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Assessment of real-world daily-living skills in early-onset schizophrenia trough the Life Skills Profile scale

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ABSTRACT

Background. Adolescents with early-onset schizophrenia (EOS) have marked deficits in their functional outcome. However, few short and reliable instruments for assessing real-world functioning have been specifically validated in EOS. The Life Skills Profile (LSP) is a brief scale widely used in schizophrenia and considered one of the optimal instruments for assessing real-world daily living skills. The purpose of this study was to examine the usefulness and the feasibility of the LSP to assess daily living skills in EOS.
Methods. The sample included 53 clinically and pharmacologically stabilized adolescent patients with EOS and 53 healthy adolescents. Content review of the scale and internal consistency analysis were conducted in the EOS group. A subgroup of 30 patients was re-assessed over a 10-day interval to establish the test–retest reliability. Measures of functional outcome were used to assess convergent validity, and measures of intelligence and symptoms were used to assess divergent validity. Discriminant validity was analyzed through logistic analysis and the receiver-operating characteristic curve.
Results. The LSP and its subscales showed high reliability, adequate internal consistency and adequate convergent and divergent validity. The LSP was also found to be a sensitive instrument for detecting differences between patients and healthy adolescents, correctly classifying 84% of the sample. The estimated area under the curve was 0.925 (95% CI 0.875–0.976).
Conclusions. The LSP showed adequate psychometric characteristics in adolescents with EOS and appeared to be a valid, reliable and time-efficient instrument for use in clinical practice and research settings to assess real-world daily-living skills in EOS.

1. Introduction

Adolescents with early-onset schizophrenia (EOS) have severe deficits in their functional outcome (Lay et al., 2000; Ballageer et al., 2005; Oie et al., 2011). Functional deficits are one of the most important factors in the disability associated with schizophrenia, and are a source of great distress for patients and family members. From the patients' and their relatives' perspective, enhanced functioning may be the most meaningful and valued outcome of treatment. Better social and role functioning are consistently identified as important self-defined treatment goals by both patients and families (Bellack et al., 2007). In EOS, treatment of functional deficits would be particularly important due to the impact of the illness in a critical developmental period. During adolescence, specific social roles are developing (such as independent living, secondary social relationships and partnerships) and neurocognitive functions, which are highly associated with functional outcome, are still in maturation (Lay et al., 2000; Oie et al., 2011). The availability of measures that adequately gauge the abilities to function in the environment is essential to plan and assess the treatment of specific functional deficits. While symptom control is an important treatment outcome, treatments that enhance social and role functioning are especially needed. In this context, progress in research would be fostered by a relatively economical instrument for the assessment of functional outcome. Given concerns about length and ease of administration, as well as subjects' burden for assessment batteries, a practical measure must be both cost efficient and require a modest amount of time to administer (Bellack et al., 2007). However, in EOS

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there are still few satisfactorily reliable instruments for the assessment of functional outcome that are practical in terms of time involved.

Functional outcome is usually used as a broad concept which includes interpersonal skills, community functioning, social functioning, daily-living skills and work performance (Bowie et al., 2008). In adult-onset schizophrenia (AOS) research, Bowie et al. (2006) have delineated two complementary but different aspects of functional performance: what the individual can do under optimal conditions (functional capacity) and what the individual actually does in day-to-day living (real-world outcome). Real-world outcome assessment is usually indexed by an observer-rated report examining a variety of elements such as personal care or participation in community activities. Recently, the Life Skills Profile – LSP – (Rosen et al., 1989) has been selected as one of the best instruments for assessing real-world day-to-day living skills in schizophrenia (Leifker et al., 2011).

The LSP is a time-efficient instrument which takes no more than 8–10 min, usually less, to be answered. The original version of the LSP has demonstrated good psychometric properties (Parker et al., 1991). It is focused on measuring the level of patients' daily living skills, not on the symptoms of schizophrenia (Parker et al., 2002). Different versions of the original scale have been published, such as the brief form LSP-20 (Rosen et al., 2001). The Spanish version of the LSP (Bulbena et al., 1992) is derived from the original LSP, and has also demonstrated good psychometric properties, maintaining the same factorial structure as the original (Fernández de Larrinoa et al., 1992). LSP scores have been found to be a significant predictor of hospital readmission (Parker and Hadzi-Pavlovic, 1995) and of the length of hospital stay in schizophrenia (Ballesteros et al., 2002).

Bellack et al. (2007) highlighted the need to take into account characteristics of patients such as the age when assessing functioning, but to our knowledge neither the LSP nor the other measures of functional outcome commonly used in AOS have been specifically validated in adolescents with EOS. The aim of this study was to examine the usefulness and the feasibility of the LSP to assess daily living skills in a sample of clinically and pharmacologically stabilized adolescents with EOS. After adapting some contents to make them appropriate for an adolescent population, we hypothesized that the LSP would demonstrate satisfactory reliability, validity and sensitivity to detect differences between patients and healthy adolescents.

2. Methods

2.1. Subjects

The sample included 53 adolescent patients with EOS who were recruited from the population of outpatient at the Child and Adolescent Psychiatry and Psychology Department of the Hospital Clínic in Barcelona, Spain. Inclusion criteria were age between 12 and 18 years, a DSM-IV-TR schizophrenia-type disorder with onset before the age of 17 and being clinically and pharmacologically stabilized. Diagnoses and psychopathological stability were confirmed by the treating psychiatrist, using DSM-IV-TR criteria. An expert child and adolescent psychiatrist verified diagnoses and psychopathological stability at the time of the assessment. Exclusion criteria were psychotic exacerbation during the previous 6 weeks, antipsychotic type/dosage modification during the previous 6 weeks, intelligence quotient below 70, having an active substance misuse disorder and the presence of organic syndromes or neurological disorders.

Fifty-three healthy adolescents were included as a control group (HC). Control subjects were recruited from schools of the same catchment area as patients and they were matched to patients for age. We also tried to match for gender, and though this was not fully accomplished, groups did not differ significantly on this variable. It was not possible to match according to familial socioeconomic background, and this variable was statistically controlled for. The groups were not matched for general intelligence ability or academic grade. Although this approach may be debated, low intelligence quotient (IQ) is known to be impaired in EOS (Frangou, 2010) and patients with EOS achieve lower educational levels (Hollis, 2000; Puig et al., 2012). Therefore, differences in IQ and in academic grade could be considered an inherent effect of the disorder rather than confounding variables. The strategy of matching subjects for these variables could actually remove the effect of the disease, leading to biased comparisons between overachieving patients and underachieving controls (Landro and Ueland, 2008; Holmen et al., 2010). Despite this, we took into account the potential effects of these variables through statistical methods. Control subjects and their parents were interviewed with the Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS-PL) (Kaufman et al., 1997). Exclusion criteria for the control group were a history of any axis I psychiatric disorder, IQ below 70, active substance misuse disorder and presence of organic brain syndromes or neurological disorders. The control subjects were compensated, through their parents, for the time and travel costs related to their participation in this study.

The study was approved by the Ethics Committee of the institution. All parents or legal guardians gave written informed consent and all patients and control subjects agreed to participate.

2.2. Measures

- IQ was estimated using the Vocabulary and Block Design subtests from the Spanish version of the Wechsler Intelligence scales for children (WISC-IV) (Wechsler, 2003) or for adults (Wechsler, 2001), depending on age. To provide a standard metric, and controlling for age and developmental effects, scores were converted to demographically corrected T-scores (mean of 50 and SD of 10).
- The Spanish version of the Positive and Negative Syndrome Scale (PANSS) (Peralta and Cuesta, 1994) was administered by two expert child and adolescent psychiatrists to rate severity of symptoms. Clinicians were blind to the patients' IQ and functional assessment except for the Global Assessment Scale (C-GAS) (Shaffer et al., 1983) scores. The inter-rater reliability of clinicians' administration of the PANSS was assessed and the within-class correlation coefficient was higher than 0.8. We used the 3-factor solution of the PANSS which included positive symptoms, negative symptoms and general symptoms factors. We also used the total scale score. Depressive symptoms were rated by the same clinicians using the Calgary Depression Scale (CDS) (Addington et al., 1990).
- Functional assessment included the Spanish version of the LSP, the Vineland Adaptive Behavior Scales (VABS), 2nd edition (Sparrow et al., 2005), and the C-GAS. The LSP was administered to the whole sample. The C-GAS and the VABS were administered to patients with EOS. The C-GAS was scored by the same clinicians who rated the clinical measures. The LSP and the VABS questionnaires were answered and rated by one of the parents of each of the subjects. Both instruments were used as observer-rated reports. In all cases, the respondent was living with the subject. For both instruments, where there was missing data, the item was not scored (or scored as 0). In order to assess the test–retest reliability of the LSP, it was administered twice: once at baseline to the whole sample, and once over a 10-day interval to a subgroup of 30 adolescents with EOS.

The C-GAS is the child version of the Global Assessment Scale (GAS) (Endicott et al., 1976), one of the most commonly used instruments to assess global functioning. It is a one-dimensional scale designed for the assessment of the overall level of functioning. The scale ranges from 1 (maximum level of disease) to 100 (the healthiest). It accounts for the psychological, social and academic functioning of the subject