Predictors of Suicide Attempt in Early-Onset, First-Episode Psychoses: A Longitudinal 24-Month Follow-Up Study

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ABSTRACT

Objective: To study the prevalence of suicide attempts and factors associated with risk for suicide during the first episode of psychosis, and to identify early predictors of suicide attempts over a 24-month follow-up period in an early-onset, first-episode psychosis cohort.

Method: 110 subjects in their first episode of psychosis aged between 9 and 17 years were assessed by using the *DSM-IV* diagnostic interview Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version and a battery of clinical instruments at baseline and at 12 and 24 months. Patients were enrolled in the study from March 2003 through November 2005. Suicide attempts and level of suicidality at each assessment were evaluated by using the Clinical Global Impression for Severity of Suicidality and the Hamilton Depression Rating Scale. Subjects were classified as being at high, low, or no risk of suicide, depending on their scores on certain items of these scales. Clinical associations between the outcome measures high risk for suicide during acute episode and suicide attempts during follow-up were investigated by 2 sets of logistic regression analyses.

Results: The 24-month prevalence of suicide attempters was 12.4%. History of suicide attempts prior to psychotic episode (OR = 20.13; 95% CI, 1.83–220.55; $P = .01$), severe depressive symptoms (OR = 8.78; 95% CI, 1.15–67.11; $P = .003$), and antidepressant treatment (OR = 15.56; 95% CI, 2.66–90.86; $P = .002$) were associated with being classified as high suicide risk at baseline. The categorization of high suicide risk at baseline predicted suicide attempts during follow-up (OR = 81.66; 95% CI, 11.61–574.35; $P = .000$).

Conclusions: Suicide is a major concern in early-onset first-episode psychosis. Suicidal behavior and depressive symptoms at psychosis onset are important signs to be aware of to prevent suicide attempts during the early period after first-episode psychosis.

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Suicide is the main cause of premature death among individuals with psychotic disorders.[1] Between 20% and 40% of psychotic patients will attempt suicide during their lifetime,[2,3] the risk being particularly high during the early stages of the disorder.[1,4–7]

Given the difficulty of establishing a definitive diagnosis in the early stages,[8–10] the follow-up of patients with a first episode of psychosis, regardless of the subtype, is important in order to characterize the different illness outcomes.[11,12] Prospective studies in adult first-episode psychosis samples, including suicide attempts as the main outcome measure, have reported suicide attempt rates ranging between 10% and 26% prior to treatment,[4,13–15] up to 11.3% during the first 2 years[16–21] of treatment, and up to 18% in studies involving 4[14,22] and 5[23] years of follow-up. A more recent study[24] followed-up a large first-episode psychosis cohort over 7.4 years and reported an overall suicide attempt rate of around 20%. All these studies concur that the highest rates of suicide attempt occur before or shortly after first admission to treatment and decrease during follow-up, especially when patients are enrolled in an early detection and follow-up program.[17–19] The most robust risk factors for attempting suicide during follow-up among adult studies are history of previous suicide attempt or suicidal ideation[14,17,19–24] and the severity of depressive symptoms.[13,14,16,17,22–25] Other factors not consistently reported by all studies are greater insight,[15,26,27] substance use disorder,[13,21–24] positive psychotic symptoms,[17,20,21] and longer duration of untreated psychosis.[14,21]

Although the majority of first-episode psychosis adult studies highlight the fact that the younger the age of psychosis onset the greater the risk for suicide,[13,17,22,23] limited data focusing on suicidal behavior in early-onset psychoses are available. Only 2 early-onset studies that included other first-episode psychosis diagnostic subtypes in addition to the schizophrenia spectrum have specifically addressed this issue to date, but none has used a follow-up design. In the first[28] of these 2 studies, 88 first-episode psychosis adolescents were assessed approximately 10 years after admission to a hospital. Sociodemographic, clinical, and suicide-related features at baseline were obtained from clinical records, and suicidality was measured with the Brief Psychiatric Rating Scale. The authors reported a 25% lifetime prevalence of suicide attempt and a 4.5% prevalence of death by suicide. Suicide attempts were associated with the intensity of depression at first episode, a greater number of admissions, fewer negative symptoms, and nicotine dependence. The second study[29] was a retrospective chart review involving a cross-sectional analysis of factors related to suicide attempt, as measured by the Brief Psychiatric Rating Scale, in 102 first-episode psychosis patients admitted to an adolescent unit. Thirty-two percent of the sample had attempted suicide at the time of first admission to the unit. Attempters were

Clinical Points

- 12.4% of early-onset first-episode psychosis patients attempted suicide in the 2 years following psychosis onset, the risk being highest in the first year.
- High risk of suicide at baseline was the best predictor of suicide attempt at follow-up. High risk of suicide at baseline was associated with severe depressive symptoms and with a history of suicide attempt prior to the first-episode psychosis.
- Neither severity of psychotic symptoms nor affective or nonaffective psychoses diagnostic subtypes were associated with suicidal behavior.

more likely to have longer duration of untreated psychosis, higher levels of depression, and a history of self-harm than were nonattempters.

In view of previous reports of high rates of suicide attempt among adolescents, suicidal behavior in early-onset psychoses is a cause of major concern. To our knowledge, however, no prospective studies of suicidal behavior in first-episode psychosis adolescents have been published to date. The aims of the present study were therefore to determine the prevalence of suicide attempt, to examine factors associated with high risk of suicide at admission, and to identify early predictors of future suicide attempt in a cohort of early-onset first-episode psychosis patients over a 24-month period.

METHOD

Participants

The data were collected as part of the Child and Adolescent First-Episode Psychosis Study (CAFEPS),[30] a multicenter, longitudinal, naturalistic study with a follow-up period of 24 months. Details of the study design and inclusion and exclusion criteria can be found elsewhere.[30] One hundred ten children and adolescents recruited from 6 different child and adolescent psychiatry departments in Spain were enrolled in the study from March 2003 through November 2005. The study was approved by the ethical review board of each participant hospital. Patients aged between 9 and 17 years were in their first episode of psychosis and 83.6% (n = 92) required hospitalization. *First-episode psychosis* was defined as the presence of positive psychotic symptoms, such as delusions or hallucinations (score above 4 [moderate] on items P1 or P3 of the Positive and Negative Syndrome Scale [PANSS]) of less than 6 months' duration at the moment of study inclusion. After obtaining written informed consent from patients and their parents or legal guardians, a comprehensive assessment was carried out on the same day, within a period of less than 3 days after study inclusion (T_0). Patients were reassessed at 1-year (T_1) and 2-year (T_2) follow-up. Seventeen participants dropped out during the first year of follow-up and 9 during the second. Of the 26 withdrawals, 13 refused to collaborate in the follow-up assessments, 7 could not be contacted, and 6 changed their country of residence. At 2 years, the sample comprised 84 patients; 2 patients with missing suicide follow-up data were excluded from the 2-year follow-up analysis. No significant differences were found on any of the variables studied between patients who completed the 2-year assessments and those who did not.

After 2 years, the *DSM-IV* diagnoses of the remaining sample were 41 schizophrenia, 7 schizoaffective disorder, 19 bipolar disorder, 4 depressive disorder, and 5 psychoses not otherwise specified; 6 patients had no present diagnosis of psychosis.

Demographic, clinical, and treatment features at T_0 of initial and follow-up completer samples are described in Table 1.

Assessments

All the assessments were conducted by experienced clinical psychologists and psychiatrists.

Suicidal behavior. One of the 2 measures used to assess suicidal behavior was the Clinical Global Impression for Severity of Suicidality (CGI-SS),[31] which is derived from the Clinical Global Impressions scale (CGI).[32] The CGI-SS assesses the global severity of suicidality on a 5-point scale: 1 (not at all suicidal), 2 (mildly suicidal), 3 (moderately suicidal), 4 (severely suicidal), and 5 (attempted suicide). A consensus was reached among clinicians, who assigned a score of 2 when the patient expressed a mild wish to die, 3 when the patient expressed a moderate wish to die, 4 in the case of ideation or plans to attempt suicide, and 5 when a suicide attempt was confirmed. Every CGI-SS assessment set off with the following questions formulated by the clinician: "Have you ever attempted suicide?" (first visit) and "Have you attempted suicide since the last visit?" (follow-up assessments). If the answer was affirmative, the number of suicide attempts was recorded and the patient was asked whether he or she had required medical attention for the suicide attempt (yes/no). The second measure used was item 3 (suicide) of the Hamilton Depression Rating Scale (HDRS),[33] which is scored as follows: 0 (absent), 1 (feels life is not worth living), 2 (wishes he/she were dead or any thoughts of possible death to self), 3 (suicide ideas or gestures), and 4 (attempts at suicide).

On the basis of the information obtained by using both instruments, patients were categorized into 3 levels of suicidality—0 (nonsuicidal): score of 1 on the CGI-SS or 0 on HDRS; 1 (low suicide risk): score of 2 or 3 on the CGI-SS or a score of 1 or 2 on the HDRS; and 2 (high suicide risk): score of 4 or 5 on the CGI-SS or a score of 3 or 4 on the HDRS. In the event of discrepancy between the 2 measures, patients were classified in the higher level. Ideation and plans to attempt suicide were included in the high suicide risk level because suicide ideation and plans have been closely associated with later suicide attempt.[34,35] *Suicide attempt* was defined as "a potentially self-injurious behavior, associated with at least some intent to die, as a result of the act."[36(p1037)]

Clinical measures. The clinical measures included socioeconomic status, estimated by using the Hollingshead-Redlich Scale,[37] and family history of psychiatric disorders and completed suicide of first- and second-degree relatives. This

Table 1. Sociodemographic and Clinical Features of Initial and Completer Follow-Up Samples

Baseline Variable	Initial Sample (n = 110)	Follow-Up Completer Sample (n = 82)
Sociodemographic features		
Female sex, n (%)	37 (33.6)	27 (32.9)
Age, mean (SD), y	15.5 (1.8)	15.5 (1.7)
Hollingshead-Redlich Scale score (socioeconomic status), mean (SD)	2.6 (1.2)	2.6 (1.3)
Family history (first/second degree), n (%)		
Psychoses	32 (29.1)	25 (30.5)
Bipolar disorder	12 (10.9)	9 (11.0)
Depression	31 (28.2)	25 (30.5)
Completed suicide	3 (2.7)	3 (3.6)
Personal past psychiatric history, n (%)		
ADHD/conduct disorder	13 (11.8)	9 (11.0)
Depression	12 (10.9)	9 (11.0)
Anxiety	8 (7.3)	6 (7.3)
Substance misuse	15 (13.6)	10 (12.2)
Clinical features, mean (SD)		
IQ	79.1 (21.1)	79.7 (19.8)
Duration of untreated psychosis, d	67.5 (56.4)	65.8 (56.3)
Children's Global Assessment Scale score	33.3 (15.2)	33.3 (15.6)
Premorbid Adjustment Scale total score	24.8 (14.1)	24.1 (14.1)
PANSS positive score	23.7 (6.2)	23.8 (6.1)
PANSS negative score	19.6 (9.1)	20.1 (9.2)
PANSS general score	44.6 (10.8)	44.7 (11.4)
PANSS total score	87.9 (20.2)	88.8 (21.1)
YMRS score	17.4 (10.8)	17.6 (11.2)
HDRS score	18.4 (8.8)	17.8 (8.7)
Low insight (PANSS item G12 score > 3), n (%)	81 (73.6)	59 (72.0)
Comorbidity, n (%)		
Severe depression (HDRS score > 20)	45 (40.9)	31 (37.8)
Anxiety	5 (4.6)	3 (3.7)
ADHD/conduct disorder	9 (8.2)	7 (8.5)
Substance misuse	14 (12.7)	9 (11.0)
Cannabis use	32 (29.1)	23 (28.0)
Cannabis dependence	9 (8.2)	4 (4.9)
Suicidal behavior, n (%)		
History of suicide attempt prior to psychotic episode	8 (7.3)	5 (6.1)
High risk of suicide	13 (11.8)	9 (11.0)
Index episode treatment, n (%)		
Antipsychotics	98 (89.1)	81 (98.8)
Antidepressants	18 (16.3)	14 (17.1)
Mood stabilizers	14 (12.7)	11 (13.4)

Abbreviations: ADHD = attention-deficit/hyperactivity disorder, HDRS = Hamilton Depression Rating Scale, IQ = intelligence quotient, PANSS = Positive and Negative Syndrome Scale, YMRS = Young Mania Rating Scale.

information was obtained through direct interview with the parents. Premorbid adjustment was evaluated with the Premorbid Adjustment Scale[38] and functional impairment with the Children's Global Assessment Scale.[39] Psychotic, manic, and depressive symptomatology was assessed by using the validated Spanish version of the PANSS,[40] the Young Mania Rating Scale (YMRS),[41] and the HDRS,[33] respectively. The HDRS continuous variable was dichotomized into "severe depression" when the score was 20 or more or into "nonsevere depression" if the score was lower than 20. *Duration of untreated psychosis* was defined as the interval of days between the first noted psychotic symptom and start of treatment at the mental health service, while insight into illness was measured by PANSS item G12, with scores of 4 or more being defined as *poor insight*. The Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version[42] was used to evaluate past or current *DSM-IV* Axis I diagnoses, including substance dependence. Not only dependence criteria but also *cannabis use*, defined as any smoking of cannabis in the previous month, was registered. Finally, intelligence quotient (IQ) was also estimated.[43,44] With the exception of sociodemographic family-related variables, Premorbid Adjustment Scale, duration of untreated psychosis, and IQ scores, all variables were assessed at the 3 follow-up points (T_0, T_1, T_2).

Statistical Analyses

Two sets of analyses were conducted by using SPSS v.17.0 (SPSS Inc, Chicago, Illinois).

The first statistical analysis focused on identifying variables associated with high suicide risk at T_0. All variables showing a *P* value below .10 at the univariate level were included as independent variables in a stepwise logistic regression based on the Wald test. A high correlation was found between PANSS positive and YMRS baseline scores (Pearson $r = 0.74$, $P < 000$); we therefore decided to include only the PANSS positive scores in the model. Presence of high suicide risk at baseline was the dependent variable.

Second, we evaluated potential baseline predictors of suicide attempt over the 2 years of follow-up. A stepwise logistic regression model based on the Wald test was performed to investigate the magnitude of independent baseline predictive factors for attempting suicide. The dependent variable was dichotomized into suicide attempters over 24 months and nonattempters. The dependent variable included only subjects who attempted suicide after T_0. The variable history of suicide attempt prior to psychotic episode was included as an independent variable in addition to the variables showing a *P* value below .10 in the previous univariate analyses.

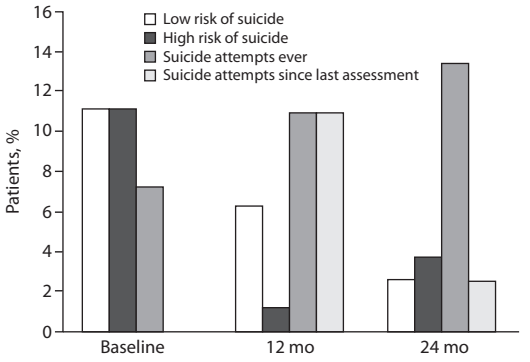
Gender and age at baseline were also included in the model, regardless of the *P* value. Significance was set at $P < .05$. Odds ratios (ORs) and confidence intervals (CIs) were also calculated so as to determine the independent contribution of each factor.

RESULTS

At T_0 (baseline), 7.3% (8/110) of the sample had attempted suicide prior to admission, and 11.9% (13/110) were classified as being at high suicide risk. Between T_0 and T_1, 11.7% (11/94) of the patients attempted suicide, this being fatal in 1 case. At the T_1 assessment, 3.2% (3/93) of the patients were classified as high suicide risk. Finally, 2.5% (2/81) of the patients made a suicide attempt between T_1 and T_2.

The evolution of variables related to suicidal behavior over the 24-month follow-up period for the remaining sample is shown in Figure 1. The 24-month prevalence of attempters was 12.4% (10/82), of whom a half had also attempted suicide prior to the first admission. Between T_0 and T_1, 10.9% (9/82) of the patients attempted suicide, while between T_1 and T_2 the rate of attempters decreased to 2.5% (2/81). Thirty-five suicide attempts occurred during the 24-month follow-up period. Four patients attempted once, 2 patients twice, 1 patient 5 times, 2 patients 7 times, and 1 patient 8 times. One 14-year-old girl died by suicide between T_0 and T_1, having already made a suicide attempt prior to first admission; she had been classified in the highest suicide level at baseline. With regard to level of suicidality, the highest proportion of patients classified as high suicide risk was found at baseline, and the lowest at T_1, with the proportion increasing slightly again at T_2.

Figure 1. Evolution of Suicide-Related Variables Over the Follow-Up Period: Completers Sample (n = 82)[a]



[a]Percentage of patients at no risk of suicide at every phase: 77.8% at baseline (T_0), 92.6% at 12 months (T_1), and 93.8% at 24 months (T_2).

Baseline Comparison of High Suicide Risk Versus Nonsuicidal or Low Suicide Risk in the Study Sample

As shown in Table 2, patients classified as high suicide risk were significantly more likely to report a personal history of anxiety disorder and suicide attempt prior to admission. These patients also suffered significantly more severe depressive symptoms and were more likely to be treated with antidepressants. Finally, positive and manic symptoms and poor insight at baseline were inversely associated with high suicide risk.

After logistic regression analysis, prior history of suicide attempt, severe depressive symptoms, and receiving antidepressant treatment remained as significant predictors (predictive value: 92.5%).

Comparison of the Baseline Characteristics of Suicide Attempters Versus Nonattempters During the 2-Year Follow-Up

As shown in Table 3, being classified as high suicide risk and the presence of comorbid anxiety disorder, in addition to a history of suicide attempt prior to admission, severe depressive symptoms, and antidepressant treatment at baseline, were significantly associated with suicide attempt throughout the follow-up period. Poor insight was again inversely associated with suicide attempt. After multivariate analysis, only categorization of high suicide risk at baseline significantly predicted suicide attempt during the 24-month follow-up (predictive value: 93.8%). Notably, suicide attempt prior to entry survived until the last step of the logistic regression analysis but was removed from the final model in the presence of a categorization as high suicide risk.

DISCUSSION

As this is the first prospective study of first-episode psychosis in early-onset psychotic patients, no truly comparable studies are available. For this reason, the following discussion is largely focused on findings reported by first-episode psychosis adult studies with a follow-up design.

The 24-month rate of suicide attempters in our sample was 12.4%, a figure in the highest range of the rates reported in adult first-episode psychosis samples with the same follow-up period.[17–19,21] Moreover, our first-year prevalence of attempters is nearly 11%, indicating that rates of suicide attempt are especially high in the first year after psychosis onset, including in early-onset first-episode psychosis.

Other major findings are, first, that previous suicide attempt and a severely depressed mood at presentation raise the likelihood of being at high risk of suicide by 20 times and 9 times, respectively, in adolescents presenting with a recent-onset psychotic episode. Second, the prevalence of high suicide risk was greatest at the index episode; it decreased dramatically after 1 year but then appeared to increase slightly at 2 years. Furthermore, longer follow-up studies in adults have reported that the suicide risk remains for at least 7 years following the index episode[24] or even longer[45]; therefore, it is likely that suicide risk in early-onset samples will continue to be an important challenge for clinicians after the second year. Finally, being categorized as high suicide risk at baseline was the only remaining significant predictor of future suicide attempt over the following 2 years.

The results are highly consistent with previous prospective studies in adult samples, where the strongest predictors for future suicide attempt were those related to prior suicidal behavior and depressive symptoms. Supporting our findings, a recent study in adult-onset first-episode psychosis[19] also reported that a high level of suicidality at baseline strongly predicted suicide attempt during the 24-month follow-up. With regard to depression, our analysis indicated that severity of depressed mood and antidepressant treatment were independently associated with a high risk of suicide at baseline, but they did not predict follow-up suicide attempt when other confounders were controlled for. In spite of the reported controversial relationship between antidepressant treatment and risk of suicide,[46] the most plausible explanation is that patients were more likely to be treated with antidepressants because these patients suffered from higher rates of severe depression, which is itself related to suicide attempt.

Table 2. Factors Associated With High Risk of Suicide at Baseline[a]

Variable	High Suicide Risk (n = 13)	Nonsuicidal or Low Suicide Risk (n = 97)	Unadjusted Univariate Analysis, OR (95% CI)	Odds Ratio *P* Value[b]	Adjusted Multivariate Analysis, OR (95% CI)	Odds Ratio *P* Value
Sociodemographic features						
Female sex, n (%)	5 (38.5)	32 (33.0)	1.27 (0.38–4.19)	.75		
Age, mean (SD), y	14.6 (2.4)	15.6 (1.7)	−0.75 (0.57–1.00)	**.09**		
Hollingshead-Redlich Scale score (socioeconomic status), mean (SD)	3.0 (1.4)	2.5 (1.3)	1.30 (0.85–2.01)	.25		
Family history (first/second degree), n (%)						
Psychotic disorder	3 (23.1)	29 (29.9)	−0.70 (0.18–2.74)	.75		
Affective disorder	7 (53.8)	35 (36.1)	2.06 (0.64–6.63)	.23		
Completed suicide	1 (7.7)	2 (2.1)	3.95 (0.33–47.00)	.27		
Personal past psychiatric history, n (%)						
ADHD/conduct disorder	1 (7.7)	12 (12.4)	−0.59 (0.70–4.95)	.52		
Depression	2 (15.4)	10 (10.3)	1.58 (0.30–8.17)	.63		
Anxiety	3 (23.1)	5 (5.2)	2.33 (0.43–12.68)	**.05**		
Substance misuse	3 (23.1)	12 (12.4)	2.12 (0.51–8.83)	.54		
Clinical features, mean (SD)						
IQ	86.3 (14.9)	79.2 (19.4)	1.02 (0.98–1.05)	.22		
Duration of untreated psychosis, d	93.5 (58.6)	65.4 (62.1)	1.00 (0.99–1.01)	.14		
Children's Global Assessment Scale score	40.0 (13.0)	32.6 (14.9)	1.03 (0.99–1.07)	**.06**		
Premorbid Adjustment Scale total score	23.7 (21.6)	25.1 (13.4)	−0.99 (0.95–1.03)	.29		
PANSS positive score	18.9 (5.1)	24.4 (6.4)	−0.86 (0.77–0.95)	**.003**		
PANSS negative score	18.8 (8.6)	20.2 (9.1)	−0.98 (0.91–1.05)	.61		
PANSS general score	45.3 (9.3)	44.9 (10.8)	1.00 (0.95–1.06)	.89		
PANSS total score	83.1 (16.8)	89.4 (20.1)	−0.98 (0.95–1.01)	.28		
YMRS score	10.4 (6.5)	18.3 (10.6)	−0.90 (0.83–0.97)	**.01**		
Low insight (PANSS item G12 score > 3), n (%)	4 (30.8)	77 (79.4)	−0.22 (0.57–0.86)	**.001**		
Comorbidity, n (%)						
Severe depression (HDRS score > 20)	11 (84.6)	34 (35.1)	10.19 (2.13–48.65)	**.001**	8.78 (1.15–67.11)	.003
Anxiety	4 (30.8)	1 (1.1)	41.77 (4.20–414.84)	**.001**		
ADHD/conduct	1 (7.7)	8 (8.2)	−0.92 (0.10–8.07)	.71		
Substance misuse	1 (7.7)	13 (13.4)	−0.53 (0.06–4.49)	.62		
Cannabis use	3 (23.1)	29 (29.9)	−0.70 (0.18–2.74)	.34		
Cannabis dependence	1 (7.7)	8 (8.2)	−0.92 (0.10–8.07)	.55		
Suicidal behavior, n (%)						
History of suicide attempt prior to psychoses episode	6 (46.2)	2 (2.1)	40.71 (6.90–240.19)	**.000**	20.13 (1.83–220.55)	.01
Index episode treatment, n (%)						
Antipsychotics	12 (92.3)	96 (99.0)	−0.12 (0.007–2.31)	.27		
Antidepressants	9 (69.2)	9 (9.3)	22.00 (5.63–85.97)	**.000**	15.56 (2.66–90.86)	.002
Mood stabilizers	2 (15.4)	12 (12.3)	1.42 (0.27–7.27)	.47		

[a]Univariate and multivariate backward stepwise regression models.
[b]*P* values in bold ($P < .10$) represent values of dependent variables included in the regression analysis model.
Abbreviations: ADHD = attention-deficit/hyperactivity disorder, HDRS = Hamilton Depression Rating Scale, IQ = intelligence quotient, OR = odds ratio, PANSS = Positive and Negative Syndrome Scale, YMRS = Young Mania Rating Scale.

Family history of suicide has been reported as a risk factor for suicide attempts in both adult-[47,48] and early-onset[29,49] psychiatric disorders. In addition, family studies of suicide in different psychiatric illnesses have shown transmission of suicidal behavior, even when transmission of psychiatric disorders was controlled.[50]

In the present study, attempters were more likely to have a family history of completed suicide, but this association did not reach statistical significance. Standardized interviews were not used to assess family history of suicide and psychiatric illness; therefore, caution is suggested when interpreting results, as collection bias regarding family data cannot be ruled out.

Regarding other potential predictors of suicide attempts less consistently reported by all the studies, we did not find an association with substance disorder or cannabis use at admission. Adolescent patients tend to minimize substance use when they are directly interviewed, and parents are not always aware of their children's habits. In addition, longer duration of untreated psychosis did not predict suicide attempt, but it must be noted that a duration of untreated psychosis of more than 6 months was considered an exclusion criterion in our study. In line with 1 of the previous studies in adults,[22] we found only an unadjusted association between greater insight and both high suicide risk at baseline and suicide attempt during follow-up. Furthermore, attempters did not differ from nonattempters in their rates of diagnostic subtype (affective or nonaffective psychosis) or in positive and negative PANNS scores. While the association of suicide attempt with positive or negative symptoms in first-episode psychosis adult samples has been inconsistently reported,[17,20,21,24] most studies agree that suicide risk does not vary according to whether an individual has a diagnosis of schizophrenia or affective spectrum psychosis.[14,15,22,23,45] This leads to the conclusion that baseline psychotic positive and negative symptoms and a psychotic spectrum diagnosis are likely to have limited predictive value in relation to suicide attempt in both early- and adult-onset first-episode psychosis populations.

Table 3. Predictors of Suicide Attempts During 2 Years of Follow-Up[a]

Baseline Variable	Follow-Up Attempters (n = 10)	Follow-Up Nonattempters (n = 72)	Unadjusted OR (95% CI) (univariate)	Odds *P* Value[b]	Adjusted OR (95% CI) (multivariate)	Odds *P* Value
Sociodemographic features						
Female sex, n (%)	5 (50.0)	22 (30.6)	2.27 (0.59–8.65)	.22		
Age, mean (SD), y	15.6 (1.9)	15.5 (1.7)	1.03 (0.69–1.54)	.86		
Hollingshead-Redlich Scale score (socioeconomic status), mean (SD)	2.5 (1.3)	2.6 (1.2)	−0.90 (0.52–1.58)	.71		
Family history (first/second degree), n (%)						
Psychoses	5 (50.0)	20 (27.8)	2.66 (0.67–9.95)	.16		
Bipolar disorder	2 (20.0)	7 (9.7)	2.32 (0.41–13.15)	.34		
Depression	4 (40.0)	21 (29.2)	1.61 (0.41–6.33)	.48		
Completed suicide	1 (10)	2 (2.8)	3.88 (0.32–47.31)	.28		
Personal past psychiatric history, n (%)						
ADHD/conduct disorder	1 (10)	8 (11.1)	−0.88 (0.99–7.96)	.91		
Depression	3 (30.0)	6 (8.3)	4.71 (0.96–23.11)	**.06**		
Anxiety	1 (10.0)	4 (5.6)	4.25 (0.66–26.99)	.12		
Substance misuse	2 (20.0)	8 (11.1)	2.28 (0.40–12.95)	.35		
Clinical features, mean (SD)						
IQ	84.4 (16.9)	80.8 (18.1)	1.01 (0.97–1.05)	.54		
Duration of untreated psychosis, d	78.1 (49.8)	63.4 (57.1)	1.00 (0.99–1.01)	.43		
Children's Global Assessment Scale score	40.1 (12.7)	32.3 (15.8)	1.03 (0.98–1.07)	.17		
Premorbid Adjustment Scale total score	21.0 (19.2)	24.5 (19.2)	−0.99 (0.94–1.04)	.77		
PANSS positive score	20.3 (4.5)	24.3 (6.2)	−1.07 (0.80–1.00)	**.07**		
PANSS negative score	19.6 (7.8)	20.2 (9.4)	−0.99 (0.92–1.06)	.84		
PANSS general score	45.9 (9.8)	44.8 (11.7)	1.01 (0.95–1.07)	.76		
PANSS total score	85.8 (15.5)	89.2 (21.5)	−0.99 (0.96–1.02)	.62		
YMRS score	13.0 (5.2)	18.2 (11.5)	−0.95 (0.86–1.02)	.16		
Low insight (PANSS item G12 score > 3), n (%)	4 (40.0)	55 (76.4)	−4.85 (1.22–19.23)	**.02**		
Comorbidity, n (%)						
Severe depression (HDRS score > 20)	7 (70.0)	24 (33.3)	4.66 (1.10–19.66)	**.03**		
Anxiety	2 (20.0)	1 (1.4)	17.75 (1.44–218.33)	**.02**		
ADHD/conduct disorder	1 (10.0)	6 (8.3)	1.22 (0.13–11.35)	.86		
Substance misuse	1 (10.0)	8 (11.1)	−0.11 (0.09–7.96)	.91		
Cannabis use	4 (40.0)	19 (26.4)	1.86 (0.47–7.31)	.37		
Cannabis abuse	1 (10.0)	3 (4.2)	2.55 (0.24–27.6)	.47		
Suicidal behavior, n (%)						
History of suicide attempt prior to psychoses episode	5 (50.0)	1 (1.4)	71.00 (6.90–730.24)	**.000**		
Baseline high suicide risk	7 (70)	2 (2.8)	81.67 (11.61–574.35)	**.000**	81.66 (11.61–574.35)	.000
DSM-IV diagnoses at follow-up, n (%)						
Schizophrenia spectrum psychoses	5 (50.0)	47 (65.3)	−0.50 (0.13–1.89)	.50		
Affective spectrum psychoses	4 (40.0)	19 (26.3)	1.86 (0.47–7.31)	.37		
Index episode treatment, n (%)						
Antipsychotics	10 (100.0)	71 (98.6)		.88		
Antidepressants	5 (50.0)	9 (12.5)	7.00 (1.68–29.07)	**.007**		
Mood stabilizers	1 (10.0)	10 (13.9)	−0.77 (0.08–6.88)	.64		

[a]Univariate and multivariate backward stepwise regression model.
[b]*P* values in bold ($P < .10$) represent values of dependent variables included in the model.
Abbreviations: ADHD = attention-deficit/hyperactivity disorder, HDRS = Hamilton Depression Rating Scale, IQ = intelligence quotient, OR = odds ratio, PANSS = Positive and Negative Syndrome Scale, YMRS = Young Mania Rating Scale.

There are several methodological caveats that need to be borne in mind when interpreting our data. The primary limitation is the relatively modest sample size, especially when the sample is divided into attempters and nonattempters. The study may thus be potentially underpowered in terms of detecting associations and large effects. Moreover, the CGI-SS has not been validated in children and adolescents.

Despite these limitations, the study provides data on a child and adolescent sample assessed very soon after psychosis onset with a battery of standardized instruments and over a well-structured period of time. Furthermore, the fact that patients were recruited from different centers from around Spain, from both inpatient and outpatient units, and with a mixture of psychotic diagnoses and naturalistic treatment, heightens the potential generalizability of the findings. Given the lack of longitudinal studies of early-onset first-episode psychosis, our findings should be taken into consideration when an adolescent with recently onset psychosis is admitted for treatment.

Our results have several clinical implications. First, the rates of suicide attempt and the proportion of patients categorized as being at high risk of suicide were at their peak shortly after presentation, while the risk of suicide seemed to increase again slightly after the second year. Second, being classified as high suicide risk by means of an adequate assessment at the time of the acute episode was the most important predictor of subsequent suicide attempt, although in the absence of a current evaluation of suicidality, the presence of suicide attempt prior to the episode may also be an important warning sign. Finally, the high prevalence

of depressive symptoms during the first-episode psychosis and their relationship with suicide risk highlights the importance of accurately assessing these symptoms in adolescent samples. In conclusion, these findings should encourage clinicians to systematically check for the above-mentioned factors associated with suicide attempt in order to detect and treat individuals at high risk of suicide as early as possible and to monitor them closely during follow-up.

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