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TRANSLATION AND VALIDATION INTO SPANISH OF THE FORMAL THOUGHT DISORDER SCALES

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Abstract

This paper has investigated the internal consistency and the factorial structure of a Spanish version of the Thought Disorder Scales using a sample of 102 individuals (50% men; Average age=40.84 years). The results support the internal consistency of the scales. During our research, it was found that the components of both scales saturate the same factor when they are compared with each other. Additionally, the research's data shows that the scales have good reliability. During our research, it was found that the components of both scales saturate the same factor when they are compared with each other. The totals of the factors from both scales have high values; more specifically, the FTD-Patient scale has a value of .937 and the FTD-Caregiver scale has .991. The exploratory factor analysis clearly demonstrated that the accumulated variance of the Thought Disorder Scales factors was 77.60%. Also, the invariance of this structure across gender was demonstrated. Overall our findings suggest that the REIS instrument is easy to understand and fast to complete, it is considered valid for the assessment EI in Spanish-speaking.

Keywords: Schizophrenia, scales, assessment, formal thought disorders.

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1. Introduction

Formal thought disorders are a main feature in schizophrenia and they are clinically characterized by word associations, incoherent speech, and deficits in abstract thinking (Andreasen, 1979a; Docherty, 2012; Jeronimo, Queirós, Cheniaux, & Telles-Correia, 2018; Lindenmayer & Kahn, 2006; Salavera & Puyuelo, 2010; Salavera, Puyuelo, Antoñanzas, & Teruel, 2013).

Currently, formal thought disorders are simply described as follows: "the things that a subject speaks about represent the content and the way in which he/she speaks represents the form. Delusions represent pathologies of the content, while formal thought disorders represent pathologies of the form."

We can conclude that, while delusion stems from central mental dysfunction, formal thought disorders reflect a linguistic or local dysfunction. In addition, the form and content of thought and of language are independent dimensions; they are parts of a broader whole: communication. Put another way, thought has –on the one hand– a *form* and –on the other hand– a *content*. These two must complement each other, but they do not have to be the same as the form and content of language (Barrera & Berrios, 2001; Barrera, Handel, Kondel, & Laws, 2015; Gooding et al., 2012).

2. Problem Statement

It has been found that more than 50% of schizophrenic patients have formal thought disorders (Tan & Rosell, 2019). The formal thought disorder scales (Barrera, McKenna, & Berrios, 2008) that this research was performed with especially underscore pragmatics, following the statement made by Jaspers (1963) about patients with schizophrenia as a reliable source for the description of their own psychotic experiences.

3. Research Questions

The formal thought disorder scales (Barrera, McKenna, & Berrios, 2008) are twoscales: one filled out by the patient (Formal Thought Disorder Scale-Patient) and another which must be filled out by the main physician (Formal Thought Disorder Scale-Caregiver). The researchers were wondering if they could be used with Spanish population.

4. Purpose of the Study

The research objective was to investigate the psychometric properties of the Spanish version and to evaluate the possibility of using the Formal Thought Disorder. Scale (Patient and Caregiver) with Spanish-speaking. Both was translated into Spanish, and its factorial structure, internal consistency and convergent validity were evaluated.

5. Research Methods

5.1. Participants

The research's sample was made up of 102 individuals diagnosed with schizophrenia and who were receiving outpatient treatment at Mental Health Psychosocial Rehabilitation Centers that are part of the

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Government of Aragon's Health System. Subject participation was voluntary and they signed informed consent. Ethical guidelines were adhered to in accordance with the Declaration of Helsinki. Men and women were equally represented (50%) and the average age of the study population was 40.84 years, with a range between 20 and 65 years and a standard deviation of 11.18. For the Spanish adaptation of the FTD scales, the classic backwards translation procedure was followed (Muñiz, Elosua, & Hambleton, 2013). The scales were applied in the context of an investigation focusing on the analysis of the presence of different formal thought disorders in individuals with schizophrenia.

5.2. Data Analysis

The approach of the study aligned with the basic ethics principles and procedures of the Aragon Research Ethics Committee (CEICA), and its protocol was formally recognized as ethical, aligning with Law 14/2007 on Biomedical Research.

For statistical analysis, the SPSS Statistics software package was used (Statistical Package for Social Science for Windows), version 22.0.

Factor analysis was undertaken – a technique that, through data reduction, is used to explain variability among observed variables in terms of a lower number of unobserved variables called factors. The observed variables are modeled as linear combinations of factors plus "error" terms. The aim was to analyze the consistency of the factors on the scale. To verify if the factorial structure of the Spanish version aligns with that found in the original version, conformational analysis was undertaken with the SPSS 22.0 program on the two samples studied.

5.3. Instruments

Formal Thought Disorder Scale-Patient (Barrera, McKenna, & Berrios, 2008):

This scale presents 29 self-report items that allow patients to reflect the symptoms they exhibit as a result of psychosis (for example, derailment or poor speech content) or as a result of organic dysfunction (for example, perseveration) in accordance with that stated by Andreasen (1979a, 1979b). The items are dichotomous in nature (yes/no responses), and abnormal responses are worth two points while normal responses are worth one point. The scale yields 7 factors: 1) verbal deficit in working memory; 2) excessive lexical activation; 3) affective excitement or psychosis; 4) circumstantiality; 5) fading in language production; 6) reduction in participation in conversations; and 7) sustained attention deficit.

Formal Thought Disorder Scale-Caregiver (Barrera, McKenna, & Berrios, 2008):

The Formal Thought Disorder Scale-Caregiver includes 33 items on a 4-point Likert scale, allowing physicians to assess thought and language symptoms in patients with schizophrenia. The four factors that this scale analyzes are: 1) affective excitement or psychosis; 2) language that is difficult to understand; 3) sustained attention deficit; and 4) deficits in pragmatics. To fill out the scale, physicians must have known the patient for at least 3 months and have observed him/her in different situations

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6. Findings

The aim of the research was to validate the formal thought disorder scales proposed by Barrera *et al.* (2008). After undertaking the translation process, the first step was to study the scales' reliability, which turned out to be excellent in the case of the FTD-Patient scale (alpha=.918) and very good (alpha=.883) in the FTD-Caregiver scale; values above 0.8 are normally considered good and values above 0.9 are excellent. The values of both scales are high, indicating a great degree of internal consistency among the scale items.

After that first step, the next thing to do was to undertake the factorial analysis of the formal thought disorder scales (Barrera et al., 2008) in both their "patient" and "caregiver" forms (table 2). To be able to make comparisons, we chose to use the approach that defines a model's alignment with the data as good if the ratio between chi-squared and the degrees of freedom does not exceed the value of 3 (Hu & Bentler, 1999). During our research, the scales had values of less than three – indicating that they align well and confirming internal validity.

During our research, it was found that the components of both scales saturate the same factor when they are compared with each other (Table 01). The totals of the factors from both scales have high values; more specifically, the FTD-Patient scale has a value of .937 and the FTD-Caregiver scale has .991. Nevertheless, there are factors like *excess semantic priming*, *reduction in participation in conversations*, and *sustained attention deficit* on the Patient scale and *affective excitement or psychosis* and *deficits in pragmatics* on the Caregiver scale that show variability, with the factor "reduction in participation in conversations" having the highest incidence of variability in this sense. When we analyze the total variance explained, we can see that only three factors obtain a score greater than 1: deficit in working memory (6.347), excessive semantic priming.

Table 01. Rotated Component Matrix - Formal Thought Disorder Scales for Patients and Caregiver

	Extraction	Component 1	Component 2	Component 3
Deficit in working memory	.630	.690		
Excessive semantic priming	.577	.641		.358
Affective excitement or psychosis	.648	.728		
Circumstantiality	.694	.816		
Fading in language production	.627	.806		
Reduction in participation in conversations	.736	.384		.704
Sustained attention deficit	.758	.795		.307
Patient Scale Total	.996	.937		
Affective excitement or psychosis	.802		-.754	-.310
Disorganized production of speech	.945		-.921	
Sustained attention deficit	.848		-.871	
Deficits in pragmatics	.837		-.867	.425
Caregiver Scale Total	.991		-.964	

Extraction method: principal component analysis.
Rotation method: Oblimin with Kaiser normalization.
Rotation converged in 7 iterations

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In addition, the internal correlations of the new scales were analyzed. One problem that came up during our research was that the formal thought disorder scale (Barrera *et al.,* 2008) is not validated nor approved in Spanish or for Spain; therefore, in addition to the factorial analysis undertaken previously, this research also included the analysis of correlations between the different subscales. In addition, the scales have good levels of correlation and the results to this end are encouraging, given the diagnostic proximity of both scales – with a positive correlation (.668**). This would not have been the case for prior scales, like the TDI (Harrow & Marengo, 1986), TLI (Liddle et al., 2002), CLANG (Chen et al., 1999), Krawiecka Goldberg and Vaughan (1977), and the Bazin Scale (Sarfati, Lefrère, Passerieux, & Hardy-Baylé, 2005).

7. Conclusion

Our intention was to discover if the different formal thought disorder scales measure the same thing; having obtained similar results, we can see that there are slight differences between the different scales. The aim was to qualitatively analyze these aspects, going beyond the quantitative. Likewise, it was necessary to examine whether the different formal thought disorder scales indicate the same thing; therefore, factorial analysis was undertaken for the three scales (FTD-Patient, FTD-Caregiver, and TLC). It was found that the factors of the TLC scale, with their saturation results, measure similar aspects to those of the FTD-Patient and FTD-Caregiver scales. The data from our research shows that the scales have a good degree of reliability (α>.9), indicating that they measure what they set out to measure and they do so with good numbers to back up their reliability.

Additionally, the aspects of the time used and the ease with which the scales are administrated all favor the newer FTD scales. Another important aspect and a common point raised since the Andreasen TLC Scale appeared in 1979 is that, for the scales considered in the past, the physician evaluated the FTD without taking into account the patient's own point of view. That matter has been resolved with this new scale that takes on the format of a self-report (FTD-Patient) and is complimented by the FTD-Caregiver scale. As a weak point, even if the number of subjects in the study is clinically significant, studies with larger samples would be necessary to facilitate the scale's use. Likewise, we must note the need for longitudinal studies which assess these disorders over time, as well as their relationship with psychopathology (APA, 2013).

In terms of the perspectives towards formal thought disorders held by the caregiver and by the patient, the results show that the perceptions of both are not so different; the scales converge for a large number of subjects, although it is true according to both scales that caregivers consider the presence of formal thought disorders more than subjects with schizophrenia. In terms of diagnosis by means of both scales, there are only small diagnosis discrepancies in some subjects – mostly related with the amount of insight that the patient has and his/her awareness of the disease (Osatuke, Ciesla, Kasckow, Zisook, & Mohamed, 2008).

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