# A 45-year follow-up study of juvenile schizophrenia. Part III: Clinical picture and effect of the first hospitalization in the context of disease course and long-term social functioning of patients

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**Summary**

**Aim.** Research on predictors of adolescent schizophrenia, especially that based on long-term follow-up, is rare in the literature. In our analysis, we examine the relationship of the clinical picture and effect of the first hospitalization with clinical and social indicators of the disease.

**Method.** A total of 69 patients at an 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).

**Results.** The clinical picture of the first episode of schizophrenia in terms of autism, apathy and abulia symptoms, splitting symptoms, formal thought disorders, catatonic symptoms, hebephrenic symptoms, delusions, hallucinations, and total severity of the schizophrenic psychopathology as a whole, as well as the effect of the first hospitalization (measured by the level of improvement, insight, and relational abilities), revealed numerous and various correlations with both the symptomatic picture and clinical course of schizophrenia and distant social functioning of the subjects. Variables of the greatest prognostic value were: initial autism and the level of clinical improvement, insight, and the ability to establish relationships, as measured at the end of the first hospitalization.

**Conclusions.** Negative symptoms during the first episode of schizophrenia and the quality of improvement in the areas of symptoms, insight, and the ability to establish relationships, achieved during the first hospital stay, turned out to be significant prognostic factors in juvenile 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 III of our follow-up study deals with the predictive value of the clinical picture of the first decompensation and the effects of the first hospital treatment. The psychopathological picture of the first episode of schizophrenia is not very often considered as a prognostic factor in EOS, especially in studies with a long follow-up period. It can be said that it is the negative symptoms that are considered to be the component of the initial picture of the disease which adversely affects the course of the disease and future social functioning of the subjects, and at the same time, is characterized by considerable stability over time. Such a picture emerges both from studies on schizophrenia as a whole [2, 3] and from those specifically on EOS (Early Onset Schizophrenia) [4–6].

Current studies regularly refer to the dichotomous division of schizophrenia into positive and negative components which has derived from Crow [7], with the predictive value of the initial positive symptomatology being much more ambiguous [8–10]. However, the approach to the psychopathology of schizophrenia that we refer to in this paper is much broader than the dichotomous proposal. It refers to Bleuler's concept, which is the source for the construction of the term 'schizophrenia', and to Kahlbaum's concept of catatonia and Hecker's concept of hebephrenia, which are deeply rooted in the tradition of psychiatric thinking. In our view, this, in addition to the exceptionally long follow-up period, is an important value of this study. Based on the analysis of Polish and international literature, it can be said that good clinical improvement [11, 12], high level of insight [13, 14], and the ability to create mature relationships [15, 16] measured at the end of the first hospitalization seem to be important predictors of the beneficial course of the disease both in clinical and social terms. However, these factors (especially the level of insight and relational abilities) are relatively rarely studied and defined in very different ways, therefore, we considered it worthwhile to analyze them again.

## 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). In 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", "hebe-

phrenic 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 in-patient hospitalizations in general psychiatric wards. The other order variables included were classified on a three-point ("regression"), five-point ("relational abilities", "education", "working 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, 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 loss and helplessness. Insight was understood as the awareness of mental illness. The following variables were dichotomized: "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, respectively: 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, not typically quantitative. 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 [17, 18].

## Results

The first area of analysis is the correlation between the clinical picture of the disease assessed during the first hospitalization and the picture recorded 5 years later and 45 years later. This area is illustrated in Table 1 and Table 2.

Table 1. **Clinical picture of the disease at time point 0 and at time point 1**

| | Autism 0 | Apathy, abulia 0 | Symptoms of splitting 0 | Formal thought disorders 0 | Catatonia symptoms 0 | Hebephrenic symptoms 0 | Delusions 0 | Hallucinations 0 | Sum of schizophrenia symptoms 0 |
|---|---|---|---|---|---|---|---|---|---|
| Autism 1 | 0.52*** | 0.37* | -0.21 | -0.33* | -0.17 | -0.09 | -0.09 | -0.13 | -0.14 |
| Apathy, abulia 1 | 0.42** | 0.24 | -0.30 | -0.19 | 0.14 | 0.00 | -0.35* | -0.15 | -0.06 |
| Symptoms of splitting 1 | 0.28+ | 0.13 | -0.05 | -0.16 | -0.06 | 0.18 | 0.09 | 0.07 | 0.05 |
| Formal thought disorders 1 | 0.22 | 0.05 | -0.05 | -0.15 | 0.16 | 0.16 | -0.01 | -0.14 | -0.01 |
| Catatonia symptoms 1 | 0.16 | 0.24 | -0.05 | 0.01 | 0.01 | -0.11 | -0.21 | -0.13 | -0.04 |
| Hebephrenic symptoms 1 | 0.11 | -0.02 | 0.32* | 0.12 | 0.17 | 0.23 | 0.08 | 0.20 | 0.22 |
| Delusions 1 | 0.23 | 0.13 | -0.06 | -0.11 | -0.14 | 0.08 | 0.11 | -0.01 | -0.04 |
| Hallucinations 1 | 0.11 | 0.15 | -0.10 | -0.13 | 0.15 | 0.17 | -0.11 | 0.08 | 0.09 |
| Sum of schizophrenia symptoms 1 | 0.44*** | 0.24 | -0.18 | -0.25 | -0.01 | 0.06 | -0.12 | -0.08 | -0.06 |

Spearman's correlation coefficient

+ = p < 0.1

* = p < 0.05

** = p < 0.01

*** = p < 0.005

The most important predictor of psychopathology in point 1 is autism. It correlates positively with each type of symptoms and is distinctively statistically significant for autism and apathy-abulia symptoms. Its correlation with the general severity of schizophrenic psychopathology at time point 1 is also clearly significant. Correlations of apathy and abulia are slightly weaker and more varied, but they also prove to be important in relation to autism 1. Splitting symptoms and formal thought disorders rather protect against psychopathology after 5 years. The relationship between formal thought disorders and autism 1 is significant. An exception is hebephrenic symptoms 1, as they have a positive correlation with splitting

symptoms and formal thought disorders at time point 0; in the case of the former, the correlation is significant.

Correlations of catatonic and hebephrenic symptoms seem to be quite chaotic, although hebephrenia itself maintains a slightly greater continuity over time ($p < 0.15$). The negative correlation of baseline delusionality with apathy and abulia symptoms 5 years later is substantial and significant. The correlations of the early sum of symptoms are rather weak and unspecified, although it is worth noting that the initial cumulative severity of symptoms is not a prognostic factor that is unequivocally negative. It predisposes to a higher severity of hebephrenic symptoms at time point 1 ($p < 0.17$).

Below are the links between the psychopathology at time point 0 and time point 2 (Table 2):

Table 2. **Clinical picture of the disease at time point 0 and at time point 2**

|  | Autism 0 | Apathy, abulia 0 | Symptoms of splitting 0 | Formal thought disorders 0 | Catatonia symptoms 0 | Hebephrenic symptoms 0 | Delusions 0 | Hallucinations 0 | Sum of schizophrenia symptoms 0 |
|---|---|---|---|---|---|---|---|---|---|
| Autism 2 | 0.45* | 0.26 | 0.27 | -0.13 | -0.08 | -0.13 | 0.26 | 0.02 | 0.14 |
| Apathy, abulia 2 | 0.49* | 0.18 | 0.35 | 0.03 | 0.09 | 0.08 | 0.27 | 0.14 | 0.35 |
| Symptoms of splitting 2 | 0.25 | 0.27 | 0.06 | 0.04 | -0.09 | -0.22 | 0.41+ | -0.14 | 0.16 |
| Formal thought disorders 2 | 0.37+ | 0.23 | 0.20 | -0.15 | -0.20 | -0.23 | 0.14 | -0.09 | 0.05 |
| Catatonia symptoms 2 | 0.02 | 0.25 | 0.05 | -0.19 | -0.16 | -0.25 | -0.11 | 0.11 | 0.03 |
| Hebephrenic symptoms 2 | 0.26 | 0.17 | 0.22 | -0.14 | -0.21 | -0.25 | 0.28 | -0.14 | 0.00 |
| Delusions 2 | -0.32 | -0.20 | -0.19 | 0.07 | -0.19 | -0.08 | 0.36 | -0.08 | -0.07 |
| Hallucinations 2 | -0.19 | -0.22 | 0.02 | 0.02 | -0.22 | -0.20 | 0.30 | -0.15 | -0.11 |
| Sum of schizophrenia symptoms 2 | 0.31 | 0.23 | 0.19 | -0.01 | -0.09 | -0.17 | 0.37+ | -0.04 | 0.19 |

Spearman's correlation coefficient

+ = p < 0.1

* = p < 0.05

The course of time sustains the image of the static character of the autism-apathy-abulia symptomatic pathway. Autistic symptoms at time point 0 herald with statistical significance the persistence of autism, apathy, and abulia 45 years after the first hospitalization. They also predict the occurrence of formal thought disorders, splitting and hebephrenic symptoms at time point 2. Besides, they predict a higher overall severity of late psychopathology ($p < 0.17$). However, they decrease the probability of late

delusional and hallucinatory symptomatology. Negative correlations of symptoms of hebephrenia, catatonia, formal thought disorders, and hallucinations at time point 0 with late psychopathology are revealed. The negative correlation is distinct (although still without statistical significance, $p < 0.30$) especially in the case of hebephrenia. Initial splitting and delusional symptoms do not reveal such a translation to point 2. They rather seem to be predictors of later psychopathology, which is particularly evident in the case of early delusions. The early sum of symptoms is not a significant predictor of the severity of symptoms at time point 2 except apathy and abulia ($p < 0.12$).

The following tables describe the relationships between different forms of psychopathology at time point 0 and certain indicators of the subsequent course of the disease and treatment. The correlations for time point 1 are shown below:

Table 3. **Clinical picture of the disease at time point 0 and certain indicators of the later course of the disease and its treatment at time point 1**

| | Autism 0 | Apathy, abulia 0 | Symptoms of splitting 0 | Formal thought disorders 0 | Catatonia symptoms 0 | Hebephrenic symptoms 0 | Delusions 0 | Hallucinations 0 | Sum of schizophrenia symptoms 0 |
|---|---|---|---|---|---|---|---|---|---|
| Cognitive deficits 1 | 0.24 | 0.26+ | 0.21 | 0.19 | 0.18 | 0.09 | 0.08 | 0.33* | 0.47*** |
| Number of hospitalizations 1 | -0.06 | -0.02 | 0.29* | 0.14 | -0.19 | 0.20 | 0.32** | 0.35*** | 0.29* |
| Days in hospital in total 1 | 0.07 | 0.04 | 0.21+ | 0.08 | -0.17 | 0.22+ | 0.24* | 0.36*** | 0.31* |
| Insight 1 | -0.24 | -0.40** | 0.35* | 0.39* | 0.16 | 0.11 | 0.19 | 0.14 | 0.23 |
| Regression 1 | 0.40** | 0.17 | 0.04 | -0.12 | 0.10 | 0.00 | -0.08 | -0.18 | -0.01 |
| Clinical improvement 1 | -0.37* | -0.12 | 0.06 | 0.15 | -0.02 | 0.01 | 0.07 | 0.23 | 0.08 |
| Relational abilities 1 | -0.45*** | -0.34* | 0.29+ | 0.44*** | 0.08 | 0.27+ | 0.10 | 0.08 | 0.23 |
| Psychotherapy in follow-up 1 | -0.20 | -0.32* | -0.23 | -0.01 | -0.04 | 0.41** | 0.10 | 0.09 | -0.01 |
| GAF 1 | -0.36* | -0.21 | 0.08 | 0.01 | -0.02 | -0.03 | -0.05 | -0.07 | -0.18 |

Spearman's correlation coefficient
+ = p < 0.1
* = p < 0.05
** = p < 0.01
*** = p < 0.005

All types of initial psychopathology turn out to be positively correlated with the presence of cognitive deficits at time point 1. This applies least to delusions and hebephrenia and most and statistically significant to hallucinations. However, the most significant predictor of cognitive deficits at time point 1 is the general severity of the schizophrenic psychopathology as a whole (sum of symptoms) at time point 1. The only psychopathology that correlates negatively with the number and length of psychiatric hospitalizations during the first 5 years after the first hospital stay is catatonia.

Among the positive correlations, significant are especially those related to initial delusions and hallucinations and to the severity of all symptoms (sum), to a lesser extent to the splitting and hebephrenia pathway. The remarkably strong positive correlation of hallucination severity at time point 0 with the frequency and length of hospital stays within five years after the first hospitalization should be emphasized. Formal thought disorders and splitting symptoms correlate positively with the level of insight at time point 1. Apathy and abulia promise poorer insight after 5 years.

The predictor of deeper regression and weaker clinical improvement at time point 1 is mainly autism. Autism-apathy-abulia symptoms, and especially autism itself, also seem to announce a lower ability to establish relationships. Formal thought disorders reveal opposite correlations. Early splitting symptoms also correlate positively with relational abilities, although weaker. Similar positive correlations can be seen in the case of initial hebephrenia, which also promises the more frequent use of psychotherapy in the early stages of follow-up. In the latter aspect, an inverse correlation is revealed by apathy/abulia. The only significant correlation between early psychopathology and the level of psychosocial functioning as depicted by the GAF scale is the clearly negative correlation of autism.

Correlations at time point 2 are as follows (Table 4):

Table 4. **Clinical picture of the disease at time point 0 and certain indicators of the later course of the disease and its treatment at time point 2**

| | Autism 0 | Apathy, abulia 0 | Symptoms of splitting 0 | Formal thought disorders 0 | Catatonia symptoms 0 | Hebephrenic symptoms 0 | Delusions 0 | Hallucinations 0 | Sum of schizophrenia symptoms 0 |
|---|---|---|---|---|---|---|---|---|---|
| Cognitive deficits 2 | 0.52* | 0.26 | 0.17 | -0.22 | -0.04 | -0.26 | 0.19 | 0.06 | 0.11 |
| Number of hospitalizations 2 | -0.13 | -0.18 | 0.25* | 0.27* | -0.09 | 0.05 | 0.36*** | 0.28* | 0.27* |
| Days in hospital in total 2 | 0.01 | -0.06 | 0.28* | 0.16 | -0.12 | 0.05 | 0.30* | 0.30* | 0.27* |
| Insight 2 | -0.36 | -0.20 | -0.23 | 0.23 | 0.24 | 0.27 | -0.16 | -0.06 | -0.05 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regression 2 | 0.48* | 0.20 | 0.30 | -0.16 | -0.07 | -0.15 | 0.19 | -0.08 | 0.09 |
| Relational abilities 2 | -0.40+ | -0.14 | -0.29 | 0.18 | 0.17 | 0.18 | -0.25 | 0.14 | 0.02 |

Spearman's correlation coefficient

+ = p < 0.1

* = p< 0.05

** = p < 0.01

*** = p < 0.005

A predictor of cognitive deficits at time point 2 is primarily initial autism. The protective role of hebephrenia and formal thought disorders is worth mentioning. The sum of symptoms, which is important in view of the probability of cognitive deficits at time point 1, loses its significance at time point 2. The strongest predictors of more frequent and longer hospitalizations are still delusions and hallucinations, to a lesser extent splitting symptoms and formal thought disorders. The severity of psychopathology as a whole also retains its predictive significance, as it has been demonstrated for time point 1.

At the level of insight, relational abilities, and regression, the protective role of early formal thought disorders is revealed again. These are supported here by hebephrenia and catatonic symptoms. The protective effect of splitting symptoms disappears and their correlations begin to resemble those of early autism. In the case of late regression, insight, and relational abilities, the negative impact of early autism is most striking.

Table 5 illustrates the relationship between the clinical picture at time point 0 and some indicators of later social functioning:

Table 5. **Clinical picture of the disease at time point 0 and certain indicators of the later social and psychosocial functioning**

| | Autism 0 | Apathy, abulia 0 | Symptoms of splitting 0 | Formal thought disorders 0 | Catatonia symptoms 0 | Hebephrenic symptoms 0 | Delusions 0 | Hallucinations 0 | Sum of schizophrenia symptoms 0 |
|---|---|---|---|---|---|---|---|---|---|
| GAF 2 | -0.39+ | -0.34+ | -0.42* | -0.01 | 0.10 | -0.13 | -0.39+ | -0.19 | -0.32 |
| Education 2 | -0.14 | 0.17 | -0.01 | -0.09 | -0.36*** | -0.01 | -0.11 | -0.26* | -0.20 |
| Professional life 2 | -0.23 | -0.38** | -0.20 | 0.07 | 0.17 | 0.00 | -0.06 | 0.11 | -0.07 |
| Marriage 2 | -0.35*** | -0.20 | 0.04 | 0.13 | 0.23+ | 0.13 | -0.05 | -0.05 | 0.04 |
| Number of children 2 | 0.08 | -0.25+ | 0.11 | 0.27+ | 0.28* | 0.07 | 0.18 | 0.19 | 0.28* |

| Death before time point 2 | 0.01 | -0.21+ | 0.14 | -0.15 | -0.10 | 0.00 | 0.37*** | 0.13 | 0.02 |
| Death before age of 50 | -0.06 | -0.20+ | 0.10 | -0.18 | 0.01 | -0.03 | 0.15 | 0.12 | -0.06 |

Spearman's correlation coefficient

+ = $p < 0.1$

* = $p < 0.05$

** = $p < 0.01$

*** = $p < 0.005$

Early splitting symptoms, autism, delusions, apathy and abulia, as well as the overall severity of early psychopathology have the strongest negative effects on the late GAF score. Catatonia and early hallucinations correlate most negatively with the level of education (this is particularly pronounced in the case of catatonia), and in the case of professional life, the strongest negative predictor is apathy-abulia symptoms. Considering education and professional life as dependent variables, it can be seen that in terms of the direction of correlation, catatonia and apathy and abulia are almost perfect opposites.

For the possibility of marriage, early autistic symptomatology is the most disturbing, and the most positive correlation is revealed by catatonia. Catatonia and formal thought disorders also reveal a clear positive correlation with the number of children. In this area, the most negative correlation is found for apathy and abulia. Also, the sum of the initial symptoms translates into a significantly higher number of children.

Early delusional symptoms are associated with a higher probability of death before time point 2, i.e., before reaching seniority. As for the level of late psychosocial functioning, illustrated by all the parameters, early catatonia proves to be the strongest positive predictor, except for education.

We may take a look at the impact of the indicators of the first hospitalization effect on the parameters describing the later course of the disease, beginning with time point 1.

Table 6. **Effects of first hospitalization and the later course of the disease at time point 1**

|  | Clinical Improvement 0 | Insight 0 | Relational Abilities 0 |
| --- | --- | --- | --- |
| Cognitive deficits 1 | -0.13 | -0.20 | -0.17 |
| Number of hospitalizations 1 | 0.18 | 0.16 | 0.22+ |
| Days in hospital in total 1 | 0.09 | 0.07 | 0.08 |
| Regression 1 | -0.23 | -0.38* | -0.40** |
| Clinical improvement 1 | 0.15 | 0.26 | 0.20 |
| Insight 1 | 0.29+ | 0.47*** | 0.38* |
| Relational abilities1 | 0.16 | 0.41** | 0.45*** |

*table continued on the next page*

| | | | |
|---|---|---|---|
| Psychotherapy in follow-up 1 | 0.20 | 0.33* | 0.27+ |
| GAF 1 | 0.26+ | 0.35* | 0.32* |

Spearman's correlation coefficient

+ = p < 0.1

* = p < 0.05

** = p < 0.01

*** = p < 0.005

A good clinical improvement after the first hospitalization promises several positive effects after 5 years, in particular better insight, less regression, and a higher GAF score, but these relationships are not very strong. The protective potential of fuller insight and greater relational abilities of the patient assessed at the end of the first hospital stay are much more important. These achievements and opportunities firstly turn out to be permanent, and secondly, they entail less regression, better clinical improvement at time point 1, greater propensity to use psychotherapy, and a higher GAF score. Greater improvement, better insight, and relational abilities at time point 0 mean fewer cognitive deficits at time point 1 but also a slightly higher number of hospitalizations.

Table 7 shows correlations between the effects of the first hospitalization and the later course of the disease at time point 2.

Table 7. **Effects of first hospitalization and the later course of the disease at time point 2**

| | Clinical improvement 0 | Insight 0 | Relational abilities 0 |
|---|---|---|---|
| Cognitive deficits 2 | -0.45* | -0.31 | -0.41+ |
| Number of hospitalizations 2 | 0.24+ | 0.19 | 0.15 |
| Days in hospital in total 2 | 0.09 | 0.08 | 0.06 |
| Regression 2 | -0.51* | -0.51* | -0.51* |
| Insight 2 | 0.51* | 0.28 | 0.42+ |
| Relational abilities 2 | 0.41+ | 0.43* | 0.41+ |

Spearman's correlation coefficient

+ = p < 0.1

* = p < 0.05

The positive impact of the initial clinical improvement is better seen at the level of time point 2. It is expressed by a much lower level of cognitive deficits, fuller insight, lower regression, higher relational abilities. The protective effect of insight and relational abilities proves to persist over time. The somewhat paradoxical relation between protective factors and the number of hospitalizations remains.

How do the effects of the first hospitalization affect later social functioning?

Table 8. **Effects of first hospitalization and certain indicators of later social and psychosocial functioning**

|  | Clinical improvement 0 | Insight 0 | Relational abilities 0 |
|---|---|---|---|
| GAF 2 | 0.31 | 0.42* | 0.43* |
| Education 2 | -0.09 | 0.11 | 0.03 |
| Professional life 2 | 0.38** | 0.39*** | 0.35* |
| Marriage 2 | 0.21+ | 0.22+ | 0.16 |
| Number of children | -0.02 | 0.09 | -0.04 |
| Death before time point 2 | 0.01 | -0.18 | -0.05 |
| Death before age of 50 | 0.01 | -0.10 | -0.04 |

Spearman's correlation coefficient

$+ = p < 0.1$

$* = p < 0.05$

$** = p < 0.01$

$*** = p < 0.005$

Insight, relational abilities, and clinical improvement correlate clearly positively mainly with the quality of professional life and general psychosocial functioning, and to a lesser extent with the possibility of marriage. Their correlations with the level of education, number of children, or survival have proved much weaker.

## Discussion

It can be said that in terms of the predictive significance of the initial negative symptoms and their stability over time, the results of our analyses are consistent with the picture that emerges from the contemporary literature on this subject discussed in the introduction to this paper. Autism retains a significant stability over time, visible at the level of statistical significance even 45 years after the first hospitalization. It is the initial autistic symptoms which most strongly predict a greater collective severity of schizophrenic psychopathology 5 years after the first hospitalization. Autism appears here as a kind of flywheel for the development of the disease process. In the long-term course of the disease, it promises a deeper regression and more cognitive deficits.

Correlations of apathy/abulia are quite similar but weaker, and also slightly weakening over time. Perhaps the apathy/abulia dimension is more related to the character component, remaining in continuity with the premorbid personality, and the autistic

dimension belongs more to the disease process as a certain new, additional quality. In this sense, the influence of the process component could become more and more significant over time, consequently pushing the influence of character factors into the background.

The prognostic value of negative symptoms is also manifested in the area of social life, with autism being translated to a greater extent into the possibility of creating a marital bond and apathy/abulia into professional work. These results are consistent with the psychodynamic understanding of the structure of this kind of psychopathology. The autistic dimension is by its very nature connected with the weakening of the possibility of creating bonds; it consists, after all, in investing the ego in the relationship with oneself (which has the character of a defense mechanism, supported by biological processes). Among the consequences may be an impoverishment of emotional relationships but also relationships with other objects, such as work, for example. In the case of apathy/abulia symptoms, the late effects are particularly relevant to the professional sphere, since these symptoms are primarily a description of the weakening of the general life dynamics that seems essential for obtaining and maintaining employment.

Let us now turn to the area of so-called positive symptoms of schizophrenia. It should be noted that the spectrum of symptoms we consider is much wider and does not always coincide with the area of symptomatology traditionally referred to as positive symptoms [7], as we have already indicated in the introduction. Analyzing the predictive value of splitting symptoms, formal thought disorders, hebephrenic and catatonic symptoms, it can be seen that the former three have a large number of negative correlations with the severity of later psychopathology and positive correlations with the level of insight and relational abilities, with these tendencies being reversed between time points 1 and 2 in the case of splitting symptoms. Catatonic symptoms between time points 1 and 2 add up to formal thought disorders and hebephrenic symptoms, forming a group of symptoms which seem to be more dynamic and to some extent have a sanative effect on the course of the disease. This is also reflected in the area of distant social functioning, where the most positive correlations are revealed by catatonia. The only exception is the level of education.

The initial severity of delusions first correlates negatively with the level of apathy/abulia at time point 1, but later correlations of delusions rather predict the increase of psychopathology and unfavorable course of the disease. Subjects with higher initial severity of delusions died younger, which could be explained by the possibility of neglecting somatic treatment by people with higher levels of reality testing disorders. Higher initial severity of delusions and hallucinations very clearly predicts more frequent and longer hospitalizations in the later course of the disease, which could suggest a certain permanence of the tendency to rich, productive decompensation in these subjects.

As for the dynamics of the individual symptom groups, taking into account all the previously discussed limitations of work, some cautious hypotheses can be made. From a psychodynamic point of view, all the discussed symptoms, imprecisely defined by us collectively as positive symptoms (splitting, hebephrenia, catatonia, formal thought disorders, delusions, and hallucinations), may indicate the existence of a mental con-

flict in the psychotic patient and their desire to recover the lost relationship with the object [19, 20]. The very existence of this conflict, even if it is associated with deep disorganization resulting from the use of primary defense mechanisms (splitting, projection identification), is already of pro-health importance because it entails the hope for a more beneficial solution of this conflict in the future, for example through treatment. From this point of view, patients who initially presented mainly symptoms based more on deficiency, lack, or weaker development of certain functions (autism, apathy, abulia), would find themselves in a slightly more difficult, prognostically worse situation from the beginning of the disease [21, 22]. This is the case because the conflict implies the active involvement of certain mental forces and this implies its libidinal, pro-healthy character.

Why would certain types of initial symptomatic solutions (hebephrenia, catatonia, formal thought disorders) have a more permanent positive effect on the course of the disease than others (splitting, delusions, hallucinations)? Trying to answer this question, we would already enter into highly speculative deliberations, not supported by the low statistical value of the results. However, it is worth referring to the beneficial correlations that have emerged between the severity of catatonic symptoms and long-term social functioning of patients. From an analytical point of view, catatonia differs from other symptomatic solutions in schizophrenia in that it does not consist in the loss of relationship with an object, which needs to be recovered afterwards, often in a desperate way. In catatonia, the relation with the object is preserved, but the object of the relationship becomes the patient's own body. It is, therefore, easier to understand that if the catatonic symptoms disappear over time, these patients may have greater ease in establishing relationships with relevant external objects, which, after all, is what social life relies on.

In the light of the above analyses concerning particular groups of symptoms, it is not surprising that distant correlations of the total severity of the initial psychopathology are ambiguous. They translate, on the one hand, into more frequent and longer hospitalizations, but, on the other hand, into a larger number of children. In accordance with the literature data quoted in the introduction, our investigation proves that good clinical improvement, high level of insight, and the ability to create mature relationships measured at the end of the first hospitalization are very important predictors of a beneficial course of the disease both in clinical and social terms. In the latter area, this is visible mainly in the quality of professional life of the examined persons. Therefore, it is worth putting substantial effort into the treatment of patients with juvenile schizophrenia at the very beginning of their disease history. In this context, it is particularly interesting that such patients (with high values of insight, symptomatic improvement, and relational abilities at time point 0) were later even more often (although statistically not significantly more often) hospitalized psychiatrically in the next 5 and 45 years. Thus, there are many indications that psychiatric hospitalizations were in their case not necessarily an illustration and a consequence of the unfavorable course of the disease, but rather represent an important way leading to clinical and social improvement.

## Conclusions

1. The negative symptoms of the first episode of schizophrenia, in particular autism, have a significant negative prognostic value in EOS both in the clinical and social area.
2. The review of correlations of the remaining groups of symptoms reveal an internal diversity of the clinical picture of schizophrenia, showing that in addition to the deficiency component, hypothetically related to the actual disease process, there is also a conflict component, showing the mobilization of the patient's defenses.
3. The initial severity of delusions and hallucinations and the total severity of the schizophrenic psychopathology as a whole in the first episode correlate with the frequency and length of subsequent psychiatric hospitalizations.
4. Clinical improvement, insight, and the ability to establish relationships measured at the end of the first hospitalization are very important predictors of the beneficial course of the disease both in clinical and social terms.

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