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Psychodynamic-oriented psychological assessment predicts evolution to schizophrenia at 8-year follow-up in adolescents hospitalized for a manic/mixed episode: Interest of an overall subjective rating

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ABSTRACT

Little is known concerning the prognostic significance of manic/mixed episodes in adolescents. In particular, whether the use of psychodynamic-oriented projective psychological testing predicts evolution to schizophrenia at follow-up has not been established. Eighty subjects, aged 12–20 years old, consecutively hospitalized for a manic or mixed episode between 1994 and 2003 were recruited. All patients were contacted in 2005–2006 for a follow-up assessment. For the subgroup of adolescents ($N = 40$) who had psychodynamic-oriented psychological testing (Rorschach and TAT), two scores regarding psychosocial risk and schizophrenia risk were computed using the clinical global impression (CGI) assessment based on an overall subjective rating given by a panel of expert psychologists who reviewed all protocols. At follow-up (average 8 years), 25 (62.5%) patients, 16 females and nine males, were assessed: 14 still had a diagnosis of bipolar disorder; eight changed to schizo-affective disorder and three to schizophrenia. Inter-rater reliability of both CGI-risk scores (psychosocial risk and schizophrenia risk) showed good clinical consensus with intraclass correlation and Kappa scores ranging from 0.53 to 0.75. Univariate analysis showed that CGI-psychosocial risk score ($p = 0.017$), type of index episode ($p = 0.049$) and CGI-schizophrenia risk score ($p = 0.09$) were associated with transition to schizophrenia spectrum disorder at follow-up. Age, sex, socioeconomic status, duration of stay and the presence of psychotic features at index episode were not associated with the transition. We conclude that the CGI assessment appears to be valid to score risk of poor outcome using psychodynamic-oriented psychological testing and that these scores may predict, in part, the transition to schizophrenia in adolescents with a history of manic/mixed episode.

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1. Introduction

In Europe, the use of psychodynamic-oriented psychological testing is still very much alive, despite some controversies regarding psychodynamic-oriented psychiatric practice in modern psychiatry (Chabert, 1983, 1987; Shentoub, 1990). Some of the controversies are secondary to (i) the limited number of experimental/evidence-based studies available in the scientific literature with a psychodynamic background (Nature Editorial, 2009)

and (ii) the subjective nature of psychodynamic processes (Georgieff, 2010). In two consecutive articles in the American Journal of Psychiatry, Nobel prize winner Eric Kandel summarized the key-issues regarding psychoanalysis and clinical neurosciences. In particular, he pointed that experimental psychology in the field of nonconscious processing and memory provides neuroscientific evidence for Freud's and Janet's description of unconscious phenomena (Kandel, 1998, 1999). However, although challenging in terms of methodology, the psychodynamic paradigm can be used in clinical scientific studies as well (e.g., Muratori et al., 2003). One challenging issue is to show the interest of overall subjective ratings based on psychoanalysis vs. "objective" ratings of evidence-based studies. Thus, it appears critical to develop methods in order to translate in quantitative variables some

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aspects of the psychodynamic experience. In this report, we describe such a method that we applied to psychodynamic-oriented psychological testing and used as a potential predictive variable within the context of an outcome study in adolescents with bipolar disorder type 1 (BD-I) (Brunelle et al., 2009).

There has been renewed interest in juvenile mania despite the seminal description in Kraepelin's monograph (Kraepelin, 1921) and several retrospective studies revealing that 20–60% of adults with BD-I had their first symptoms before the age of 20 years (Joyce, 1984; Lish et al., 1994; Perlis et al., 2004). Despite the fact that diagnosing BD during adolescence remains difficult (Carlson and Strober, 1978; Calderoni et al., 2001) and that controversies still remain concerning the existence of other BD subtypes in this age population (O'Dowd, 2006; Pavuluri et al., 2005), typical BD-I in adolescents is no longer controversial (Carlson, 2005). In adolescents, BD is a frequent diagnosis, but BD-I is rare with lifetime prevalence rates of 1% and 0.1%, respectively (Lewinsohn et al., 1995; Kim-Cohen et al., 2003).

As compared to adult-onset BD, the phenomenology of acute manic episodes in adolescents can be summarized as follows: (1) more mixed episodes than purely manic ones, with frequent aggressive behaviors and irritability (Geller et al., 1995; McElroy et al., 1997; Patel et al., 2006); (2) the presence of psychotic features in 30–50% of the cases (Carlson et al., 1994); (3) high rates of comorbidities including ADHD, substance abuse, conduct and anxiety disorders (Bashir et al., 1987; Chen and Dilsaver, 1995; Schurhoff et al., 2000; Geller et al., 2002b); (4) a higher likelihood of a rapid cycling profile (Kramlinger and Post, 1996; Birmaher et al., 2006). Several prospective studies have been conducted on the course of illness and the long-term prognosis of a manic episode in adolescents, but few exhibit results concerning the determinants of short-term outcome. To summarize, mixed polarity, low socioeconomic status (SES), young age at onset, previous affective episode, psychosis and female sex were associated at least in one study with a poorer outcome (Strober et al., 1995; Geller et al., 2002a; Jairam et al., 2004; Birmaher et al., 2006; DelBello et al., 2007b). Studies on long term outcome are scarce, and very few prognostic factors have been found. Geller's group recently reported an 8-year outcome study of child and adolescent BD-I. Low maternal affection and younger age were predictors of mania relapse and/or longer duration with manic symptoms (Geller et al., 2008). However, patient's transition to schizo-affective disorder or schizophrenia is poorly predictable to date.

The aim of our study was to assess in adolescents hospitalized for a manic/mixed episode whether the use of psychodynamic-oriented psychological testing can predict transition to schizophrenia at follow-up. Therefore, we developed an original clinical global impression (CGI) method (Guy, 1976) to score psychosocial risk and transition risk to schizophrenia using psychodynamic-oriented psychological testing in a sample of adolescents hospitalized at the Pitié-Salpêtrière University Hospital for an acute manic or mixed episode during a 10-year-period (1993–2003). The life-time diagnosis was assessed during this follow-up study.

2. Methods

2.1. Participants

By reviewing patient charts and staff reports, we systematically looked for all children and adolescents consecutively hospitalized for an acute manic or mixed episode between 1993 and 2003 at the Pitié-Salpêtrière Hospital, a university teaching hospital in Paris. During the study period, out of 4165 inpatients, 120 individuals were hospitalized with a discharge diagnosis of BD, schizo-affective or schizophreniform disorder, brief psychotic episode,

manic episode, mixed episode and BD not otherwise specified. Two experienced child and adolescent psychiatrists in the department who had been the treating clinicians for some of the patients, but not all, reviewed the charts and selected all cases ($n = 80$) meeting a DSM-IV discharge diagnosis of BD-I (manic or mixed episode). Clinical characteristics and treatment received at index episode are described in details in a few studies (Consoli et al., 2009; Brunelle et al., 2009).

Among this sample, 40 patients were assessed after an acute episode using cognitive evaluation (WISC III-R: Wechsler Intelligence scale for children III, Revised for youths 15 and younger or WAIS-R: Wechsler Adult Intelligence scale, Revised for youths older than 15 years) and psychodynamic-oriented projective psychological testing (Rorschach test and the thematic apperception test, TAT). Between 2005 and 2006, patients were contacted for a follow-up assessment using psychosocial instruments and the diagnostic interview for genetic disease (DIGS), a life-time semi-structured interview (Nurnberger et al., 1994) (French translation by Claudine Laurent). The study was conducted according to the hospital ethics committee's regulations. The flow of patients interviewed is presented in Fig. 1. To limit patients lost, information by phone and by psychiatrists were also obtained. Finally, 25 patients (68%), 16 females and 9 males, were included in the following analysis. Life-time diagnosis was made through a consensus based on all available data: patients' charts, DIGS and information from the family and treating psychiatrist. The socio-demographic and clinical characteristics of the study sample at both index and follow-up are presented in Table 1.

2.2. Expert consensus scoring for quantification of psychosocial risk and transition risk to schizophrenia using the clinical global impression assessment

A group of five experts blind to diagnosis (EL, ND, MM, MJBS and AL) were asked to review all patients' psychological testing protocols to formulate consensus scores to quantify psychosocial risk

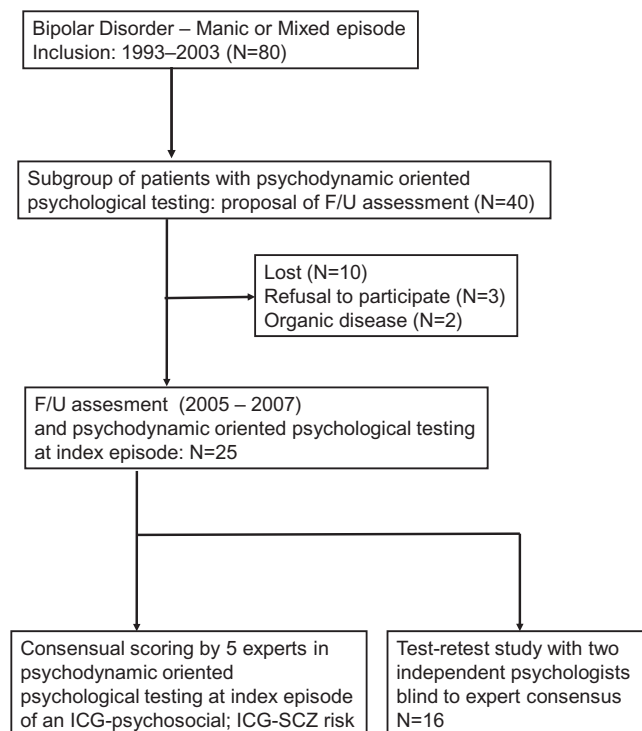


Fig. 1. Diagram flow of the study.

Table 1

Clinical and socio-demographic characteristics of youths at index episode and follow-up (N = 25).

Socio-demographic characteristics at index episode	
Sex	16 F, 9 M
Age (mean \pm SD) [range]	16.3 \pm 1.5 [13–19]
Socio-economic status: N (%) good and middle	18 (72)
Paternal origin: N (%) migrants	10 (40)
Maternal origin N (%) migrants	12 (48)
Clinical characteristics at index episode	
Current episode	15 manic, 10 mixed
Psychotic features: N (%)	14 (56)
Catatonic features: N (%)	2 (8)
IQ (mean) [range]	92.9 [50–125]
Duration of stay in days (mean \pm SD)	102.3 \pm 56.2
Clinical characteristics at follow-up	
Age at F/U assessment (mean \pm SD)	24.7 years \pm 3.8
F/U duration (mean \pm SD)	8 years \pm 3.5
Life-time diagnosis (best estimate)	Bipolar disorder: N = 14 SCZ-affective disorder: N = 8 SCZphrenia: N = 3

F = female; M = male; IQ = intellectual quotient; SCZ = schizo; F/U = follow-up.

and schizophrenia risk according to their experience with cognitive and psychodynamic-oriented psychological testing. The French method for interpretation of projective testing (Rorschach and TAT) was used (Chagnon, 2009). This method relies on a global reading stemming from (i) all the quantitative data (e.g., Hd score = N of partial human content; H score = N of whole human content; Ad score = N of partial animal content; A score = N of whole animal content; F+% = percentage of good quality formal answers) and from (ii) the analysis of the underlying psychodynamics in the progress of the collected answers during Rorschach and TAT protocols. The instructions of the Rorschach (“*imagine from these pictures what you could see*”) and of the TAT (“*tell a story from these pictures*”) involve both perceptive activity and imaginary activity. Therefore, the subject has to deal simultaneously with what he/she sees, thinks, lives and/or what he/she has registered in his/her memory. The subject has to build his/her answers by finding an adaptive compromise between requirements of the external world and internal needs. Rorschach involves the self and the body image representations. TAT allows a qualitative assessment of how one deals with parents or peers and how one has grown up through the key periods of his/her mind development. For the analysis of protocols, the psychologist has to refer to a system coded by examples of answers, and to a qualitative methodology validated empirically by numerous works where cited examples are detailed (Anzieu and Chabert, 1983; Chabert, 1983, 1987; Shentoub, 1990; Rausch de Traubenberg, 1981; Brelet, 1986; Azoulay et al., 2007).

Scoring psychosocial risk and schizophrenia risk was based on a CGI method using a 4-point Likert scale. To study inter-rater reliability, experts were asked, after reaching a consensus for both CGI-psychosocial risk and CGI-schizophrenia risk scores, to formulate guidelines to help blind raters score the same risks. Given the number of protocols to review and the consensus method chosen, this step was conducted during the entire year of 2007.

2.3. Inter-rater reliability study with blind raters

Two independent raters, psychodynamic-oriented psychologists, blind to expert consensus scoring were asked to score 20 of the same psychological testing protocols. The first four testings were used as a training procedure to verify clarity and understanding of the guidelines. The remaining 16 protocols that were scored after the training phase were used to calculate inter-rater reliability.

2.4. Statistical analysis

Statistical analyses were performed using the R software, version 2.7 (The R Foundation for Statistical Computing). For the inter-rater reliability study, we used two statistics: (1) the intraclass correlation was calculated between the two sets of ratings for each score using the 4-item Likert scale as a continuous variable; (2) Cohen's Kappa was calculated between the two sets of ratings for each score transforming the 4-item Likert scale into a dichotomous variable (1 or 2 = low risk; 3 or 4 = high risk).

To assess whether experts' consensus psychological testing CGI scores could predict transition to a life-time diagnosis of schizoaffective disorder and/or schizophrenia, we used univariate analysis. Given the low numbers of schizophrenia (SCZ) at follow-up, schizoaffective disorder and schizophrenia were grouped together and referred to as SCZ spectrum disorders. Other variables entered in the analysis as potential predictors of transition to SCZ spectrum disorders were age, sex, socioeconomic status, type of index episode and the presence of psychotic features at the index episode. For quantitative variables, we used Student's *t* test or the Mann-Whitney test, based on whether the data had a normal distribution or not. For dichotomous variables, we used Fisher's exact tests. Two-tailed values of $p < 0.05$ were considered statistically significant.

3. Results

3.1. Expert consensus scoring

To estimate CGI-psychosocial risk, experts tried to estimate the capacities of adaptation and integration, which allows for a certain autonomy in a particular profession, and possible relational investments supported by narcissistic safety (self-esteem). Thus, both data from global intelligence and projective testing were used. The main data are summarized in Table 2. Concerning cognitive testing, the following indicators of social adaptation were considered; (i) a total IQ score superior to 90; (ii) a homogeneous set of subscores (e.g., between verbal and performance IQ scores), as well as (iii) a coherence between intellectual level and the level of studies reached by the patients.

Concerning the projective testing of personality, the factors linking adaptation and socialisation were considered and are summarized in Table 2. The examples that follow illustrate the best level of social adaptation, testifying for example, a possible common perception: “*Then it is the little boy who looks at his violin and he looks sad*” (card 1, TAT). Other indications were taken into account, such as the possibility of evoking and of approaching the expected conflicts: “*It is a girl with a doll in her arms, she sits in an armchair and her mother speaks to her, and the girl seems to be irritated, she does not want to listen to what her mother says to her*” (card 7GF (girl female), TAT). The presence of a variety of defence mechanisms, that express “slips”, followed by recuperation, also were noted. This allows excluding any functioning in false self and conformity: “*it is the story of two jealous women one of the other one. Because the one has a lover and the other one does not, but the other one is very rich and the other one is very poor... yes there is one who has a man only she cannot get married because she is very poor and her father does not agree*” (card 9GF, TAT). The quality of narcissistic safety (self-esteem), emotional expression as well as the absence of identity disorganisation, were considered to facilitate a better adaptation (Table 2).

To estimate CGI-schizophrenia risk, experts tried to underline typical signs of schizophrenia in Rorschach and TAT, as summarized in Table 3. In the following examples, experts extracted unusual answers indicating risk of schizophrenia. From the point of view of thought processes, the signs of an insufficient anchoring

Table 2
Main characteristics contributing to score psychosocial risk in bipolar I adolescent outcome according to consensus expert panel.

Intellectual level	Rorschach	TAT
WISC or WAIS level ≥ 100	Thought processes: adaptation (F+%, K+)	Acknowledgment of manifest content (correct perception)
Verbal/performance score: homogeneity vs. discrepancy	Socialisation abilities: Ban, H%, A%, D%, including quality of peer relations	Capacity to reach latent content Potential to discuss inner or interpersonal conflicts
Coherence between Wechsler level and school grade	Quality of narcissistic foundation: varied and structured contents (K+, kan+) Quality of affective expression: relating to the content Few or no psychotic manifestations	Variety of defence mechanisms that form the construction of different narratives Slips that eliminate conformity and false self and potential recuperation No drive or identity

WISC-R, III = Wechsler Intelligence scale for children, Revised and third edition; WAIS-R = Wechsler Adult Intelligence scale, Revised; TAT = thematic apperception test; F+% = percentage of good quality formal answers; K+ = good quality kinaesthetic formal answers; Kan+ = good quality animal kinaesthetic formal answers; Ban = common responses; H% = percentage of human content; A% = percentage of animal content; D% = perception of big details usually perceived.

Table 3
Main characteristics contributing to score transition risk towards schizophrenia in bipolar I adolescent outcome according to consensus expert panel.

	Rorschach	TAT
Relating to thought processes	Insufficient adaptation to reality (F+% < 65–70%), inability to find a compromise between perception and thought, insufficient symbolization	Perceptive inadequacy, insufficient socialisation, inability to find a compromise between perception and thought
Relating to body image	Attacked and fragmented body image (Hd > H, H morbid, Ad > A) Lack of differentiation	Badly formed characters, deteriorated objects Unclear identities
Relating to narcissism	Massive projection of overpowered figures and attributes of this power Failures of narcissistic foundations	Massive representation with megalomaniac themes of destruction, of death, etc.
Relating to affects	Massive expression of affect or the opposite (coldness) Affective dissonance or dissonance between affect and representation (morbidly) Massive eruption of drives	Massive expression of affect or the opposite, abstractions, obtrusiveness Coarse speech
Relating to object relations	Destructiveness, projective identification, lack of object relations, psychotic splitting	Destructive, persecuting and fusional relations Projective identification Omnipotence

TAT = Thematic apperception test; Hd = partial human content; H = whole human content; Ad = partial animal content; A = whole animal content; F+% = percentage of good quality answers formal.

in the reality or those testifying to the incapacity to find compromises between perception and thought (defect of symbolization) were considered important. Signs relating to the fragility of body image were also noted; they are translated by identity disorganisation and a lack of differentiation between images and identity: “Two twins stemming from the same foetus with their two hearts in the centre connect with two livers” (card 3, Rorschach).

Regarding the quality of narcissistic foundations, they attempted to spot answers reporting the presence of massive megalomaniacal projections (e.g., “The divinity with fields of flowers below the crushed blue spiders” Card 10, Rorschach), or on the contrary answers that pointed to the failure of narcissistic foundations. The emergence of massive affects expressed in a raw way, or on the contrary, a notable emotional coolness were considered to testify to poor adaptive skills regarding the inner world: “Two strange eyes with teeth across” (Card 3, Rorschach). In the same way, the presence of abstractions or massive impulsive tendencies were taken into account. Object relations marked by destructiveness, projective identification and dissociation or, on the contrary, excessive adherence to external reality were factors of schizophrenic risk: “Two bloodstains which certainly come from a prey of the monster which followed him(it), and both blotches shout for help (Card 3, Rorschach).

3.2. Inter-rater reliability study and predictive factors for transition to schizophrenia spectrum disorders

Based on the expert guidelines, two psychodynamic-oriented psychologists scored blindly the same psychological protocols. In-

ter-rater reliability of both CGI-risk scores showed a rather good inter-rater reliability with intraclass correlation and Kappa scores ranging from 0.53 to 0.75 (Table 4). As expected Spearman correlation of the two scores was high and significant ($\rho = 0.7$, $p < 0.001$).

Univariate analysis showed that age at index episode (Student's $t = -0.244$, $p = 0.81$), sex (Fisher Exact test, $p = 0.43$), socioeconomic status (Fisher Exact test, $p = 0.14$), duration of stay at index episode (Student's $t = 0.21$, $p = 0.84$) and the presence of psychotic features at index episode (Fisher Exact test, $p = 0.69$) were not associated with transition to SCZ spectrum disorders at follow-up. CGI-schizophrenia risk tended to be associated (Student's $t = 1.74$, $p = 0.09$). Two variables were associated with a diagnosis of SCZ spectrum disorder at follow-up: (i) type of episode (Fisher, odd = 5.89, 95%CI = [1.01–39.8], $p = 0.049$), with more mixed episodes at index episode in patients who changed diagnosis at follow-up (64% vs. 21%, respectively) and (ii) CGI-psychosocial risk (Mann-Whitney, $W = 110$, $p = 0.017$), with higher scores in patients who changed diagnosis at follow-up.

4. Discussion

4.1. Limitations, strengths and context

The strengths of the study are (i) the long follow-up period (10 years in average) that allows transition to occur; (ii) the use of the CGI method that appeared to be a valid method to transform qualitative interpretation of psychodynamic-oriented psychological testing into a quantitative variable and (iii) the clinical

Table 4

Inter-rater reliability: raw data, ICC and Kappa.

Case	CGI-SCZ risk		CGI-psychosocial risk	
	Rater 1	Rater 2	Rater 1	Rater 2
1	4	3	4	4
2	2	2	3	3
3	1	2	3	3
4	1	1	1	1
5	3	3	3	3
6	4	4	2	4
7	3	4	4	4
8	2	2	2	1
9	4	4	4	4
10	2	2	3	3
11	4	3	4	3
12	1	1	3	4
13	3	2	2	2
14	4	2	4	2
15	2	1	3	1
16	2	2	3	3
ICC [95% CI]	0.74 [0.41–0.9], $p < 0.001$		0.53 [0.07–0.81], $p = 0.028$	
Kappa	0.75, $p = 0.002$		0.54, $p = 0.029$	

CGI: clinical global impression; SCZ: schizophrenia; ICC: intraclass correlation; 95% CI: 95% confidence interval.

experience of the panel of experts that proposed the guidelines. The limitations of the study are (i) the size of the study sample; (ii) the fact that all patients were recruited in only one centre; (iii) the use of univariate analysis and (iv) the manic/mixed symptomatology of the index episode that limited the clinical value of the CGI-scores prediction, as it cannot be generalized to other adolescents at risk for schizophrenia.

4.2. CGI method to assess psychodynamic-oriented psychological testing

The clinical global impression scale (CGI) is a classic assessment tool used to provide overall subjective ratings (Guy, 1976). This scale yields three different measures: illness severity, global improvement and an efficacy index. It has been widely used in clinical research and especially in clinical trials of psychotropic treatments, both in adult and child psychiatry (Cohen et al., 2008). The scale is sensitive enough to differentiate responders vs. non-responders in clinical trials. Compared to more specific rating scales, the CGI scales capture many characteristics that are not strictly related to the focused symptomatology but more related to the subjective clinical expertise translated in a quantitative variable (Kadouri et al., 2007). Here we used a modified CGI procedure to summarize subjective global impression of experts in the field of psychodynamic-oriented psychological testing, regarding outcome risk of adolescents with an acute manic/mixed episode. Guidelines were formulated by experts who helped with scoring patients' protocols. As evidenced by the inter-rater validity study, this procedure appears to be valid with moderate to good ICC scores, with CGI-schizophrenia risk showing better ICC than CGI-psychosocial risk. The rather positive results of the inter-rater reliability study support the view that the CGI method is valid to capture some aspects of experts' subjectivity.

To improve ICC, we planned to detail with raters how they understood guidelines for scoring in cases 6, 14 and 15 (Table 4), as these cases had low inter-rater agreement. A modified guidelines procedure will be discussed before conducting another inter-rater reliability study. This second study should include a larger sample of adolescents with a diversity of psychopathology to allow clinical generalization of the procedure outside the field of bipolar disorder.

4.3. Predictive factors of transition to schizophrenia in adolescents who had a manic/mixed episode

Several prospective studies have been conducted on the course of illness and long-term prognosis of a manic episode in adolescents, but few exhibit results on the determinants of short-term outcome. To summarize, mixed polarity, low socioeconomic status (SES), young age at onset, previous affective episode, psychosis and female sex were associated, at least in one study, with a poorer outcome (Strober et al., 1995; Geller et al., 2002a; Jairam et al., 2004; Birmaher et al., 2006; DelBello et al., 2007a). However, none reported transition risk to schizophrenia spectrum disorder. In the current study, sex, age, socioeconomic status, and longer duration of stay did not predict transition to schizophrenia spectrum disorder, despite the usual sex ratio of early onset schizophrenia (Bonnot and Mazet, 2006). Similarly, the presence of psychotic features was not a predictor of transition to schizophrenia spectrum disorder. This warrant more comments, as this result confirms that (i) bipolar disorder with psychotic features and acute schizophrenic episode may be confounded in adolescents (Calderoni et al., 2001) and (ii) the presence of psychotic features is not specific for schizophrenia spectrum disorder and is not predictive of poorer prognosis at follow-up (Brunelle et al., 2009). On the contrary, mixed polarity was associated with a higher proportion of transition to schizophrenia spectrum disorder. This preliminary result has not been reported previously to our knowledge. A confirmatory analysis on the whole sample ($N = 80$) will be conducted to increase power and limit type II error. If confirmed, this result may extend Strober's study (Strober et al., 1995) that found mixed polarity to be a predictor of poorer short-term outcome. Finally, both CGI-risk scores were associated with transition to SCZ spectrum disorder at follow-up, showing that this approach may be of interest in predicting transition in patients at risk for SCZ. In this respect, the CGI-psychosocial score that also included data from the WISC or WAIS, appeared to be more predictive than the CGI-schizophrenia risk score. Whether cognitive and psychodynamic-oriented psychological testing may predict transition to SCZ spectrum disorder needs to be assessed in studies of at-risk adolescents, in particular when psychopathology is not specific in terms of clinical symptomatology as in subjects with ultra high risk (UHR) of psychosis in which transition to SCZ at 2-year F/U is estimated around 15% (Yung et al., 2008). In these studies, predictors of transition to schizophrenia are few and limited to early age of onset, sex, poor early functioning and cannabis consumption (Ammeringer et al., 2006; Bonnot and Mazet, 2006). In a recent paper, McGorry and collaborators suggested that disturbance of the basic sense of self may be a core marker of psychotic vulnerability, particularly of SCZ spectrum disorders (Nelson et al., 2008). Identifying self-disturbance in the UHR population may open perspectives for identifying individuals truly at high risk of SCZ, thus supplementing the UHR identification approach. Given that some aspects of sense of self are captured in psychodynamic-oriented psychological testing (see Tables 2 and 3), the current CGI-risk method might be helpful to test this prediction and its generalization.

5. Conclusion

We conclude that the CGI method seems to be valid for scoring the risk of transition to schizophrenia spectrum disorder using psychodynamic-oriented psychological testing and that these scores may partially predict transition to schizophrenia spectrum disorder in adolescents with a history of manic/mixed episode.

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