence, much more dynamic than autistic immersion into the world of inner objects. It involves the external environment, family, physicians, and therapists to a much greater extent, revealing the patient's relational abilities and the related health-promoting potential. Obviously, the condition for its use is to avoid suicide during the crises that arise in the course of treatment.

The negative prognostic value of high levels of recurrence in the early period of schizophrenia again proves undisputable [4]. Good school and occupational adaptation at time point 1 reveals beneficial correlations with the further course of schizophrenia, both in clinical (primarily in terms of the frequency of hospital treatment) and social (primarily occupational) dimensions, with a particularly important role of having a permanent job that corresponds to the capabilities and education of the patient. It can be said that the results of our analyses confirm the words of Angst [18], who – also referring to the pioneering work of Manfred Bleuler – stressed that the best predictor of the course and prognosis of schizophrenia is its course to date. The validity of this view is proved by the great power with which psychosocial functioning at time point 1 (measured by the GAF scale) predicts its equivalent at time point 2. The particular importance of early, energetic treatment seems obvious in this light, and more recent analyses [19] show that such treatment, tailored to the specific needs of younger patients [20], can indeed improve the prognosis in EOS.

Conclusions

1. The increase in the severity of psychopathology 5 years after the first hospitalization, and especially the severity of classic Bleuler's symptoms, has a significant, unfavorable prognostic value in EOS in the clinical area and even more so in the social area.
2. Insight and the level of clinical improvement 5 years after the first hospitalization are very important predictors of the clinical course of schizophrenia. In relation to the social dimension, the importance of these factors is even greater and they are accompanied by other important predictors such as the ability to establish relationships and the overall level of psychosocial functioning measured by the GAF scale.
3. A high level of psychotic relapse within 5 years after the first hospital treatment is an important predictor of the social and clinical dimensions of schizophrenia.

4. Good school and especially professional adaptation 5 years after the first hospitalization is an important factor predicting a favorable clinical and social course of schizophrenia.

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