Reliability and Sources of Validity Evidence of the Oviedo Schizotypy Assessment Questionnaire-Abbreviated (ESQUIZO-Q-A)

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The main goal of this research was to examine the reliability and different sources of validity evidence of the Oviedo Schizotypy Assessment Questionnaire-Abbreviated (ESQUIZO-Q-A) in nonclinical adolescents. The final sample was made up of 1,455 participants, 705 males (48.5%), with a mean age of 15.92 years (SD = 1.18). The internal consistency of the subscales ranged from .62 to .75. The analysis of its internal structure yielded a three-dimensional solution based on the dimensions: Reality Distortion, Anhedonia, and Interpersonal Disorganization. Likewise, the goodness-of-fit indices derived from the Confirmatory Factor Analysis for the hypothesized three-factor model were adequate. The three dimensions of the ESQUIZO-Q-A were significantly correlated with the subscales of the Strengths and Difficulties Questionnaire. The ESQUIZO-Q is a brief and simple self-report with adequate psychometric properties for the assessment of schizotypal traits in nonclinical adolescent populations. Future research should continue to explore the metric quality of the ESQUIZO-Q-A (e.g., sensitivity and specificity) and incorporate the new advances in psychological and educational assessment such as Computerized Adaptive Testing.
Keywords: schizotypy, psychosis proneness, schizotypal, self-report, ESQUIZO-Q-A, adolescents.

El principal objetivo de esta investigación fue examinar la fiabilidad y la obtención de diferentes evidencias de validez del Cuestionario Oviedo para la Evaluación de la Esquizotipia-Abreviado (ESQUIZO-Q-A) en adolescentes no clínicos. La muestra final la formaron un total de 1455 participantes, 705 varones, con una edad media de 15,92 años (DT = 1,18). Los niveles de consistencia interna para las subescalas del ESQUIZO-Q-A oscilaron entre 0,62 y 0,75. El análisis de la estructura interna arrojó una solución tridimensional concretada en las dimensiones: Distorsión de la Realidad, Anhedonia y Desorganización Interpersonal. Asimismo, los índices de bondad de ajuste derivados del análisis factorial confirmatorio para el modelo tridimensional hipotetizado fueron adecuados. Las tres dimensiones del ESQUIZO-Q-A correlacionaron significativamente con las subesalas del *Strengths and Difficulties Questionnaire*. El ESQUIZO-Q-A es un autoinforme breve y sencillo con adecuadas propiedades psicométricas para la valoración de los rasgos esquizotípicos en población no clínica. Futuras investigaciones deberían continuar examinando la calidad métrica del ESQUIZO-Q-A (p. ej., sensibilidad y especificidad) e incorporar los nuevos avances en la evaluación psicológica y educativa como los tests adaptativos computerizados.
Palabras clave: esquizotipia, propensión a la psicosis, esquizotípica, autoinforme, ESQUIZO-Q-A, adolescentes.

The use of measurement instruments for the assessment of schizotypal traits (psychometric high-risk method) is considered a feasible, valid, inexpensive and non-invasive technique for identifying individuals at risk for the later development of schizophrenia-spectrum disorders (Kwapil, Barrantes Vidal, & Silvia, 2008; Lenzenweger, 2010; Raine, 2006). This paradigm allows the exploration of symptoms similar to those found in patients with schizophrenia while minimizing the confounding effects of medication and hospitalization. Moreover, it can be used in combination with genetic high-risk studies to determine relevant aetiological factors for schizophrenia and related conditions (Kwapil et al., 2008). Empirical evidence indicates that individuals from the general population with high scores on schizotypy self-reports are at heightened risk for the later development of schizophrenia-spectrum disorders (Dominguez, Wichers, Lieb, Wittchen, & van Os, 2011; Gooding, Tallent, & Matts, 2005; Kaymaz et al., in press; Poulton et al., 2000; Welham et al., 2009). Also, these individuals who report schizopypal experiences, or psychotic-like experiences, present a greater degree of affective, social, interpersonal and behavioral deficit than those who do not report such experiences (Armando et al., 2010; Fonseca-Pedrero, Paino, Lemos-Giráldez, Sierra-Baigrie, et al., 2011; Kwapil et al., 2008; Raine, 2006; Yung et al., 2009). In this regard, schizotypal experiences in non-ill people may represent the behavioral expression of vulnerability for psychotic disorder (van Os, Linscott, Myin-Germeys, Delespaul, & Krabbendam, 2009).

The idea of preventing or intervening promptly in individuals at risk for psychosis with the aim of mitigating or reducing the personal, familial and social impact caused by the disorder has motivated the construction and validation of measurement instruments for the assessment of schizotypy, or more generically, psychosis proneness (Fonseca-Pedrero et al., 2008). There are different instruments in the literature for its assessment in adult populations such as the Schizotypal Personality Questionnaire (SPQ) (Raine, 1991) or the Psychosis Proneness Scales (Chapman, Chapman, & Kwapil, 1995). Moreover, several self-reports have also been designed for the assessment of this construct in adolescent populations, such as the Junior Schizotypy Scales (JSS) (Rawlings & MacFarlane, 1994), the Schizotypy Traits Questionnaire (STA) for children (Cyhlarova & Claridge, 2005) or the ESQUIZO-Q: Oviedo Schizotypy Assessment Questionnaire (Fonseca-Pedrero, Muñiz, Lemos-Giráldez, Paino, & Villazón-García, 2010). The ESQUIZO-Q is a recently developed self-report composed of 51 items, and specifically designed for the assessment of schizotypal traits in adolescents. This tool incorporates recent advances in psychological and educational measurement, such as the Likert-type response format, the analysis of differential item functioning for polytomus data, guidelines for tests and items construction. Likewise, there is also an abbreviated version (ESQUIZO-Q-A), composed of 23 items divided into three empirically derived subscales namely: Distortion of Reality, Anhedonia and Interpersonal Disorganization. Both versions have shown adequate psychometric properties. The levels of internal consistency found for the 51-item version ranged from .62 to .90, whereas for the abbreviated version they ranged from .67 to .71. In addition, different sources of validity evidence have been obtained for both versions (Fonseca-Pedrero, Muñiz et al., 2010; Fonseca-Pedrero, Lemos-Giráldez, et al., 2011; Fonseca-Pedrero, Paino, Lemos-Giráldez, Vallina-Fernández, & Muñiz, 2010). However, and given that the ESQUIZO-Q-A is a self-report of recent construction, it is necessary to carry out new studies that will continue to examine its metric quality in independent and representative samples of the general adolescent population.

Schizotypy is not a monolithic construct, but rather a multidimensional entity whose factors vary depending on the self-report used and/or the sample characteristics (Fonseca-Pedrero, Paino et al., 2009). The great majority of studies agree on the fact that schizotypy is a multidimensional structure based on three or five factors. Raine et al.'s (1994) Disorganized model, made up of the Cognitive-Perceptual (magical thinking, unusual perceptual experiences, ideas of reference, paranoid ideation), Interpersonal (no close friends, blunted affect, social anxiety) and Disorganized (odd behavior, odd speech) dimensions, has been consistently replicated (Bora & Arabaci, 2009; Fossati, Raine, Carretta, Leonardi, & Maffei, 2003; Raine et al., 1994; Wuthrich and Bates, 2006), showing some parallels with the factor structure found in patients with schizophrenia (Liddle, 1987). Furthermore, the structure, content and nature of schizotypy have been explored in adolescents. The Disorganized Model has also been replicated in adolescent populations (Fonseca-Pedrero, Lemos-Giráldez, Paino, Villazón-García, & Muñiz, 2009; Fossati et al., 2003), even though some authors propose a third or even a fourth dimension of Impulsive Non-conformity, Magical Ideation or Paranoia (Cyhlarova & Claridge, 2005; Fonseca-Pedrero, Linscott, Lemos-Giráldez, Paino, & Muñiz, 2010; Rawlings & MacFarlane, 1994). Specifically, Fonseca-Pedrero, Muñiz, et al. (2010), using the ESQUIZO-Q in a representative sample of Spanish adolescents found a three-factor solution composed of the following factors: Reality Distortion (Ideas of Reference, Magical Thinking, Unusual Perceptual Experiences and Paranoid Ideation), Negative (Physical Anhedonia and Social Anhedonia) and Interpersonal Disorganization (Odd Thinking and Speech, Odd Behavior, Lack of Close Friends and Excessive Social Anxiety); however, and although the dimensionality of schizotypy has been analysed in adolescent populations, there have been contradictory results found which make it necessary to examine its structure and content using new measurement instruments specifically designed for

their use in representative samples of the general adolescent population.

The availability of brief, simple and easily administered screening instruments for the identification of participants who are at risk of developing a schizophrenia-spectrum disorder is of vital importance from both clinical and research points of view. Likewise, it is important to have at our disposal brief measurement instruments with adequate psychometric qualities that can be used in other contexts (e.g., educational) where, although the main research objective is not to examine schizotypy, it is necessary to obtain information regarding this construct. It is worth mentioning that adolescence is a period of special interest for the study of these types of disorders as well as their risk markers given that the confounding effects that are commonly found in patients with schizophrenia can be avoided (e.g., medication). Within this frame of research, the main goal of this study was to analyze the reliability and obtain different sources of validity evidence of the Oviedo Questionnaire for Schizotypy Assessment-Abbreviated (ESQUIZO-Q-A) in nonclinical adolescents.

Method

Participants

The selection of participants was conducted by means of stratified random sampling, by clusters, at the classroom level, in a population of approximately 36,000 students from the Principality of Asturias (a region situated in the north of Spain). Strata were created according to geographical area - East, West, Central and South - and educational stage - compulsory and post-compulsory -, where the extraction probability of the school depended on the number of students. Pupils were from different types of secondary schools - public, grant-assisted private, and private -, and from vocational/ technical schools. The method of selection guarantees the representativeness of the sample of adolescents belonging to this geographical region. The final sample was made up of a total of 1455 students, 705 male (48.5%) and 750 female (51.5%), from 28 schools and 90 classes. Mean age was 15.92 years (SD = 1.18), with a range of 14 to 18. Distribution of the sample by age was as follows: age 14 (n = 194; 13.3%), age 15 (n = 357; 24.5%), age 16 (n = 411; 28.2%), age 17 (n = 357; 24.5%) and age 18 (n = 136; 9.3%). With the aim of conducting the pertinent statistical analyses, a cross-validation study was performed where the total sample was then randomly split into two subsamples. The first sample consisted of 702 students (343 boys) with a mean age of 15.88 years (SD = 1.17) and the second consisted of 753 participants (362 boys) with a mean age of 15.96 years (SD = 1.19). Neither age (t = -1.34; p > .05) nor sex rates (χ^2 = .90; p > .05) differed across subsamples.

Instruments

The *Oviedo Schizotypy Assessment Questionnaire-Abbreviated* (ESQUIZO-Q-A) (Fonseca-Pedrero, Muñiz et al., 2010) is a self-report based on ESQUIZO-Q and developed for the assessment of schizotypal traits in adolescent populations. It rests on the diagnostic criteria proposed in the DSM-IV-TR (American Psychiatric Association, 2000) and on Meehl's (1962) schizotaxia model on genetic predisposition to schizophrenia. The ESQUIZO-Q-A items were selected on the basis of an exhaustive review of the literature on schizotypy and related constructs (Fonseca-Pedrero et al., 2008). ESQUIZO-Q-A comprises a total of 23 statements with a Likert-type response format in 5 categories (from 1 "*totally disagree*" to 5 "*totally agree*") distributed across 3 subscales derived empirically: Reality Distortion (Magical Thinking, Unusual Perceptual Experiences and Paranoid Ideation), Anhedonia (Physical Anhedonia and Social Anhedonia) and Interpersonal Disorganization (Odd Thinking and Speech, Ideas of Reference, Odd Behavior, Lack of Close Friends and Excessive Social Anxiety). The validation of the ESQUIZO-Q-A was conducted in a sample of 1,653 non-clinical adolescents. Internal consistency levels for the subscales ranged from .67 to .71, and evidence was obtained from different sources of validity evidence (Fonseca-Pedrero, Muñiz et al., 2010; Fonseca-Pedrero, Paino, Lemos-Giráldez, Sierra-Baigrie, et al., 2011).

The *Strengths and Difficulties Questionnaire* (SDQ) (Goodman, 1997) is a self-report widely used for the assessment of different social, emotional and behavioral problems related to mental health in children and adolescents over the previous 6 months. The SDQ is made up of a total of 25 statements distributed across 5 subscales (each with 5 items): Emotional Symptoms, Conduct Problems, Hyperactivity, Peer Problems and Prosocial Behavior. In this study, we used a Likert-type response format in 5 categories (from 1 "*totally disagree*" to 5 "*totally agree*"), so that the score on each subscale ranged from 5 to 25 points. The psychometric properties of the SDQ in its self-report version have been widely analyzed (Bourdon, Goodman, Rae, Simpson, & Koretz, 2005; Goodman, 2001; Ruchkin, Jones, Vermeiren, & Schwab-Stone, 2008). In the present study, we used the version adapted and translated into Spanish (Fonseca-Pedrero, Paino, Lemos-Giráldez & Muñiz, 2011) that is available on the Internet (http://www.sdqinfo.com). In this study, the levels of internal consistency for the SDQ subscales ranged from .56 (Peer Problems) to .71 (Emotional Symptoms).

The *Oviedo Infrequency Scale* (INF-OV) (Fonseca-Pedrero, Lemos-Giráldez, Paino, Villazón-García, et al., 2009) is a 12-item self-report with a 5-point Likert-type rating scale format (from 1 "*completely disagree*" to 5 "*completely agree*") similar to others used in the schizotypy literature. Its goal is to detect participants who respond

randomly, pseudorandomly, or dishonestly. Students with more than 2 incorrect responses on this test were removed from the sample. Based on their scores on the scale, a total of 64 participants were excluded.

Procedure

This study is part of a more extensive investigation whose objective is the early detection of individuals at a heightened risk for schizophrenia-spectrum disorders (www.p3-info.es). The questionnaires were applied in groups of 15-25 participants who were informed of the confidentiality of their responses and the voluntary nature of their participation. For those under 18, parents were requested to provide written informed consent for their child's participation in the study. Participants received no kind of incentive, monetary or otherwise. Application of the questionnaires took place under the supervision of the researcher. The study was approved by the Research and Ethics Committees at the Universidad de Oviedo, and Consejería de Educación del Principado de Asturias.

Data Analyses

First, descriptive statistics were calculated for the ESQUIZO-Q-A subscales, and their internal consistency was estimated via Cronbach's alpha. The items of the ESQUIZO-Q-A were extracted based on the 51-item version of the ESQUIZO-Q. Second, with the aim of studying the dimensional structure of the ESQUIZO-Q-A, a study of cross-validation was conducted, randomly dividing the sample into two subsamples. First-order and second-order Principal Components Analyses (PCA) were conducted with the first subsample, and a Confirmatory Factor Analysis (CFA) was conducted with the second subsample where the hypothesized unidimensional, two-factor model and three-factor model were tested. The method of estimation used was the Diagonally Weighted Least Squares. Since the item scores were non-normally distributed ordinal variables, the CFA was conducted on the polychoric correlation matrix (Jöreskorg & Sörbom, 1993). The following goodness-of-fit indices were used: Satorra-Bentler scaled chi-square test (S-B χ^2), Comparative Fit Index (CFI), General Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA) (and its confidence interval) and Standardized Root Mean Square Residual (SRMR). S-B χ^2 permits the correction of χ^2 when

the distributional assumptions are violated. Hu and Bentler (1999) suggested RMSEA should be less or equal to .06 and CFI and GFI values superior or equal to .95 being indicative of a well-fitting model. Third, we examined the relationship between the ESQUIZO-Q subscales and the SDQ subscales by means of Pearson correlations. SPSS 15.0 (Statistical Package for the Social Sciences, 2006) and LISREL 8.73 (Jöreskorg & Sörbom, 1993) were used for all data analyses.

Results

Descriptive statistics

In table 1, the descriptive statistics for the ESQUIZO-Q-A scales are displayed, namely, the mean, standard deviation, asymmetry, kurtosis, score range and levels of internal consistency. As can be observed, the levels of asymmetry and kurtosis were found to fall within the normality range, with the exception of the Reality Distortion subscale. The levels of internal consistency, estimated by means of the Cronbach's Alpha coefficient, ranged from .62 to .75. All the discrimination indices, calculated for their respective subscales, were superior to .27.

Evidences of internal structure of the ESQUIZO-Q-A

For the analysis of the dimensional structure underlying the ESQUIZO-Q-A scores, a cross-validation study was conducted dividing the total sample into two random subsamples. First and second order PCAs were conducted on the first subsample. The first-order PCA revealed eight eigenvalues above one that explained 61.53% of the total variance. The measure of sample adequacy was 3533.14 ($p < .001$) and the Kaiser-Meyer Olkin index (KMO) .76. The factorial loadings, the eigenvalues and the percentages of explained variance for the first-order PCA are shown in table 2. The first component was composed of items related to *Unusual Perceptual Experiences, Magical Thinking* and *Ideas of Reference.* The second component was composed of items assessing *Social Anhedonia.* The third component was composed of items measuring the *Lack of Close Friends.* The fourth component comprised items assessing *Odd Thinking.* The fifth component corresponded to items regarding *Physical Anhedonia.* The sixth component was composed of items regarding *Paranoid Ideation.* Finally,

Table 1

Descriptive statistics of the dimensions of the Oviedo Schizotypy Assessment Questionnaire-Abbreviated (ESQUIZO-Q-A)

ESQUIZO-Q-A	Nº items	Mean	SD	Asymmetry	Kurtosis	Range	Alpha
Reality Distortion	6	9.70	4.29	1.66	3.31	6-30	.75
Anhedonia	7	12.81	3.67	0.64	0.59	7-29	.62
Interpersonal Disorganization	10	21.59	6.24	0.56	0.39	10-49	.72

Table 2

First-order Principal Components Analysis of the abbreviated version of the Oviedo Schizotypy Assessment Questionnaire-Abbreviated (ESQUIZO-Q-A)

Items	Components							
	I	II	III	IV	V	VI	VII	VIII
18	.82							
11	.80							
21	.56							
19	.47							
5	.43					−.39		
6		.71						
1		.69						
23		.64						
22		.53						
12			.88					
9			.87					
3				.86				
13				.83				
15					.80			
16					.78			
20					.64			
10						−.88		
8						−.72		
4	.36					−.37		
7							.72	
17							.72	
2								.83
14								.68
Eigenvalue	4.29	2.29	1.70	1.43	1.21	1.13	1.09	1.01
% Explained Variance	18.66	9.97	7.38	6.22	5.25	4.91	4.74	4.40

Note: Factorial loadings below .30 were eliminated

the eighth component was composed of items that made reference to *Odd Behavior*.

In the second-order PCA the measure of sample adequacy was 1353.01 ($p < .001$) and the KMO index .73. The factorial loadings, the eigenvalues above one and the percentage of explained variance are shown in table 3. As can be observed, a component with an eigenvalue below one was chosen due to the high percentage of variance it explained and to its psychological interpretability. The three extracted components explained 57.06% of the total variance. The first second-order component was named *Reality Distortion* and was formed by the Unusual Perceptual Experiences/Magical Thinking/Ideas of Reference, Paranoid Ideation and Odd Behavior components. The second second-order component was named *Anhedonia*, and it corresponded to the first-order components Physical and Social Anhedonia. The third second-order component included the first-order components Odd Thinking, Excessive Social Anxiety and Lack of Close Friends; it was denominated *Interpersonal Disorganization*.

Next, a CFA was conducted with the second subsample testing three hypothesized dimensional models: a) a one-factor model where the existence of one single general factor is hypothesized; b) two factor model (*Reality Distortion* plus *Interpersonal Disorganization* and *Anhedonia*) and c) a three-factor model which resulted from the PCA (*Reality Distortion, Anhedonia* and *Interpersonal Disorganization*). The fit indices corresponding to the one-factor model were: S-B χ^2 = 1917.57, df = 230, $p \leq .001$; CFI = .87; GFI = .86; RMSEA = .099 [90% C.I: .095-.10]; SRMR = .12. The fit indices corresponding to the two-factor model were: S-B χ^2 = 1356.25 df = 229, $p \leq .001$; CFI = .91; GFI = .89; RMSEA = .081 [90% C.I: .077-.085]; SRMR = .11. The fit indices corresponding to the three-factor model were: S-B χ^2 = 1295.54, df = 277, $p \leq .001$; CFI = .92; GFI = .90; RMSEA = .079 [90% C.I: .075-.083]; SRMR = .11. The standardized coefficients and the squared multiple correlations for the three-factor model are presented in table 4. All standardized coefficients were statistically significant ($p < .05$), except for items 15 and 20. The correlations among the latent variables ranged from .08 (Anhedonia-Reality Distortion) to .72 (Reality Distortion-Interpersonal Disorganization).

Table 3

Second-order Principal Components Analysis of the abbreviated version of the Oviedo Schizotypy Assessment Questionnaire-Abbreviated (ESQUIZO-Q-A)

First-order components	Second-order components		
	I	II	III
Unusual Perceptual Experiences/ Magical Thinking and Ideas of Reference	.79		
Paranoid Ideation	.74		
Odd Behavior	.69		
Social Anhedonia		.79	
Physical Anhedonia		.78	
Odd Thinking			.85
Excessive Social Anxiety			.73
Lack of Close Friends			.32
Eigenvalue	2.38	1.25	.93
% Explained variance	29.75	15.68	11.63

Note: Factorial loadings below .30 were eliminated

Table 4

Standardized factorial loadings resulting from the Confirmatory Factorial Analysis for the three-factor model

Items	Dimensions			R^2
	Reality Distortion	Anhedonia	Interpersonal Disorganization	
1		.71		.51
2			.61	.37
3			.41	.17
4			.60	.36
5			.71	.50
6		.74		.54
7			.36	.13
8	.78			.61
9			.59	.35
10	.69			.48
11	.75			.56
12			.58	.34
13			.46	.21
14			.71	.51
15		.28		.08
16		.41		.17
17			.46	.22
18	.73			.53
19	.73			.54
20		.18		.03
21	.78			.61
22		.55		.30
23		.73		.53

Evidence of validity based on relationships with measures of other variables

With the aim of obtaining sources of validity evidence of the ESQUIZO-Q-A scores, an examination of the Pearson correlations between the ESQUIZO-Q-A subscales and the SDQ subscales followed. As can be observed in table 5, the results indicate that: a) the subscales of the ESQUIZO-Q-A correlated negatively with the Prosocial Behavior subscale of the SDQ, with values that ranged from -.09 to -.42; b)

Table 5

Correlations between the subscales of the Oviedo Schizotypy Assessment Questionnaire-Abbreviated (ESQUIZO-Q-A) and Strengths and Difficulties Questionnaire (SDQ)

SDQ	ESQUIZO-Q-A		
	Reality Distortion	Anhedonia	Interpersonal Disorganization
Emotional Symptoms	.28*	.11*	.51*
Conduct Problems	.34*	.13*	.29*
Hyperactivity	.22*	−.01	.30*
Peer Problems	.29*	.08*	.47*
Prosocial Behavior	−.12*	−.42*	-.09*

*$p < .01$

there was a moderate and significant correlation between the Reality Distortion subscale of the ESQUIZO-Q-A and the SDQ subscales; c) the Anhedonia subscale of the ESQUIZO-Q-A showed statistically significant correlations, although low in value, with the SDQ subscales; and d) the Interpersonal Disorganization subscale showed a strong correlation with all the SDQ subscales (with the exception of Prosocial Behavior).

Discussion and Conclusions

The present study set out to address some of the limitations in the schizotypy field regarding the availability of self-reports constructed and validated specifically for their use in adolescence, a developmental period of particular interest for the early detection of schizophrenia-spectrum disorders (APA, 2000; Pérez-Álvarez, 2012). Likewise, it has contributed to improve our understanding of the dimensionality of schizotypy, measured through self-reports, as well as its relationship with emotional and behavioral symptomatology. In this regard, the main goal of this research was to study the reliability and to obtain different sources of validity evidence of the Oviedo Schizotypy Assessment Questionnaire-Abbreviated (ESQUIZO-Q-A) (Fonseca-Pedrero, Muñiz et al., 2010) in nonclinical adolescents. The results show that the ESQUIZO-Q-A seems to be a self-report instrument with adequate psychometric properties for the measurement of schizotypal features in adolescent populations. This multifaceted construct appears consistent with that found using other measures of schizotypy (e.g., Schizotypal Personality Questionnaire) and given the existing evidences, a three-factor structure seems to provide a reasonable description of schizotypy in this age. Also, the ESQUIZO-Q-A dimensions were closely related with the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) subscales, a general measure for psychopathology.

The levels of internal consistency for the ESQUIZO-Q-A subscales ranged from .62 to .75. These values were fairly similar to those obtained in previous studies. For

instance, Fonseca-Pedrero, Muñiz, et al. (2010), using a representative sample of Spanish adolescents, found that the levels of internal consistency for the three subscales of the ESQUIZO-Q-A ranged from .67 to .71. However, the Cronbach's Alpha coefficient for the Negative dimension was inferior to .70, thus it would be interesting to review the items that compose this facet incorporating new items to increase its internal consistency.

The study of the internal structure of the ESQUIZO-Q-A revealed the presence of 8 first order components grouped into a three high-order structure composed of the Reality Distortion, Anhedonia and Interpersonal Disorganization dimensions. Likewise, the goodness-of-fit indices for the Confirmatory Factorial Analysis supported this hypothesized three-factor model of schizotypy. Although it is true that the fit indices were adequate, they did not surpass the established cut-off points (Hu & Bentler, 1999). In accordance with the previous literature, the structure of schizotypy, measured by means of the ESQUIZO-Q-A, emerges as a multidimensional construct. This factor structure is similar to that found in adults (Bora & Arabaci, 2009; Fossati et al., 2003; Raine et al., 1994; Raine, 2006; Wuthrich and Bates, 2006), and in nonclinical adolescents (Cyhlarova & Claridge, 2005; Fonseca-Pedrero, Lemos-Giráldez, Paino, Villazón-García, et al., 2009; Fossati et al., 2003); nevertheless, the strict comparison of studies is hindered by the heterogeneity of the self-reports and the samples used (gender, age, clinical/non-clinical). Recently, Fonseca-Pedrero, Muñiz, et al. (2010), using the ESQUIZO-Q-A, found a factorial structure fairly similar to that found in the present study except that the Odd behavior and the Ideas of Reference subscales (4 items) saturated in the Interpersonal Disorganization and not in the Reality Distortion dimension. Therefore, the data support the validity of the ESQUIZO-Q-A and replicate the strict factorial structure found previously. In previous works, for instance, Fonseca-Pedrero, Linscott, et al. (2010), using the Thinking and Perceptual Style Questionnaire (TPSQ), found a similar structure where schizotypy was made up of the Social Disorganization, Anhedonia and Aberrant Processing dimensions. In general terms, the data seem to converge

toward a three-factor structure of schizotypy in nonclinical adolescent populations.

The examination of the convergent-discriminant validity of the ESQUIZO-Q-A revealed that the subscales were closely related with the emotional and behavioral symptomatology reported by the adolescents. These data are convergent with those obtained in previous studies, both in general adult populations and in adolescents. For instance, Wigman et al., (2011), using the Community Assessment of Psychic Experiences (CAPE-42) and the SDQ in a large sample of non clinical adolescents, found that those individuals who reported psychotic–like experiences (PLEs) also presented higher levels of emotional and behavioral symptoms. In this regard, individuals reporting schizotypal experiences – or PLEs- present a greater degree of affective, cognitive, social, interpersonal and behavioral deficit (Armando et al., 2010; Fonseca-Pedrero, Paino, Lemos-Giráldez, Sierra-Baigrie, et al., 2011; Kwapil et al., 2008; Lenzenweger, McLachlan, & Rubin, 2007; Raine, 2006; Yung et al., 2009). According to the dimensional models of psychosis, schizotypal experiences could be conceived as an intermediate "phenotype", quantitatively less severe and qualitatively similar to that found in patients with schizophrenia, which is present with less intensity, persistence, frequency and associated impairment (Dominguez et al., 2011; van Os et al., 2009). Also, these results allow us a more comprehensive understanding of the links between the two sets of variables at a subclinical level. The emotional and conduct problems present in adolescents who report schizotypal traits could be seen as moderating factors and may increase the risk for schizophrenia-spectrum disorders in an additive or synergic manner.

These data support the validity of the ESQUIZO-Q-A as a useful tool for the assessment of schizotypy in adolescent populations. This self-report would allow us to select participants "at risk" in order to conduct a more exhaustive psychological assessment; however, the results obtained in this study should be interpreted in the light of some possible limitations. First, we only assessed schizotypal traits by means of self-reports, and it would have been interesting to use hetero-reports from parents or teachers. Second, it must be borne in mind that the use of the ESQUIZO-Q-A as a screening method may be associated with the detection of false positives and stigma. Third, the ESQUIZO-Q-A items were extracted from a 51-item version. Fourth, no information was obtained about antecedents of psychological problems in participants' families.

Future research should continue to refine the psychometric properties (e.g., sensitivity and specificity) of the ESQUIZO-Q-A and its relationship with other variables and self-reports (Bones Rocha, Pérez, Rodríguez-Sanz, Borrell, & Obiols, 2010; Fonseca-Pedrero, Paino, Lemos-Giráldez, Sierra-Baigrie, & Muñiz, 2010; Olivares, Sánchez-García, López-Pina, & Rosa-Alcázar, 2010). Finally, studies combining different high-risk paradigms (genetic, clinical

and psychometric) within the current models of developmental psychopathology are useful with a view to increasing predictive power for the detection of individuals at risk for the later development of schizophrenia-spectrum disorders.

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