

Measuring Effort in Neuropsychological Evaluations of Forensic Cases of Spanish Speakers

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Abstract

Changing demographics indicate a dramatic growth in Spanish speakers in the USA. There is an increasing need to provide valid neuropsychological evaluations to these individuals as well as interest in providing the same in Latin American countries. This is especially the case with symptom validity testing, in general, and those involved with litigation in particular. To address this situation, the Dot Counting Test, the Rey 15-Item Test, and the Test of Memory Malingering were administered to clinical controls as well as individuals involved in litigation-forensic non-capital and forensic capital murder cases. The results represent a first step toward the determination of the utility of those tests to address effort in Spanish speakers in the USA.

Keywords: Cross-cultural/minority; Forensic neuropsychology; Malingering/symptom validity testing

Introduction

The demand for bilingual and bicultural information in all areas of psychology, especially clinical neuropsychology, grows as the Spanish-speaking population of the USA expands dramatically. According to the recently released U.S. Census figures, the Hispanic population has increased by 43% from 2000 to 2010 making it the largest minority group, 16.3% of the total U.S. population (U.S. Bureau of the Census, 2010). This large portion of the population is poorly represented in psychological research. Castaño, Biever, González, and Anderson (2007) stated that clinicians who responded to a survey regarding the challenges of providing mental health services in Spanish believed that there was a “lack of appropriately normed assessment instruments to effectively evaluate racial and ethnic groups” (p. 671). Due to the variability of the Hispanic population, many of the assessments available lacked the appropriate population involved in the norming process (Castaño et al., 2007). Language as a single entity has proven to be a deficit in the available assessment of Spanish speakers, but along with language, culture is also a critical factor (AERA, APA, & NCME, 1999).

According to a growing number of researchers, culture has been indicated as having more influence than age or education in neuropsychology (Ardila, 2005; Judd et al., 2009; Puente & Agranovich, 2004), supporting the need for quality assessments for a multitude of cultural backgrounds. Although clinical neuropsychology has now begun to appreciate the importance of cultural differences in the measurement of neuropsychological function, limitations persist in the underlying knowledge base of neuropsychological testing with Spanish speakers. Previous research indicated that neuropsychological tests were created primarily in the English language for and by North American culture, thus potentially challenging their application to Spanish-speaking populations (de la Plata et al., 2009; Puente & Ardila, 2000; Vilar-López, Gómez-Río, Caracuel-Romero et al., 2008; Vilar-López, Gómez-Río, Santiago-Ramajo et al., 2008). There is a plethora of problems with the “translation” of neuropsychological tests in Spanish (Judd et al., 2009). For example, the questionable literal translations of some assessments from English to Spanish create a need for further development of tools that are linguistically and culturally unaffected (de la Plata et al., 2009).

Along with cultural issues, an increasingly important part of a neuropsychological assessment is that of symptom validity testing (Bush et al., 2005; Reynolds, 1998). According to the National Academy of Neuropsychology (Bush et al., 2005), this portion of the evaluation has become critical and “essential.” This NAN Position Paper suggests that at least one symptom validity test (SVT) should be used in a battery of any neuropsychological assessment. However, none of the SVTs have been developed in the Spanish language. Due to limited culturally validated data for minority cultures, the use of an SVT validated for the majority of the population must be carefully examined (Bush et al., 2005).

With the growing number of Spanish speakers comes an increase in legal cases in which the defendant speaks Spanish. Thus, in litigation where capability or effort of the defendant is questioned, the need for SVTs culturally and linguistically unaffected is necessary, as is the need for such in the standard clinical neuropsychological instruments. There are some studies conducted on SVTs for Spanish speakers in Spain: Ramirez, Chirivella-Garrido, Caballero, Ferri-Campos, and Noe-Sebastian (2004) proved the specificity of the Test of Memory Malingering (TOMM) with elder Spaniards, and Vilar-López and colleagues demonstrated that the TOMM has a high sensitivity and specificity for groups of analogues, controls, patients with high probability of responding with insufficient effort, and forensic patients suspect of malingering (Vilar-López et al., 2007; Vilar-López, Gómez-Río, Caracuel-Romero, Llamas-Elvira, & Pérez-García, 2008; Vilar-López, Gómez-Río, Santiago-Ramajo, et al., 2008). The Dot Counting Test (Dot), the Rey 15-Item test (RFIT), and several other SVTs were investigated as well, determining that the Dot was an adequate measure of effort whereas the RFIT was suggested to be used with caution (Vilar-López, Gómez-Río, Santiago-Ramajo, et al., 2008). Nevertheless, the generalizability of the information gathered from these studies to Spanish speakers in the USA is unknown.

Most of the available research in regard to litigation and SVTs relates simply to what tests are applicable to individuals experiencing psychological or neuropsychological distress, independent of the type of litigation in which the individual is involved (e.g., Demakis, Gervais, & Rohling, 2008). Moreover, research on malingering has focused on personal injury litigants and disability claimants (e.g., Henry, Heilbronner, Mittenberg, & Enders, 2006), and to date, no study (neither with Spanish nor English speakers) has studied SVTs with a group of individuals involved in capital murder (CM) cases, in which the defendant is suspect of committing murder.

In summary, though the number of Spanish speakers in the USA is increasing, few appropriately developed neuropsychological tests in Spanish are available. Of particular importance, the application of SVTs to Spanish speakers in general, as well as those involved in litigation, is significantly missing in the research. What does exist on SVTs with Spanish speakers is small and limited to Spain. Also, the utility of SVTs in CM cases has never been explored. To address this paucity of information, a study was conducted that measured tests of effort in different populations of Spanish speakers residing in the USA, using both clinical and forensic populations, and including a group of CM cases to understand the applicability of these SVTs in different forensic cases relative to controls using a differential prevalence design.

Method

Participants

Participants were 82 Spanish-speaking volunteers from two sources: a community-based health clinic (Cape Fear Clinic, an outpatient multidisciplinary health center for the indigent and uninsured in southeastern North Carolina) and a private neuropsychological practice in Wilmington, NC. The clinical control (CC) group consisted of 29 Spanish-speaking individuals who were outpatients at the community clinic. The participants received no benefits and all signed the informed consent (if they were illiterate, the consent agreement was read to them). There were a total of 22 women and 7 men (mean age = 41.61, mean years of education = 9.50; Table 1). Participants' country of origin included: Argentina, Dominican Republic,

Table 1. Descriptive statistics of the participants regarding nationality

	Mexican (<i>N</i> = 54)	Other (<i>N</i> = 26)	<i>t</i> / χ^2	<i>p</i> -value
Age (mean [<i>SD</i>])	35.94 (10.67)	35.62 (11.43)	0.126	.900
Education (mean [<i>SD</i>])	7.83 (3.72)	8.00 (4.75)	-0.171	.865
Gender (men/women)	33/21	20/6	1.962	.161
RFIT (mean [<i>SD</i>])	11.57 (3.80)	11.81 (3.54)	-0.249	.804
Dot Counting (mean [<i>SD</i>])	14.68 (6.91)	14.31 (3.79)	0.249	.804
TOMM 1 (mean [<i>SD</i>])	43.65 (6.36)	45.68 (6.61)	-1.201	.234
TOMM 2 (mean [<i>SD</i>])	47.28 (5.12)	47.68 (5.78)	-0.287	.775

Notes: RFIT = Rey 15-Item test; TOMM = Test of Memory Malingering.

Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Peru, and Puerto Rico. Approximately 20% of the individuals approached to participate in the CC group declined to participate in the study. Reasons that were provided were not enough time and lack of interest.

Also, data were collected from de-identified files from a private neuropsychological practice (AEP). The CM group consisted of 28 individuals. These cases were drawn from redacted files from cases where individuals were involved with either guilt or sentencing phases of CM cases. There were a total 3 women and 25 men (mean age = 29.79, mean years of education = 7.71). The other forensic (OF) group consisted of 25 individuals involved in personal injury, Social Security disability, or workers' compensation (Table 1). There were a total of 2 women and 23 men (mean age = 36.56, mean years of education = 6.68). Countries of origin included: Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Peru, and Puerto Rico.

Instruments

Three tests were administered: the Dot (Boone et al., 2002), the RFIT (Rey, 1964), and the TOMM (Tombaugh, 1996). These specific assessment scales were chosen because the prior studies from Spain used these tests (Vilar-López et al., 2007; Vilar-López, Gómez-Río, Caracuel-Romero, et al., 2008; Vilar-López, Gómez-Río, Santiago-Ramajo, et al., 2008). Also these assessments are inexpensive, easy to administer, and commonly used (Sweet, Peck, Abramowitz, & Etzweiler, 2002). The Spanish version of the TOMM was used (Vilar-López, Perez Garcia, & Puente, 2012), which contains the same materials and drawings as the American version. Instructions were adapted using back-translation, and the obtained Spanish version was successfully used with analog, differential prevalence, and known groups designs (Vilar López et al., 2007, Vilar-López, Gómez-Río, Santiago-Ramajo, et al., 2008, Vilar-López et al., 2012).

Procedure

For the data collected from the redacted files, individuals must have completed at least two of the three tests being investigated.

Participants of the CC group were recruited from a community health clinic. Eligibility criteria of participation was Spanish as the primary language, 18 years or older, and willingness to participate. The purpose and procedure of the testing was explained in Spanish and the opportunity to ask questions prior to testing was given. All participants were required to read and sign a consent form in Spanish. A short demographic questionnaire was completed before assessment. For the TOMM, only trials 1 and 2 were used.

Testing was conducted once for each participant, in a quiet room of the health clinic and lasted approximately 20–30 min. The order of tests was counterbalanced to prevent test order effects. Descriptive and inferential statistics were completed for both the CC, CM, and OF groups.

Results

A large variety of nationalities were included in the study, but most participants came from Mexico. Thus, an *a priori* *t*-test was conducted to compare the Mexican group to the other nationalities as the other group (Table 1). Results showed no significant differences based on ethnicity for age, sex, years of education, or results for each of the three assessments: the Dot, RFIT, or TOMM. Since no differences were found on any demographic or test variables, nationality was not considered for subsequent analyses, and all participants were considered a singular group of Hispanics.

To determine if the three groups (CM, OF, and CC groups) were statistically matched on age, education, or sex, two analyses of variance (ANOVAs) and a chi-squared test were completed (Table 2). As the groups were not matched on these variables, linear regressions were completed to subtract the effects of age, education, and sex for the test scores. ANOVAs were then

Table 2. Descriptive for the CM, OF, and CC groups

	CM (<i>N</i> = 28)	OF (<i>N</i> = 25)	CCs (<i>N</i> = 29)	<i>F</i> / χ^2	<i>p</i> -value
Age (mean [<i>SD</i>])	29.79 (7.75)	36.56 (10.18)	41.61 (11.11)	10.315	<.001
Education (mean [<i>SD</i>])	7.71 (4.52)	6.68 (3.97)	9.50 (3.65)	3.285	.043
Gender (men/women)	25/3	23/2	7/22	37.495	<.001

Note: CM = capital murder; OF = other forensic; CC = clinical control.

Table 3. ANOVAs for the CM, OF, and CC groups on the effort tests

	CM	OF	CC	F-value	p-value	Bonferroni
RFIT (mean [SD])	12.80 (3.30)	7.33 (2.69)	12.61 (2.87)	9.255	<.001	2 < (1 = 3)
Dot Counting (mean [SD])	14.03 (4.32)	14.44 (4.39)	13.81 (5.98)	0.565	.571	NA
TOMM 1 (mean [SD])	47.47 (5.24)	38.11 (6.94)	45.04 (22.93)	7.202	.002	2 < (1 = 3)
TOMM 2 (mean [SD])	49.33 (1.59)	43.56 (7.84)	48.89 (2.22)	3.472	.037	2 < (1 = 3)

Notes: CM = capital murder; OF = other forensic; CC = clinical control; RFIT = Rey 15-Item test; TOMM = Test of Memory Malingering; 1 = capital murder group; 2 = other forensic group; 3 = clinical control group.

Table 4. Classification for the CM, OF, and CC groups according to the effort tests

	CM		OF		CC		χ^2	p-value
	Pass	Fail	Pass	Fail	Pass	Fail		
RFIT cutoff 9 (N [%])	22 (91.7)	2 (8.3)	11 (52.4)	10 (47.6)	26 (89.7)	3 (10.3)	13.603	.001
Dot Counting combo (N [%])	18 (75)	6 (25)	12 (60)	8 (40)	26 (92.9)	2 (7.1)	7.448	.024
TOMM 2 cutoff 45 (N [%])	18 (90)	2 (10)	12 (66.7)	6 (33.3)	27 (93.1)	2 (6.9)	6.658	.036

Notes: CM = capital murder; OF = other forensic; CC = clinical control; RFIT = Rey 15-Item test; TOMM = Test of Memory Malingering.

completed with the standardized residuals to determine if there were any differences between the groups on the effort tests. The analysis showed that the groups were statistically different in their execution of the tests, except for the Dot. The CM performed similar to the CC whereas the OF performed differently from the other two groups on the TOMM and the RFIT (Table 3).

In order to detect any association between the group variable and the classification as malingeringer, three contingency analyses were performed crossing the group variable (CM, OF, and CC) with the classification of malingeringer or non-malingeringer obtained in each test based on typical criteria (cutoff of 9 for the RFIT, 45 for the TOMM, and 17 for the Combo score on the Dot). Statistically significant associations were found between the groups and the classifications obtained with all the tests. The TOMM was the test in which more patients obtained scores indicative of an adequate effort (only two patients or 6.9% of the CC group were classified as malingeringers by this test), whereas 10.3% of the patients failed the RFIT. Also, the TOMM was the tool that classified more forensic individuals as malingeringers (33.3%; Table 4).

Discussion

The tests included in this research obtained different results when applied to groups where percentages of malingering are considered to be different. This study constitutes a first step to demonstrate the usefulness of these tests to detect insufficient effort in Spanish-speaking individuals residing in the USA. The TOMM and the RFIT were able to differentiate between the groups of the study, whereas the Dot was not. Also, the three tests obtained different classification rates of the individuals' effort.

The ANOVAs conducted showed significant differences between the CM, CC, and OF groups for all measures of effort except the Dot. Surprisingly, the CM performed similarly to the CC on all three measures, whereas the OF responded with the lowest scores. Additionally, the mean of the OF group falls under the cutoff scores indicative of malingering in both the RFIT and the TOMM, whereas the mean scores of the CM and CC groups were indicative of an adequate effort. Most importantly, a significant difference was found between the OF and the CM on the execution of the RFIT and the TOMM, suggesting a relationship between the type of litigation and the level of effort on the neuropsychological tests. Furthermore, classification rates, in the present study, show that very few individuals in the CM group fail the effort tests compared with the OF group. Despite there being no research that has examined the base rates of malingering on CM cases, other studies demonstrated high rates (70.5%) of criminal defendants obtaining two or more indicators of negative response bias (Ardolf, Benney, & Houston, 2007). This could lead to further investigations regarding the involvement and relationship between the type of litigation a respondent is involved in and the performance on SVTs. In contrast, base rate estimates found in the OF group ranged from 33% to 47%, which is very similar to those reported in other studies with forensic groups or patients searching for compensation (i.e., 33% in Binder, 1993; 30% in Constantinou, Bauer, Ashendorf, Fisher, & McCaffrey, 2005; 43% in Gervais, Rohling, Green, & Ford, 2004; 40% in Larrabee, 2003; 39% in Mittenberg, Patton, Canyock, & Condit, 2002).

It is noteworthy that only one individual in the CM group (3.5%) and none in the CC group failed more than one effort measure, while nine of the OF individuals failed two or more indicators of poor effort (one of them failed the three tests).

This result supports the long-standing idea of requiring failure on more than one test in order to suggest performance invalidity (Larrabee, 2008; Slick, Sherman, & Iverson, 1999).

This research initiates the development of the understanding of tests of effort in use with Spanish speakers within the USA and its utility within a variety of legal cases and with a CC group. However, several limitations of this study are present which may guide future research. The use of a differential prevalence design presents problems of interpretation of the results (Larrabee, 2005) related to the uncertainty of who is dissimulating and how many participants are dissimulating in each group (Rogers, 1997), making it impossible to obtain data regarding sensitivity and specificity. Thus, further studies with a known groups design would be of value. A larger sample size, possibly from different locales as well as nationalities, would add to the generalizability of these findings. Additionally, the sample used for the CC group may have produced bias. All individuals came from one community organization that serves the indigent and individuals without health insurance. Also, due to the demographics of North Carolina, there were a large percentage of individuals from Mexico (though this reflects the U.S. population as a whole). A wider range of Hispanics with more proportionate groups as well as more variety in socio-economic status would be of value. Moreover, it would be of interest for future research to address acculturation and reading ability (Manly, Jacobs, Touradji, Small, & Stern, 2002) or other cultural factors such as the concept of time (Puente & Ardila, 2000) to determine whether there are external variables that are mediating the results obtained by minority groups on the effort tests.

The findings of the present study indicate that when typical tests of effort are administered to Spanish-speaking individuals, a higher classification of malingerers is found on the mixed forensic group compared with CM cases or CCs, which do not differ in their execution on the studied effort tests. This study represents an important first step to address the use of neuropsychological tests with Spanish speakers in the USA. Further studies, both with regard to replicating and extending these findings, are needed to determine specificity and sensitivity of these and other effort tests.

Conflict of interest

R.V-L. and A.E.P, together with Miguel Perez Garcia, are the authors of the Spanish translation of the TOMM which is published and copyrighted by TEA Ediciones, Spain.

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