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Five-year diagnostic stability among adolescents in an inpatient psychiatric unit

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ABSTRACT

Introduction: In childhood, diagnoses made at the first admission to a psychiatric unit are frequently unstable and temporary. In this study, we examined the stability of DSM-IV-TR disorders and groups of disorders among adolescents followed-up for 5 years after hospitalization.
Method: All inpatients admitted for the first time between 2007 and 2008 were included and contacted after 5 years for re-evaluation. The final sample comprised 72 patients. At admission, diagnoses were based on the DSM-IV-TR criteria, Fourth Edition. At five years, diagnoses were made using structured clinical interviews for DSM-IV axis I Disorders and for axis II (SCID-I and SCID-II) as well as the Personality Diagnostic Questionnaire, Fourth Edition (PDQ-4). We also evaluated and collected information on the global assessment of functioning using the World Health Organization Quality of Life-BREF (WHOQOL-BREF) instrument. Depending on the distribution of variables, we used the chi-squared and Fisher exact tests or the Student *t* and McNemar tests for statistical analyses.
Results: The most stable diagnoses were schizophrenia spectrum disorders, bipolar disorder, generalized anxiety disorder, obsessive–compulsive disorder, attention deficit hyperactivity disorder, Tourette syndrome, and pervasive developmental disorder. The most unstable diagnoses were disruptive disorders. Participants were satisfied with their quality of life and the global outcomes of the sample were positive.
Conclusion: Major psychiatric disorders, including mood and schizophrenia spectrum disorders, were significantly more stable than other diagnoses and tended to continue into adulthood. In the case of study participants, suffering a mental disorder during adolescence did not appear to affect global functioning outcomes.

1. Introduction

The temporal stability of a diagnosis is an essential validating feature of any disorder, providing a basis on which to predict course and outcome [1], and offering insights into meaningful diagnostic subdivisions to help improve the internationally accepted diagnostic systems. Diagnostic stability has been defined as the degree to which a diagnosis remains constant at subsequent patient assessments [2]. In childhood, it is more difficult to establish a definitive diagnosis during the first admission to psychiatric services, so diagnoses are often unstable and temporary [3].

A two-year follow-up study carried out by Mattanah et al. (1995), with a sample of 70 hospitalized adolescents, showed that the most stable diagnoses were for internalizing disorders and the least stable were for externalizing disorders [1]. Also, they reported that substance use disorders were fairly stable, but that personality disorder clusters were relatively unstable, especially clusters A and C. Another study, by Pettit et al. (2005), investigated diagnostic stability among inpatient youths with multiple hospitalizations. They found the highest stability for mood disorders taken jointly (bipolar disorder and major depressive disorder), followed by schizophrenia. As previously reports, externalizing disorders like oppositional defiant disorder also showed low stability. However, this research group did not assess temporal stability over a set follow-up period, as has traditionally been done; rather, they used an across-episode approach to examine whether the psychopathology remained stable between hospitalizations [3]. Overall, both studies concluded that stability among hospitalized children and adolescents was lower than for adults.

Other studies have examined specific diagnostic groups among inpatient samples. A retrospective study of 300 youths with psychotic disorders concluded, that at 10 years after the first hospitalization, the most

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stable diagnoses were schizophrenia (80–100%) and affective psychoses (80%), while brief psychotic disorder and psychotic disorder not otherwise specified (NOS) (0–12%) were the least stable [4]. A recent meta-analysis of 14,484 first episode patients aged 16–75 years old concluded a high stability for schizophrenia spectrum psychoses (93%) [5]. In a study of 80 adolescents hospitalized between 1993 and 2004 for a manic or mixed episodes of bipolar disorder, who were contacted for assessment at an average of 8 years after the index episode, it was concluded that bipolar disorder type I had a high stability (around 60–70%), even though a high proportion transitioned towards a schizophrenia spectrum disorder (around 30%) [6]. In a study of 111 children and adolescents following first hospitalization for major depressive episode (MDD) depressive symptoms remained present after 2–4 years, but in a smaller group (13%) [7]. For eating disorders, anorexia nervosa was most stable and binge eating disorder most variable in follow-up studies. However, there is considerable diagnostic flux among eating disorders, with low remission rates, suggesting that common biological and psychological causal and maintaining processes are underpinning their psychopathology [8]. Although research indicates that the overarching diagnosis of "eating disorder" is relatively stable [9], several studies suggest that there is considerable longitudinal instability in the specific eating disorder diagnoses of anorexia nervosa, bulimia nervosa, and eating disorders NOS resulting from recovery, relapse, and crossover among the eating disorder diagnoses [10]. No previous studies were identified for inpatient samples with externalizing disorders.

There are few studies of diagnostic stability in adolescent inpatient samples. Therefore, the main aim in this study was to explore the diagnostic stability, over the first five years of illness, in a sample of adolescents admitted to an acute child and adolescent psychiatric unit of a university general hospital for the first time. The secondary aim was to evaluate the functional outcome at 5 years' follow-up.

2. Material and methods

2.1. Subjects and procedure

We reviewed the medical records of all patients admitted to the inpatient unit of the Department of Child and Adolescent Psychiatry and Psychology (Institute of Neurosciences, Hospital Clinic, Barcelona) between January 2007 and December 2008.

Only those patients admitted for the first time were selected (253 participants aged 12–17 years), and we tried to contact either the patients or their parents by telephone (up to five calls in different time slots) between March 2012 and December 2013 for a follow-up assessment. After contact, the study was explained and patients who agreed to participate were given appointments at the hospital.

Demographic data were recorded. At the inpatient unit, patients were assigned a final diagnosis by comprehensive assessments conducted by attending psychiatrists, using the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) (American Psychiatric Association 1994) [11]. At discharge, global assessment of functioning (GAF) was also evaluated and recorded. The GAF is a clinician-administered instrument used to assess symptomatic and psychosocial functioning. It is a numeric scale with a range of scores from 1 to 100, with scores above 70 being considered normal [12]. Then, data were entered in a password-protected file.

Of the 253 participants, we were unable to contact 84 patients because they had either changed their address and telephone number or because this information was missing from their medical records. We asked 169 patients to participate, of which 73 refused and another 24 initially agreed but then failed to attend three appointments (Fig. 1). Therefore, the final sample comprised 72 patients. There were no significant differences between participants ($n = 72$) and non-participants (97 patients, excluding those without contact information) in age at first admission, gender, and most DSM-IV baseline diagnoses. However, there was a higher percentage of disruptive disorders among the non-participants ($p = 0.020$).

2.2. Ethical considerations

All procedures were approved by the hospital's ethics committee. Written informed consent was obtained from all participants and their families after the procedures involved had been explained to them. All researchers who collaborated in the study were obliged to preserve the anonymity of patients at all times, and to use the information collected solely for the purposes indicated.

2.3. Five-year follow-up assessments

Diagnoses were made using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID I; [13]) in its Spanish translation. The

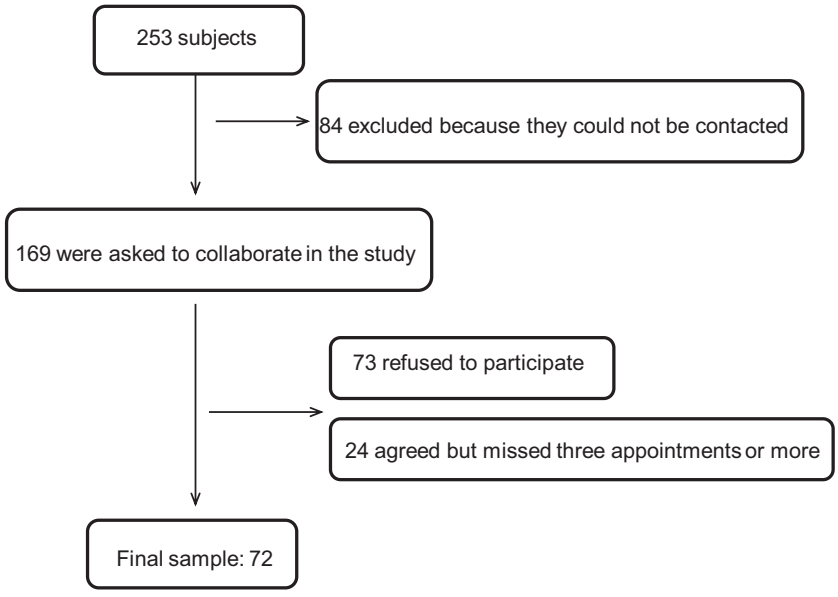

Fig. 1. Flow chart of recruitment process

Table 1
Demographic and clinical features of the sample at 5-year follow-up.

Characteristic	Mean (SD)	N (%)
Gender		
Male		19 (26%)
Female		53 (74%)
Age at baseline	15.3 (1.4)	
Age at follow-up	20.3 (1.4)	
Living with parents at baseline		72 (100%)
Divorced parents at baseline		23 (32%)
Living with parents at follow-up		63 (88%)
Living with friends at follow-up		9 (13%)
Socioeconomic status (SES) at follow-up	42.1 (13.0)	
Patients with readmission after baseline psychiatric hospitalization		33 (46%)
Mean duration of readmission (weeks)	4.3 (7.1)	
Studies		
University studies completed		5 (7%)
University studies in course		27 (38%)
Compulsory secondary school (from 12 to 16 years old)		20 (28%)
Primary school		20 (28%)
Repeaters after initial admission		28 (39%)
Attached to mental health		45 (63%)

SCID I provided information about current psychopathology and helped us to analyze the diagnostic stability with respect to the baseline diagnosis. SCID I diagnoses were established according to DSM-IV criteria [11]. GAF was also evaluated by the psychiatrist who evaluated the patient. Socioeconomic status (SES) was estimated with the Hollingshead–Redlich scale [14], administered by the interviewing psychiatrist. The minimum score was 8 and maximum was 66; the scores were higher for people with university studies and major professionals.

Other assessment scales administered at follow-up were as follows:

The Personality Diagnostic Questionnaire-Fourth Edition (PDQ-4). This is a self-report developed for the assessment of PDs traits according to DSM-IV criteria [15]. The PDQ-4+ is composed of a total of 99 items distributed along 12 subscales, 10 subscales referring to the PD diagnostic categories included in Axis II and another two (passive aggressive and depressive) aimed at the assessment of PD categories included in [11] of the DSM-IV. Each item reflects a single DSM-IV diagnostic criterion. This scale was used in a validated Spanish version [16].

The World Health Organization Quality of Life-BREF (WHOQOL-BREF) instruments [17] (*Spanish version* [18]). The WHOQOL-BREF was used to measure quality of life. It assesses the individual's perceptions in the context of their culture and value systems, as well as their personal goals, standards, and concerns. The WHOQOL-BREF instruments comprise 26 items that measure the following broad domains: physical health, psychological health, social relationships, and environment. The WHOQOL-BREF is a shorter version of the original WHOQOL-100.

2.4. Data analysis

A database was created in SPSS 18.00 (SPSS Inc., Chicago IL, USA) for all sociodemographic and clinical data. Results are presented as means and standard deviations (SD). Student's paired *t*-test was used to compare means of continuous variables between diagnoses at follow-up. McNemar's test for paired proportions was used to compare the frequencies of each diagnosis at baseline and at 5 years.

3. Results

3.1. Descriptive characteristics of the sample

The 72 patients were predominantly female (74%), with mean age of 15.3 ± 1.4 years at baseline (range between 12 and 17 years). Table 1 shows the demographic and clinical features of the sample at follow-up. As relevant findings, most of the sample were of middle-low socioeconomic status, 72% of the sample had completed compulsory education, and 63% were still attached to mental health services at follow-up.

Table 2 shows the frequency of diagnoses at baseline and follow-up. Eating disorders and affective disorders were the most prevalent diagnoses at baseline, followed by psychotic disorders. At 5 years' follow-up, these remained the most prevalent diagnoses, but the number of patients without no psychiatric diagnosis increased from nil at baseline to 25% of the sample at 5 years. At baseline, 26 patients presented with comorbid diagnoses, primarily cannabis abuse (7%), attention deficit hyperactivity disorder (ADHD) (7%), and anxiety disorders (7%). At 5-years' follow-up, the main comorbidities were nicotine (14%) and cannabis abuse (4%). Table 2 shows the number of patients still attached to mental health services. Mental health services continued to be provided to patients with psychotic disorders, affective disorders, and eating disorders, with fewer patients being controlled for dysthymia and adjustment disorders.

3.2. Stability of diagnoses from baseline to follow-up

Table 3 shows the continuity of diagnoses from adolescence to adulthood, according to the DSM-IV-TR diagnosis. The most stable diagnoses were schizophrenia spectrum disorders (schizophrenia and schizoaffective disorder), bipolar disorder, generalized anxiety disorder, ADHD, Tourette syndrome, and pervasive developmental disorder, though the small number of patients with the final diagnosis means that this result cannot be generalized to other populations. The next most stable diagnoses were eating disorder NOS, anorexia nervosa and obsessive-compulsive disorder. Finally, disruptive disorders were the least stable diagnoses.

We also assessed the numbers with axis II diagnoses at the baseline and 5. At baseline, personality traits were diagnosed by patients' psychiatrists' or psychologists' based on DSM-IV-TR criteria. At baseline, 3 patients (4%) each had traits from cluster A and cluster B, and 2 (3%) had traits of more than one cluster. At 5 years, when personality traits were assessed by the PDQ-4+ inventory, only 2 patients had traits

Table 2
Comparison of diagnoses and continued association with community mental health at 5 years.

Diagnoses	Baseline N (%)	5-year follow-up N (%)	Attached to mental health treatment at 5 years N (%)
Psychotic disorders	10 (14%)	9 (13%)	9/9 (100%)
Affective disorders	16 (22%)	14 (19%)	12/14 (86%)
Eating disorders	27 (38%)	12 (17%)	10/12 (83%)
Anxiety disorders	4 (6%)	9 (13%)	5/9 (55%)
Disruptive disorders	6 (8%)	1 (1%)	1/1 (100%)
Others	9 (12%)	9 (12%)	5/9 (55%)
No psychiatric diagnosis	0 (0%)	18 (25%)	3/18 (17%)

*N = 72 patients assessed at both points.

Table 3
Diagnostic stability between baseline and 5 years.

Baseline diagnoses	N	Five-year follow-up	N	Mean	Confidence interval (95%)	p[a]
Schizophrenia spectrum disorders (Schizophrenia + Schizoaffective disorder)	4	Schizophrenia spectrum disorders	4	0.07	0.01–0.13	0.063
		Lifetime	4			
		In remission	0			
Psychotic disorder NOS	6	Psychotic disorder NOS	0	−0.07	−0.13-0.01	0.063
		Lifetime	6			
		In remission	1			
		Schizophrenia spectrum disorders	5			
Major depression disorder	11	Major depression disorder	4	−0.08	−0.16-0.01	0.070
		Lifetime	11			
		In remission	5			
		Anxiety disorder without agoraphobia	1			
		Adjustment disorder	1			
Bipolar disorder	5	Bipolar disorder	5	–	–	1.000
		Lifetime	5			
		In remission	0			
Anorexia nervosa	12	Anorexia nervosa	0	−0.17	−0.25-0.44	0.001
		Lifetime	12			
		In remission	7			
		Eating disorder NOS	2			
		Anxiety disorder without agoraphobia	2			
		Dysthymia	1			
Bulimia nervosa	2	Bulimia nervosa	0	−0.03	−0.07-0.01	0.500
		Lifetime	2			
		In remission	1			
		Eating disorder NOS	1			
Eating disorder NOS	13	Eating disorder NOS	8	−0.03	−0.164-0.04	0.720
		Lifetime	13			
		In remission	2			
		Anorexia nervosa	1			
		Social phobia	1			
		Generalized anxiety disorder	1			
Generalized anxiety disorder	1	Generalized anxiety disorder	1	–	–	1.000
		Lifetime	1			
		In remission	0			
Obsessive-compulsive disorder	3	Obsessive-compulsive disorder	2	−0.01	−0.04-0.01	1.000
		Lifetime	3			
		In remission	1			
ADHD	1	ADHD	1	–	–	1.000
		Lifetime	1			
		In remission	0			
Oppositional defiant disorder	3	Oppositional defiant disorder	0	−0.04	−0.09-0.01	0.250
		Lifetime	3			
		In remission	1			
		Dysthymia	1			
		Adjustment disorder	1			
Disruptive disorder NOS	2	Disruptive disorder NOS	0	−0.03	−0.07-0.01	0.500
		Lifetime	2			
		In remission	2			
		Adjustment disorder	1			
		Bipolar disorder II	1			
Adjustment disorders	6	Adjustment disorders	3	−0.04	−0.09-0.01	0.250
		Lifetime	6			
		In remission	3			
		Dysthymia	1			
		Major depressive disorder	1			
		Social phobia	1			
Pervasive developmental disorder	1	Pervasive developmental disorder	1	–	–	1.000
		Lifetime	1			
		In remission	0			
Tourette syndrome	2	Tourette syndrome	2	–	–	1.000
		Lifetime	2			
		In remission	0			

NOS: not otherwise specified; ADHD: attention deficit hyperactivity disorder.
[a] McNemar's test.

from cluster A (3%), 1 (1%) had traits from cluster B, 11 (15%) had traits from cluster C, and 23 (32%) had traits from more than one cluster.

3.3. Functional outcome

Functional outcome was measured at baseline by GAF and at follow-up by GAF and WHOQOL-BREF scales. The mean GAF was 41.3 ± 15.3 at baseline. Interestingly, the mean GAF at follow-up was within the normal range, and the differences from baseline were statistically significant ($t = 13.8$, $p < 0.001$). Participants tended to be satisfied with their life quality (WHOQOL-BREF mean 87.5 (SD = 13.7)). Table 4 shows mean GAF and WHOQOL-BREF by diagnoses at 5-year follow-up. Functional outcome was worse for schizophrenia spectrum disorders and dysthymia and better for patients with generalized anxiety disorder or

Table 4
Mean GAF and WHOQOL-BREF by diagnoses at 5-year follow-up.

Diagnoses	GAF Mean SD	WHOQOL-BREF Mean (SD)
Psychotic disorders		
Schizophrenia + Schizoaffective disorder	52.0 (10.8)	74.7 (14.3)
Psychotic disorder NOS	–	–
Affective disorders		
Major depression disorder	67.0 (13.4)	89.2 (15.5)
Dysthymia	57.7 (11.5)	76.7 (9.6)
Bipolar disorder	68.5 (15.0)	97.5 (13.2)
Eating disorders		
Anorexia nervosa	61.0 (13.4)	67.0 (21.1)
Bulimia nervosa	–	–
Eating disorder NOS	67.7 (13.3)	81.9 (11.8)
Anxiety disorders		
Generalized anxiety disorder	86.0 (7.1)	98.5 (6.4)
Social phobia	86.0 (7.1)	87.5 (2.1)
Anxiety disorder without agoraphobia	77.7 (15.3)	96.7 (10.0)
Obsessive-compulsive disorder	61.0 (14.1)	82.5 (9.2)
Disruptive disorders		
ADHD	–	–
Oppositional defiant disorder	–	–
Disruptive disorder NOS	–	–
Others		
Adjustment disorders	81.0 (10.5)	99.5 (13.3)
Pervasive developmental disorder	–	–
Tourette syndrome	71.0 (14.1)	85.5 (6.4)
No psychiatric diagnosis	85.7 (8.3)	96.1 (8.3)

NOS: not otherwise specified; ADHD: attention deficit hyperactivity disorder.

social phobia, or for patients with no psychiatric diagnosis. Statically significant differences were found between groups, but post hoc tests were not performed because at least one group had fewer than two cases.

4. Discussion

The present study examined the five-year temporal diagnostic stability from childhood to young adulthood in a sample of adolescents after admission to an inpatient unit. Several diagnoses remained unchanged, including schizophrenia spectrum disorders, bipolar disorder, generalized anxiety disorder, attention deficit and hyperactivity disorder, pervasive developmental disorder, and Tourette syndrome, which had 100% stability. Eating disorder NOS (62%) and obsessive–compulsive disorder (67%) were also fairly stable. Moreover, it was found that the global outcome of the participants was very good in this study, with a mean GAF above 70 and a mean WHOQOL-BREF above 80. Functional outcome was better for patients diagnosed with generalized anxiety disorder, social phobia or for patients with no psychiatric diagnosis.

Overall, these results were congruent with previous studies among inpatients [1,3], but we experienced a higher frequency of severe disorders that were more stable. In a large and recent population-based study affective, eating, neurodevelopmental, obsessive-compulsive and psychotic disorders had the strongest continuity [19]. Examining for specific diagnostic groups, it was found that adolescent-onset schizophrenia spectrum disorders had higher levels of diagnostic stability. The results were consistent with previous studies done in childhood [1,4,20] and in a recent meta-analysis in childhood and adult samples [5]. In a study of adolescent inpatients diagnosed with a schizophrenia spectrum disorder, it was found that psychopathological symptoms in schizophrenia were more severe than in other disorders, with higher scores in the Positive and Negative Syndrome Scale (PANSS) [21]. The baseline PANSS score appears to be a potentially important prognostic marker that could help us assess diagnosis in the first admission. In another study done in a sample of inpatient and outpatient adolescents with a first psychotic episode, psychosocial functioning at baseline was also a good predictor of diagnosis at follow-up [20]. In our study, although a patient changed diagnosis from schizophrenia to schizoaffective disorder, the diagnosis remained within the schizophrenia spectrum, confirming that the stability of such diagnoses was high. Concerning psychotic disorder NOS, the diagnosis shifted to schizophrenia or schizoaffective disorder in 83% of the cases. This change in diagnosis is most likely attributable to the fact that children and adolescents often do not meet the diagnostic criteria at the first admission to an inpatient unit [3] and probably due to the fact that in young populations the emerging psychopathology and varied clinical presentations make the diagnosis less specific. Also, one patient diagnosed with psychotic disorder NOS experienced remission at 5 years' follow-up; notably, the patient's psychopathology was milder when compared with the patients with schizophrenia spectrum disorders, with no evidence of auditory verbal hallucinations at admission. Another difference from other patients' diagnosed with psychotic disorder NOS was the presence of cannabis abuse at admission.

In the case of the affective disorders, bipolar disorder was the most stable. A previous study in 12 psychiatric inpatient units (n = 195 first admissions, age 15–60 years) found that almost 80% diagnosed with bipolar disorder at baseline retained the diagnosis after 10 years' follow-up, indicating that many cases of bipolar disorder can be reliably diagnosed early. In this study, however, adolescent psychopathology was associated with an increased odds of a change in diagnosis [22]. Another study in children and adolescents with a first-episode psychotic bipolar disorder revealed that there was a 92% diagnostic stability after 2-years' follow-up [20]. It seems that when the psychopathology is clear at presentation, the stability of this diagnostic is high.

Concerning major depression, our experience was that 36% of adolescents relapsed within 5 years, 18% reported a non-mood disorder, and 46% reported that they no longer had any axis I diagnosis. Although this implies substantial continuity, it also illustrates that a large proportion of depressed adolescents do not retain significant mental health problems into early adulthood. When studying the course of major depressive disorder in adolescent inpatients, previous studies found a high probability of recovery at two years after hospital care [7,23]. In previous studies of both outpatient and inpatient samples that examined first-episode major depression, it has been indicated that 30–40% can be expected to recover by 6 months, 70–80% by 12 months, and 80–95% by 18 months from episode onset [24,25]. In our study, no patients initially diagnosed with major depression switched to bipolar disorder during the 5-year follow-up period. A likely explanation is the small number of depressed patients and the lack of psychotic symptoms at baseline. Birmaher et al., found that depressed youths who presented with psychosis, psychomotor retardation, pharmacological-induced hypomania/mania, and/or a family history of bipolar disorder were at high risk of developing bipolar disorder [26].

Eating disorder diagnoses tend to show moderately high rates of crossover, with considerable diagnostic flux observed between anorexia nervosa, bulimia nervosa, and eating disorder NOS [9]. We found that switching was considerably more frequent from anorexia and bulimia to eating disorder NOS (57%) than vice versa (8%). A previous study among adolescent inpatients with anorexia showed that there was a substantial improvement in symptomatology after 7 years, with only 3%, 12%, and 29% of the patients retaining their diagnoses of anorexia, bulimia, and eating disorder NOS [27].

Among the anxiety disorders, generalized anxiety disorder was the most stable, but the sample was so small to generalize the results. To the best of our knowledge, no previous studies have examined the stability of anxiety disorders in adolescent inpatient samples. A previous follow-up study of both outpatients and inpatients with childhood anxiety disorders (n = 1869, ages = 2–18) indicated that 67% of patients met the criteria for a different psychiatric disorder during follow-up [28]. In the case of obsessive–compulsive disorder, 1 patient had no current diagnosis, but 2 had stable diagnoses with persistent shameful thoughts. These data were also consistent with the findings from an outpatient study of youngsters with obsessive–compulsive disorder, in

which it was reported that 71% met the criteria for a different psychiatric disorder during follow-up [29].

Regarding adjustment disorders, in a cohort of outpatients and inpatients, it has been shown that suffering an adjustment disorder in childhood predicts future adjustment disorder episodes or mood disorders (e.g., dysthymia or major depression disorder) independently of personality traits [30].

In relation to personality traits, 85% of our sample had no predominant cluster symptoms when younger than 18 years old, but that this fell to 44% of the sample at 5 years follow-up. However, personality traits were analyzed by non-structured clinical interview at baseline. Because these results have age cut-offs, none of those under that age would have been diagnosed with personality disorders or traits. Indeed, we showed that personality traits in childhood and adolescence may readily disappear or change to another cluster, although some do remain stable over time. Previous studies showed a low-moderate stability of personality dimension symptoms during the childhood and adolescence [31,32].

The global outcome of the sample was good, with high scores for global functioning and almost half of the participants continuing to university. A review of 34 outcome studies reported that psychiatric hospitalization was often beneficial, particularly if specialized treatment programmes and aftercare were available, and if the child presented with a less pathological clinical picture [33]. Other studies have examined outcome by specific diagnostic groups. For example, it was reported that affective disorders were associated with a normal range of functioning [34,35], while patients treated for schizophrenia progressed to poor social adjustment, severe functional impairment, and high socioeconomic dependence [36]. Patients re-diagnosed at follow-up with behavioural disorders at the admission showed significant improvements in functioning. Less favourable outcomes may be predicted by disruptive behavioural disorder, severity of initial dysfunction, high antisocial symptoms, and hyperkinetic symptoms [35].

The main limitation of our research was the small number of patients in some diagnostic subgroups, which limits the conclusions regarding the stability of these diagnoses. This was due to the high attrition rate. A large number of patients could either not be contacted or were unwilling to participate. It was found that patients seen at our service over a long period were more likely to agree to participate in our study. Recruitment difficulties of this type require that we confirm our results in longitudinal studies. Another limitation is that the results are from an exploratory research. These results help us to understand better the trajectories of mental health diagnosis in adolescence, but confirmatory studies are needed in order to provide conclusive evidence. Nonetheless, our study has some strengths, not least that the variety of diagnoses allowed us to predict the course of most major adolescent diagnosis using standard diagnostic procedures with validated thresholds for clinical severity. This reduced the potential for bias and spurious results.

This study provides empirical support for the use of the initial diagnosis of adolescent patients to predict the outcome and improvement. Early detection of individuals at high risk of serious mental health disorders may shorten the duration of untreated psychosis and hospital admission, improve early detection and reduce the severity of first-episode cases as mentioned by Fusar-Poli in a recent opinion article [37].

5. Conclusion

To conclude, in the sample of patients that consented to be re-diagnosed, major psychiatric disorders, specifically bipolar and schizophrenia spectrum disorders, appear more stable than other diagnoses and may therefore be more likely to continue into adulthood. Interestingly, 25% of the re-interview sample has no present diagnostic. In the current study, psychiatric hospitalization seems not to have interfered with appropriate outcomes in global functioning.

Conflict of interest statement

The authors declare no potential conflict of interest.

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