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The logo for AmSci, featuring the text "AmSci" in a serif font. To the right of the text is a stylized graphic of three curved lines, resembling a flame or a wing. Below the text is a graphic of three horizontal lines that curve upwards at the ends, resembling an open book or a stylized base.

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## PERSONALITY ASSESSMENT INVENTORY: PSYCHOMETRIC ANALYSES OF ITS ARGENTINEAN VERSION<sup>1</sup>

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*Summary.*—This psychometric analysis of the Argentinean version of the Personality Assessment Inventory employed a convenience sample of 998 non-clinical adults from Buenos Aires, Argentina, stratified by sex and age (50% men;  $M$  age=40.4 yr.,  $SD$ =16.8; 50% women;  $M$  age=40.7 yr.,  $SD$ =17.4; 69% were employed). For a criterion validity study, a second sample of 394 students at the University of Buenos Aires was selected (47% men;  $M$  age=24 yr.,  $SD$ =3.7; 53% women;  $M$  age=23.6 yr.,  $SD$ =3.4). Cronbach's  $\alpha$ s ranged from .60 to .86, indicating adequate internal consistency. Following American, German, and Spanish studies, a first analysis on the 22 scales obtained a five-factor solution (65.3% of total variance), and a second analysis on 11 clinical scales isolated a two-factor solution (69.3% of total variance). Correlations with the Symptom Checklist-90-R provided support for criterion validity. Most of the scales and subscales showed sex differences and differences between American and Argentinean samples. Future research must add other psychometric indicators.

Cultural adaptation processes for psychological tests with the goal of making them appropriate for specific populations are a huge psychometric challenge (Hambleton & Zenisky, 2011). These processes must be accurate enough to respect and preserve linguistic specificity. Differences in idioms as well as connotative and denotative senses of terms actually matter (Association of Spanish Language Academies, 2010). Tests designed to assess psychopathological symptomatology require even more stringent evaluation to be useful for clinicians, due to personality differences found in diverse cultures (Abdel-Khalek, 2012; Hasegawa, Koda, Hattori, Kondo, & Kawaguchi, 2013). Even countries sharing the same language have exhibited significant variations, e.g., Spain and Argentina (Sánchez López & Casullo, 2000), reinforcing the importance of cultural adaptation of psychopathology scales.

Whereas many useful inventories have been created in the United States, relatively few measures are available to be used in the adult Argentinean population. Classical screening and diagnostic scales which cover a wide range of symptomatology, such as the Minnesota Multiphasic Personality Inventory Version 2 (MMPI-2; Butcher, Dahlstrom, Graham, Tel-

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legen & Kaemmer, 1989; Casullo, Brenlla, Fernández Liporace, Ferrante & Prado, 1999) and the Symptom Checklist-90-R (SCL-90-R; Derogatis, 1983; Casullo, 1998), were adapted from a general linguistic viewpoint. However, both scales present several issues regarding subtle linguistic aspects, the procedures used in their adaptations, aging of statistical norms, and the lack of analyses of their technical features. New psychometric studies of the MMPI-2 Restructured Form (MMPI-2-RF) show it as an interesting option. It is a short version with new scales identified in factor analyses that conserved 60% of the items of the MMPI-2. One translation has been developed in Spain, taking local idioms into account (Ben Porath & Tellegen, 2008). Nevertheless, linguistic features of both MMPI-2-RF versions—English and Spanish—were not reviewed in depth. This entails a major weakness in tests available for clinical assessment properly adapted and analyzed in Spanish-speaking countries, particularly in Argentina.

The Personality Assessment Inventory (PAI; Morey, 1991, 2007) was developed as a diagnostic scale to provide relevant information about personality dimensions and psychopathological symptoms in adults 18 years and older. The PAI can also be valuable in design of clinical interventions. Currently, two versions are available: the complete one consisting of 344 items and a shorter one comprising the 165 items with the best psychometric properties. Responses are rated on a 4-point scale, avoiding neutral answers and capturing variability in the intensity and severity of symptoms.

Design of the PAI items and scales combined rational and empirical criteria. The rational criterion demands the analysis of literature and classic tests, such as the MMPI (Hathaway & McKinley, 1942). Thus, on one hand clinical syndromes to be assessed are typically chosen based on their relevance to diagnostic categories recognized by international consensus; on the other hand, syndromes identified empirically are drawn from diagnostic practice. Surveys responded to by clinicians were the source of information in development of the PAI. These procedures were employed to develop scales useful for diagnostic purposes based on Axes I and II of the DSM-IV-TR (American Psychiatric Association, 2000), but were also compatible with several disorders included in the recent version of the DSM-5 (American Psychiatric Association, 2013; Hopwood, Wright, Krueger, Schade, Markon, & Morey, 2013).

The PAI is composed of four types of scales: (a) four validity scales: Inconsistency, Infrequency, Negative impression, and Positive impression; (b) 11 clinical scales: Somatic complaints, Anxiety, Anxiety-related disorders, Depression, Mania, Paranoia, Schizophrenia, Borderline features, Antisocial features, Alcohol problems, and Drug problems; (c) five treatment scales: Aggression, Suicidal ideation, Stress, Nonsupport, and Treatment rejection; and (d) two interpersonal scales: Dominance and Warmth.

In addition, the subscales are combined into 9 clinical scales and 1 treatment scale. Complementary indexes broaden the derived information. Due to the large number of scales and subscales, their acronyms are presented in Table 1.

The original version from the U.S. (Morey, 1991) has been translated to German, Greek, and Spanish, and has been used in these countries (Groves & Engel, 2011; Lyrakos, 2011; Ortiz-Tallo, Santamaría, Cardenal, & Sánchez, 2011). All of these studies examined internal consistency by calculating Cronbach's  $\alpha$ . Studies of the U.S. version and the German and Spanish translations have explored the factor structure, employing principal components analysis (PCA) followed by Varimax rotations. In the U.S. version,  $\alpha$ s ranged from low (.51) to good (.90) with high coefficients in scales (.52 to .86) and lower coefficients in subscales (.45 to .81; Morey, 1991, 2007). Higher values were obtained for ANX (.90), SOM (.89), DEP (.87), and BOR (.87), and lower ones were found for four subscales such as MAN-A (.51), ARD-O (.56), SCZ (.56), and ARD-P (.58). Factor analysis isolated two factors for the 11 clinical scales, accounting for 77.2% of the variance. The rest of the studies replicated Morey's procedures, completely or partially.

In the German version (Groves & Engel, 2011), after translation and linguistic adaptation of items,  $\alpha$ s reached mostly high values (.63 to .91). The highest were for SOM (.91), ANX (.89), and DEP (.88), and the lowest were for the INF (.26) and DRG (.63) scales. The first analysis included the 22 scores for all scales (validity, clinical, treatment, and interpersonal relationships), reporting a four-factor solution explaining 62.4% of the variance. The second analysis only considered clinical scales, resulting in a two-factor solution explaining 61.7% of the total variance.

The Greek version (Lyrakos, 2011) was developed using back-translation, and internal consistency was calculated. Results showed high  $\alpha$ s in general: the lowest value was for the ARD-O subscale (.65) and the highest coefficient for the AGG-P subscale (.97).

The Spanish adaptation (Ortiz-Tallo, *et al.*, 2011) was also a back-translation of the U.S. version. Internal consistency calculations yielded  $\alpha$ s ranging from .46 to .89. The highest were for the ANX (.89), SOM (.89), and DEP (.86) scales, and the lowest corresponded to the ANT-E (.46), LIM-P (.54), MAN-A (.56), and AGR-V (.59) scales. Concerning factor structure, all scales were entered into PCA, from which a five-factor solution accounted for 62% of the variance. Next, the analysis of clinical scales found two factors, explaining 68% of the variance.

Besides similarities in procedures and results, the PAI is supported by various empirical validity studies using diverse external criteria, such as other tests and clinical diagnoses (e.g., Morey, 1991; Ortiz-Tallo, *et al.*, 2011;

TABLE 1  
ACRONYMS FOR THE SCALES AND SUBSCALES OF THE PERSONALITY ASSESSMENT INVENTORY

Scale	Scale Acronym	Subscale	Subscale Acronym
Inconsistency	INC		
Infrequency	INF		
Negative impression	NIM		
Positive impression	PIM		
Somatic complaints	SOM	Conversion	SOM-C
		Somatization	SOM-S
		Health concerns	SOM-H
Anxiety	ANX	Cognitive	ANX-C
		Affective	ANX-A
		Physiological	ANX-P
Anxiety-related disorders	ARD	Obsessive-compulsive	ARD-O
		Phobias	ARD-P
		Traumatic stress	ARD-T
Depression	DEP	Cognitive	DEP-C
		Affective	DEP-A
		Physiological	DEP-P
Mania	MAN	Activity level	MAN-A
		Grandiosity	MAN-G
		Irritability	MAN-I
Paranoia	PAR	Hypervigilance	PAR-H
		Persecution	PAR-P
		Resentment	PAR-R
Schizophrenia	SCZ	Psychotic experiences	SCZ-P
		Social detachment	SCZ-C
		Thought disorder	SCZ-T
Borderline features	BOR	Affective instability	BOR-A
		Identity problems	BOR-I
		Negative relationships	BOR-N
Antisocial features	ANT	Self-harm	BOR-S
		Antisocial behaviors	ANT-A
		Egocentricity	ANT-E
		Stimulus-seeking	ANT-S

(continued on next page)



TABLE 1 (CONT'D)  
ACRONYMS FOR THE SCALES AND SUBSCALES OF THE PERSONALITY ASSESSMENT INVENTORY

Scale	Scale Acronym	Subscale	Subscale Acronym
Alcohol problems	ALC		
Drug problems	DRG		
Aggression	AGG	Aggressive attitude	AGG-A
		Verbal aggression	AGG-V
		Physical aggression	AGG-P
Suicidal ideation	SUI		
Stress	STR		
Nonsupport	NON		
Treatment rejection	RXR		
Dominance	DOM		
Warmth	WRM		

Newberry & Shuker, 2012; Sinclair, Bello, Nyer, Slavin-Mulford, Stein, Renna, *et al.*, 2012; Vossler-Thies, Stevens, Engel, & Licha, 2013). Despite its recent development and given its adequate psychometric properties, the PAI has been widely used. For instance, it has been employed to identify criminal reoffenders (Ruiz, Cox, Magyar, & Edens, 2014), misbehavior in inmates (Newberry & Shuker, 2012; Boccaccini, Rufino, Jackson, & Murrie, 2013), or attitudes toward treatment in sexual offenders (Jung & Nunes, 2012; Magyar, Edens, Lilienfeld, Douglas, Poythress, & Skeem, 2012). It has also been found suitable to assess specific groups, such as neurological patients (Busse, Whiteside, Waters, Hellings, & Ji, 2014), adults with attention deficit disorders (Misa, 2014), egg donors, and surrogate mothers (Sims, Thomas, Hopwood, Chen, & Pascale, 2013), as well as war veterans (Morey, Lowmaster, Coldren, Kelly, & Parish, 2011). Additionally, the PAI has been used as an external criterion to provide validity evidence for other scales (Rogers, Gillard, Wooley, & Ross, 2012).

Among other relevant aspects related to psychopathology, most clinically useful tests require separate norms for men and women due to differences in typical symptomatic patterns (e.g., Lewine, 2004; Solomon & James, 2009; Rodgers, Holtforth, Müller, Hengartner, Rössler, & Ajdacic-Gross, 2014; Skokou & Gourzis, 2014). It is generally valuable to assess clinical cases while gathering epidemiological information simultaneously, in order to assess prevalence or to detect clinical risk factors by sex. However, identifying and quantifying sex differences in psychopathology in such non-probabilistic convenience samples has been criticized from a methodological standpoint (Hartung & Widiger, 1998). Furthermore, such differences tend to be small and not always verified (Eagly, 1995).



To summarize, the importance of adapting and analyzing psychopathological personality tests arises as a matter of interest for their local use by clinicians. There are few scales suitable for the Argentinean adult population with proper psychometric and linguistic characteristics, as well as current normative data. Not only will development of such tests improve clinical accuracy of diagnoses, but it will promote comparative studies between sexes and cultures, which are always topics of scientific and professional concern.

The extensive use of the PAI in varied clinical assessments has encouraged this study, in which the goals were: (1) the analysis of the internal consistency of the PAI's scales and subscales; (2) the description of the PAI's factor structure; (3) the examination of criterion validity evidence with the SCL-90-R; and (4) the analysis of differences by sex and between the U.S. and Argentinean samples.

## METHOD

### *Participants*

*Internal consistency, dimensionality studies, and mean differences.*—Data were gathered employing a convenience sampling of non-clinical adult population stratified by sex and age, recruited by researchers from the University of Buenos Aires. The sample consisted of 998 participants, 50% men ( $M$  age=40.4 yr.,  $SD$ =16.8) and 50% women ( $M$  age=40.7 yr.,  $SD$ =17.40) from Buenos Aires and suburbs around it. Most were employed and the rest were students (14%), in retirement (10%), housewives (4%), unemployed (2%), and other situations (1%). The age groups were as follows: 18–24 yr. (17%), 25–29 yr. (19%), 30–39 yr. (19%), 40–50 yr. (18%), 51–64 yr. (16%), and older than 65 yr. (11%). Fifty-one percent of the sample was married or in a formal relationship. The rest were single (37%), separated or divorced (8%), or widowed (4%). The participants were well-educated: 49% finished high school and 43% achieved a college degree. A small proportion reported only elementary school (8%).

*Criterion validity study.*—The sample was composed of 394 students from public and private universities from Buenos Aires, 47% men ( $M$  age=24 yr.,  $SD$ =3.7) and 53% women ( $M$  age=23.6 yr.,  $SD$ =3.4).

### *Measures*

The participants responded to a sociodemographic survey on personal information such as sex, age, marital status, and educational level, and also to the following measures.

*Personality Assessment Inventory (PAI; Morey, 2007).*—The Spanish version developed by Ortiz-Tallo, *et al.* (2011) was used, and later modified in the present study (see below). It includes a 4-point Likert-type scale to re-

spond to items with anchors 0: False, 1: Slightly true, 2: Quite true, and 3: Completely true. Its features are described above.

*Symptom Checklist-90-R* (SCL-90-R; Derogatis, 1983; Casullo, 1998).—The SCL-90-R assesses specific symptoms experienced during the last week, by means of nine scales (Somatization, Obsessive-compulsive, Interpersonal sensitivity, Depression, Anxiety, Hostility, Phobic anxiety, Paranoid ideation, and Psychoticism). Nine critical items and three validity scales are included as well (Global Severity Index, Positive Symptom Total, Positive Symptom Distress Index). The SCL-90-R consists of 90 items with a 5-point Likert-type response scale (1: Not at all, 5: Extremely).

#### *Procedure*

Taking the Spanish version of the PAI as a basis, five Spanish and Argentinean experts in Assessment of Psychopathologies and Psychometrics reviewed items and discussed differences to identify confusing expressions and reword them so they would elicit proper responses from both Argentinean and Spanish adult populations. As a result, the wording of four items (71, 241, 254, and 269) was changed due to the fact that their expressions were common in Spain but were unclear in Argentina. To detect any comprehension problem due to the changes introduced, a preliminary version of the scale was tested in a pilot study.

Once linguistic equivalence was established, data were collected using the standardization sample described above, where the participants did not receive any reward. Professional, Ph.D.-level psychologists conducted assessments, assisted by college sophomores. The respondents signed an informed consent that stated they could cease participation at any time in the study. Confidentiality was guaranteed. The study obtained ethical approval from the National Council of Scientific and Technical Research. A total of 1,050 answer sheets were collected at the Universidad of Buenos Aires in group sessions during 2012 and 2013. Sociodemographic information was carefully examined, as well as answer quality. Answer sheets with atypical patterns or with several unanswered items were eliminated.

To conduct the criterion validity study, the PAI and SCL-90-R were responded by 410 students from diverse colleges and careers (see sample description above). Elimination criteria for cases were similar than those mentioned above.

#### *Design and Analyses*

A cross-sectional design was employed to examine group differences.

Analyses followed procedures used in previous American, German, and Spanish studies (Morey, 1991, 2007; Groves & Engel, 2011; Ortiz-Tallo, *et al.*, 2011). Cronbach's  $\alpha$  coefficients were calculated to estimate internal consistency. To assess the factor structure of the scale, two principal com-

ponents analyses with Varimax rotation were conducted: first, the 22 scales of the PAI were included, and, second, only the 11 clinical scales were analyzed. The criterion of eigenvalues greater than 1.0 was used to extract factors (Hair, Anderson, Tatham, & Black, 1999). The Kaiser-Meyer-Olkin criterion and Barlett's sphericity test were employed to assess sampling adequacy. The congruence between the components reported in this study and the former was examined using Orthosim (Barrett, 2005), by means of an orthogonal configural target rotation without row-normalization (non-Procrustes), as recommended by Hoelzle and Meyer (2009). This software presents a limitation concerning the number of variables in the target matrix, which cannot be lower than factors in the comparison matrix. Thus, only factor solutions obtained in Spain and Argentina with the 22 scales were compared, due to the fact that they identified the same number as Ferguson, differing from those reported in the American and German versions. In order to achieve these comparisons, principal components analyses were conducted, retaining 4 factors in every scale and 2 for the clinical scales. Criterion validity evidence for the PAI scales and subscales were examined afterward, using the SCL-90-R as an external criterion, calculating Pearson's  $r$ . Bonferroni's corrected  $\alpha$  levels were calculated, using a significance level of .001.

Ultimately, to analyze significant differences between men and women, independent  $t$  tests were developed using the PAI scales and subscales as dependent variables, estimating effect sizes by Cohen's  $d$  (Cohen, 1988). Comparison between results for the whole sample and the American non-clinical sample were performed in the same way. The INC scale was not taken into account since the scoring keys differ by version. Bonferroni's corrected  $\alpha$  levels were calculated in both groups of comparisons, using a significance level of .001.

## RESULTS

Previous to performing analyses, descriptive statistics for scales and subscales were calculated. Possible maximum scores, as well as means, standard deviations, and skewness are shown in Table 2. As observed, the sample exhibits low scores, and skewness was lower than 2 in every scale and subscale, except for Negative impression (2.1) and Suicidal ideation (2.9).

### *Internal Consistency Reliability*

Table 3 presents Cronbach's  $\alpha$ s and means of inter-item correlations obtained for each scale and subscale. The  $\alpha$ s were somewhat low to acceptable, mostly between .60 and .86, with an average coefficient of .70 for the scales and .64 for the subscales. The lowest values were found for one validity scale, Negative impression (.52), and for the following subscales: Egocentricity (.46), Activity level (.54), Resentment (.55), Identity problems

TABLE 2  
 DESCRIPTIVE STATISTICS FOR THE SCALES AND SUBSCALES OF THE PERSONALITY ASSESSMENT INVENTORY

Scale	Maximum	M	SD	Skewness	Sub-scale	Maximum	M	SD	Skewness
INC	60	12.25	4.52	0.31					
INF	24	3.82	2.56	0.70					
NIM	27	1.71	2.22	2.10					
PIM	27	15.16	4.55	-0.25					
SOM		13.52	9.19	1.45	SOM-C	24	2.87	3.34	1.65
					SOM-S	24	5.39	3.89	0.97
					SOM-H	24	5.26	3.68	1.43
ANX	72	21.24	10.08	0.82	ANX-C	24	7.47	3.84	0.70
					ANX-A	24	8.17	4.05	0.58
					ANX-P	24	5.60	3.53	0.92
ARD	72	21.88	9.36	0.54	ARD-O	24	8.55	4.25	0.39
					ARD-P	24	7.79	4.09	0.42
					ARD-T	24	5.54	4.51	0.98
DEP	72	15.88	8.68	1.08	DEP-C	24	5.30	3.15	1.05
					DEP-A	24	4.25	3.23	1.30
					DEP-P	24	6.34	4.15	0.61
MAN	72	23.08	9.50	0.37	MAN-A	24	5.79	3.46	0.59
					MAN-G	24	8.87	4.24	0.43
					MAN-I	24	8.41	4.67	0.49
PAR	72	23.56	8.20	0.64	PAR-H	24	10.85	3.68	0.11
					PAR-P	24	3.47	3.12	1.53
					PAR-R	24	9.24	3.64	0.22
SCZ	72	15.99	7.86	0.59	SCZ-P	24	3.73	3.16	1.05
					SCZ-C	24	6.57	4.08	0.72
					SCZ-T	24	5.69	3.50	0.64
BOR	72	21.16	10.06	0.64	BOR-A	18	5.77	3.21	0.58
					BOR-I	18	6.39	3.47	0.50
					BOR-N	18	4.95	3.29	0.90
					BOR-S	18	4.05	2.93	0.90
ANT	72	14.91	8.16	1.09	ANT-A	24	4.91	4.08	0.91
					ANT-E	24	3.54	3.54	1.11
					ANT-S	24	6.47	3.64	1.01
ALC	36	4.28	4.67	1.88					
DRG	36	4.28	4.87	1.77					

(continued on next page)

TABLE 2 (CONT'D)  
 DESCRIPTIVE STATISTICS FOR THE SCALES AND SUBSCALES OF THE PERSONALITY ASSESSMENT INVENTORY

Scale	Maximum	M	SD	Skewness	Sub-scale	Maximum	M	SD	Skewness
AGG	54	16.53	8.11	0.78	AGG-A	18	6.98	3.45	0.34
					AGG-V	18	7.31	3.55	0.35
					AGG-P	18	2.24	2.73	1.73
SUI	33	2.31	3.64	2.90					
STR	24	6.27	3.64	0.86					
NON	24	5.66	3.54	0.59					
RXR	24	14.71	4.52	-0.29					
DOM	36	22.13	5.06	-0.16					
WRM	36	20.36	5.41	-0.10					

(.57), Self-harm (.58), Phobias (.59), and Psychotic experiences (.59). Only one subscale, Traumatic stress, obtained a high  $\alpha$  coefficient (.81). The highest indices corresponded to the scales Anxiety (.86), Somatic complaints (.84), Borderline features (.83), Depression (.82), Aggression (.82), and Mania (.79). As shown in Table 3, average inter-item correlations of scales and subscales were adequate, varying between .11 and .34.

#### Factor Structure

The data were suitable for factor analysis (KMO=0.90; Barlett's test:  $\chi^2_{231} = 11,295.33, p < .001$ ). The first principal components analysis with Varimax rotation conducted for the 22 scales found a five-factor solution explaining 65.3% of the variance. The first factor grouped, with positive loadings, the following scales: Negative impression, Anxiety, Anxiety-related disorders, Depression, Somatic complaints, Borderline features, Schizophrenia, Suicidal ideation, and Stress, and the Treatment rejection scales with negative loadings. The second factor comprised the Inconsistency, Antisocial features, Alcohol problems, and Drug problems scales. The third factor included the Inconsistency, Schizophrenia, Paranoia, Aggression, and Nonsupport scales with positive loadings, and the Warmth scale with a negative loading. The Mania, Aggression, and Dominance scales composed the fourth factor, and the fifth factor included the Positive impression, Infrequency, and Treatment rejection scales.

The non-Procrustes comparison between the previous Spanish structure and the Argentinian factor structure presented here showed adequate overall solution congruence (.92), as well as congruence for every factor except for the first factor, which was lower than expected (F1 = .87, F2 = .97, F3 = .90, F4 = .98, F5 = .93). The rest were satisfactory since they exceeded the .90 criterion (Barrett, 2005).

TABLE 3  
INTERNAL CONSISTENCY FOR THE SCALES AND SUBSCALES OF THE PERSONALITY ASSESSMENT INVENTORY

Scale	Cronbach's $\alpha$	Average Inter-item Correlation	Subscale	Cronbach's $\alpha$	Average Inter-item Correlation
NIM	.52	.11			
PIM	.70	.21			
SOM	.84	.20	SOM-C	.68	.22
			SOM-S	.68	.22
			SOM-H	.66	.24
ANX	.86	.22	ANX-C	.69	.23
			ANX-A	.70	.24
			ANX-P	.64	.20
ARD	.78	.14	ARD-O	.62	.12
			ARD-P	.59	.16
			ARD-T	.81	.34
DEP	.82	.18	DEP-C	.62	.20
			DEP-A	.70	.24
			DEP-P	.66	.19
MAN	.79	.14	MAN-A	.54	.14
			MAN-G	.68	.22
			MAN-I	.74	.26
PAR	.78	.14	PAR-H	.60	.15
			PAR-P	.71	.25
			PAR-R	.55	.14
SCZ	.76	.13	SCZ-P	.59	.17
			SCZ-C	.72	.25
			SCZ-T	.62	.19
BOR	.83	.17	BOR-A	.65	.23
			BOR-I	.60	.21
			BOR-N	.57	.18
			BOR-S	.58	.19
ANT	.76	.12	ANT-A	.62	.17
			ANT-E	.46	.10
			ANT-S	.61	.18
ALC	.76	.26			
DRG	.70	.25			
AGG	.82	.22	AGG-A	.67	.26
			AGG-V	.61	.21
			AGG-P	.66	.28

(continued on next page)

TABLE 3 (CONT'D)  
INTERNAL CONSISTENCY FOR THE SCALES AND SUBSCALES OF THE PERSONALITY ASSESSMENT INVENTORY

Scale	Cronbach's $\alpha$	Average Inter-item Correlation	Subscale	Cronbach's $\alpha$	Average Inter-item Correlation
SUI	.75	.27			
STR	.60	.18			
NON	.64	.18			
RXR	.73	.25			
DOM	.68	.15			
WRM	.71	.17			

In order to obtain a structure able to be compared to that reported in the German study, 4 factors were extracted. They accounted for 60.2% of the variance. The first one grouped Negative impression, Somatic complaints, Anxiety, Anxiety-related disorders, Depression, Mania, Paranoia, Schizophrenia, Borderline features, Suicidal ideation, and Stress with positive loadings, and Positive impression, Treatment rejection, and Dominance with negative loadings. The second factor included Positive impression with a negative loading, and Mania, Paranoia, Borderline features, Antisocial features, Alcohol problems, Drug problems, Aggression, Stress, and Dominance with positive loadings. Negative impression, Inconsistency, Infrequency, Antisocial features, Alcohol problems, Drug problems, Suicidal ideation, and Nonsupport were joined into the third factor. The fourth factor grouped Inconsistency, Depression, Paranoia, Schizophrenia, and Nonsupport with positive loadings on one hand, and Dominance and Warmth with negative loadings on the other. When comparing this solution and the German one, an excellent overall solution congruence (.96) was found, which was also exactly the case when comparing the factors ( $F1 = .99$ ,  $F2 = .98$ ,  $F3 = .94$ ,  $F4 = .91$ ).

Regarding the 11 clinical scales, a principal components analysis was calculated, establishing eigenvalues higher than 1. The same analysis, performed for the 11 clinical scales, isolated a three-factor solution explaining 69.3% of the variance. The data were suitable for factor analysis ( $KMO = 0.85$ ; Bartlett's test:  $\chi^2_{55} = 5,443.13$ ,  $p < .001$ ). The first factor grouped the Depression, Anxiety, Somatic complaints, Anxiety-related disorders, Schizophrenia, and Borderline features scales; the second included the Borderline features, Paranoia, Mania, and Antisocial features scales; and the third one joined Antisocial features, Drug problems, and Alcohol problems.

In order to allow the comparison between these results and those from previous studies, the extraction retained two factors, explaining 61.15% of



TABLE 4  
ITEM LOADINGS AND EXTRACTED FACTORS FOR THE PERSONALITY ASSESSMENT INVENTORY

Scale	22 Scales										11 Scales				
	Without a Fixed Retention					Fixing Retention 4 Factors					Without a Fixed Retention			Fixing Retention 4 Factors	
	F1	F2	F3	F4	F5	F1	F2	F3	F4	F1	F2	F3	F1	F2	
NIM	<b>.71</b>	.22	.07	.13	.07	<b>.67</b>	.20	<b>.30</b>	-.01						
PIM	-.48	-.15	-.25	-.24	<b>.62</b>	-.54	-.55	.24	-.27						
INC	.22	<b>.47</b>	<b>.43</b>	-.22	.20	.19	.02	<b>.57</b>	<b>.42</b>						
INF	.12	.17	.17	.00	<b>.60</b>	.03	-.12	<b>.57</b>	.05						
SOM	<b>.74</b>	.01	.04	.01	.20	<b>.70</b>	-.04	.24	-.03	<b>.76</b>	-.05	.12	<b>.71</b>	.03	
ANX	<b>.81</b>	.07	.21	.01	-.20	<b>.83</b>	.17	.04	.21	<b>.84</b>	.25	.04	<b>.87</b>	.12	
ARD	<b>.77</b>	-.04	.08	.08	-.16	<b>.79</b>	.13	-.04	.06	<b>.73</b>	.32	-.10	<b>.80</b>	.05	
DEP	<b>.76</b>	.06	.33	-.19	.04	<b>.76</b>	-.08	.23	<b>.33</b>	<b>.88</b>	-.07	.11	<b>.82</b>	.00	
MAN	.32	.18	.02	<b>.73</b>	-.20	<b>.30</b>	<b>.76</b>	-.03	-.16	.12	<b>.89</b>	.11	<b>.33</b>	<b>.57</b>	
PAR	.43	.12	<b>.55</b>	.32	.04	<b>.39</b>	<b>.39</b>	.21	<b>.40</b>	.51	<b>.44</b>	.17	<b>.59</b>	<b>.35</b>	
SCZ	<b>.63</b>	.11	<b>.47</b>	.11	-.08	<b>.63</b>	.26	.15	<b>.40</b>	<b>.68</b>	<b>.40</b>	.12	<b>.75</b>	.28	
BOR	<b>.66</b>	.29	.27	.29	-.33	<b>.67</b>	.55	.08	.21	<b>.63</b>	<b>.52</b>	.23	<b>.72</b>	<b>.44</b>	
ANT	.17	<b>.62</b>	.13	<b>.53</b>	-.02	.11	<b>.73</b>	<b>.42</b>	-.03	.07	<b>.60</b>	<b>.62</b>	.16	<b>.85</b>	
ALC	.05	<b>.82</b>	.03	.09	-.08	.02	<b>.47</b>	<b>.53</b>	.01	.05	.16	<b>.81</b>	.01	<b>.77</b>	
DRG	.11	<b>.81</b>	.03	.01	.12	.05	<b>.33</b>	<b>.69</b>	.00	.12	.01	<b>.85</b>	.05	<b>.72</b>	
AGG	.25	.32	<b>.41</b>	<b>.44</b>	-.23	.24	<b>.66</b>	.11	.29						
SUI	<b>.61</b>	.30	.09	-.02	.21	<b>.56</b>	.06	<b>.45</b>	.03						
STR	<b>.56</b>	.15	.11	.15	-.23	<b>.58</b>	<b>.31</b>	.02	.09						
NON	.30	.20	<b>.61</b>	.11	.22	.25	.20	<b>.39</b>	<b>.48</b>						
RXR	-.62	-.10	-.15	.10	<b>.55</b>	-.69	-.21	.19	-.26						
DOM	-.27	-.10	-.19	<b>.73</b>	.16	-.33	<b>.44</b>	-.10	-.40						
WRM	-.04	.07	-.83	.22	.12	-.08	.03	.01	-.87						
Explained variance %	26	11.45	10.95	9.34	7.52	25.54	14.49	10.64	9.59	34.43	18.28	17.62	37.73	23.42	

Note.—Major loadings in boldface font.

the variance. The first one included Somatic complaints, Anxiety, Anxiety-related disorders, Depression, Mania, Paranoia, Schizophrenia, and Borderline features. The second factor joined Mania, Paranoia, Borderline features, Antisocial features, Drug problems, and Alcohol problems. The comparison of structures found an excellent overall solution congruence with the German results (.98) and with the Spanish (.98), as well as with the American ones (.97). When analyzing factors, similar values were obtained

in the comparison of these results to the German ones ( $F1 = .98$ ,  $F2 = .97$ ), the Spanish ( $F1 = .99$ ,  $F2 = .99$ ), and the American ( $F1 = .98$ ,  $F2 = .84$ ), except for  $F2$ , which showed a moderate congruence.

#### *Criterion Validity Evidence*

Statistically significant correlations between most of the scales and subscales of the PAI and the SCL-90-R were obtained, providing evidence of criterion validity (Table 5). Findings related to associations between scales and subscales assessing more similar symptom patterns will be commented on in detail. For example, correlations between PAI Somatic complaints (and its subscales) and Somatization (SCL-90-R) ranged from .34 to .54. Pearson's  $r$ s of the PAI's Anxiety scales and subscales with SCL-90-R Anxiety varied from .56 to .71. When correlating the PAI Anxiety-related disorders scale and its subscales with SCL-90-R Anxiety, Pearson's  $r$ s were between .62 and .35, whereas PAI Anxiety-related disorders and subscales and SCL-90-R Phobic anxiety were correlated between .25 and .51. Once again, referring to PAI Anxiety-related disorders group, associations to the SCL OBS scale ranged from .54 and .33. PAI DEP scales and subscales exhibited  $r$ s between .47 and .69 with SCL-90-R DEP. Lower correlations were observed for PAI Paranoia (between .34 and .36) and SCL's Paranoid ideation. Schizophrenia (PAI) and its subscales showed correlations with Psychoticism (SCL-90-R) ranging from .32 to .56. Finally, the PAI Aggression scales and subscales and SCL-90-R Hostility obtained Pearson's coefficients between .32 and .50. Every scale and subscale presented positive and statistically significant associations with the Global Severity Index, except for Grandiosity (Mania), which was not significant, and for Treatment rejection, Dominance, and Warmth, which had positive correlations.

#### *Analysis of Individual Differences*

Regarding raw scores, statistically significant differences by sex were found in most of the scales and subscales (Table 6). However, these differences seem to be irrelevant from a practical standpoint, because most of them obtained effect sizes lower than 0.41. According to Ferguson (2009), effect sizes lower than this cut-off point should be disregarded. The largest difference was observed for Antisocial features, with a moderate effect size ( $d = 0.58$ ). Differences were also found for Alcohol problems ( $d = 0.48$ ). As for subscales, moderate effect sizes were observed for Antisocial behaviors ( $d = 0.55$ ) and Stimulus-seeking ( $d = 0.51$ ). Additionally, sex differences with a moderate effect size were found for Anxiety-related disorders ( $d = -0.45$ ), and Traumatic stress ( $d = 0.61$ ), with women's scores higher.

Table 7 summarizes sample comparisons between American scores reported by Morey (1991) and Argentinean scores from the current study. Differences were verified in most scales and subscales, except for Negative impression, Positive impression, Affective (Depression), Mania, Persecu-

TABLE 5  
CORRELATIONS BETWEEN THE PERSONALITY ASSESSMENT INVENTORY AND THE SYMPTOM CHECKLIST-90-R

Subscale	GSI	SOM	OBS	SENS	DEP	ANS	HOST	FOB	PAR	PSY
SOM	.48†	.45†	.36†	.35†	.39†	.47†	.27†	.37†	.33†	.45†
SOM-C	.45†	.44†	.35†	.32†	.35†	.43†	.26†	.33†	.32†	.41†
SOM-S	.51†	.54†	.34†	.37†	.48†	.49†	.32†	.37†	.29†	.40†
SOM-H	.39†	.34†	.27†	.30†	.34†	.39†	.21†	.34†	.25†	.39†
ANX	.69†	.51†	.57†	.54†	.65†	.71†	.43†	.53†	.44†	.57†
ANX-C	.60†	.41†	.52†	.49†	.60†	.59†	.34†	.44†	.38†	.51†
ANX-A	.64†	.44†	.54†	.50†	.59†	.69†	.43†	.53†	.40†	.53†
ANX-P	.54†	.48†	.40†	.39†	.49†	.56†	.33†	.40†	.35†	.45†
ARD	.64†	.47†	.54†	.53†	.57†	.62†	.39†	.51†	.47†	.55†
ARD-O	.37†	.28†	.33†	.29†	.30†	.35†	.29†	.25†	.29†	.34†
ARD-P	.55†	.37†	.47†	.46†	.51†	.55†	.25†	.51†	.35†	.45†
ARD-T	.55†	.42†	.45†	.45†	.50†	.52†	.33†	.41†	.43†	.48†
DEP	.65†	.41†	.59†	.55†	.69†	.51†	.40†	.43†	.48†	.50†
DEP-C	.59†	.35†	.55†	.55†	.60†	.48†	.35†	.41†	.44†	.51†
DEP-A	.57†	.34†	.50†	.49†	.62†	.43†	.38†	.36†	.42†	.52†
DEP-P	.44†	.31†	.40†	.31†	.47†	.35†	.26†	.29†	.33†	.40†
MAN	.29†	.16*	.24†	.23†	.20†	.26†	.38†	.12*	.37†	.28†
MAN-A	.36†	.24†	.35†	.26†	.28†	.35†	.32†	.19†	.33†	.35†
MAN-G	ns	ns	ns	ns	ns	ns	.14†	ns	.19†	ns
MAN-I	.34†	.22†	.27†	.29†	.26†	.29†	.43†	.20†	.35†	.29†
PAR	.40†	.25†	.27†	.37†	.34†	.34†	.34†	.33†	.46†	.34†
PAR-H	.29†	.21†	.21†	.23†	.20†	.28†	.26†	.22†	.34†	.24†
PAR-P	.32†	.20†	.21†	.30†	.26†	.26†	.23†	.27†	.35†	.31†
PAR-R	.30†	.17†	.18†	.31†	.30†	.22†	.27†	.26†	.36†	.25†
SCZ	.59†	.36†	.62†	.47†	.50†	.51†	.40†	.36†	.51†	.56†
SCZ-P	.40†	.24†	.37†	.29†	.34†	.35†	.33†	.23†	.40†	.38†
SCZ-C	.32†	.16*	.29†	.33†	.32†	.23†	.17†	.24†	.27†	.53†
SCZ-T	.57†	.35†	.61†	.46†	.48†	.49†	.37†	.35†	.47†	.32†
BOR	.67†	.49†	.54†	.56†	.62†	.59†	.50†	.44†	.51†	.59†
BOR-A	.54†	.38†	.44†	.45†	.50†	.45†	.46†	.37†	.42†	.27†
BOR-I	.66†	.44†	.55†	.61†	.65†	.57†	.45†	.41†	.49†	.57†
BOR-N	.45†	.33†	.36†	.36†	.43†	.37†	.29†	.28†	.37†	.57†
BOR-S	.34†	.32†	.25†	.22†	.25†	.35†	.30†	.25†	.24†	.27†

(continued on next page)

Note.—GSI: Global Severity Index; SOM: Somatization; OBS: Obsessive-compulsive; SENS: Interpersonal sensitivity; DEP: Depression; ANS: Anxiety; HOST: Hostility; FOB: Phobic anxiety; PAR: Paranoid ideation; PSY: Psychoticism. \* $p < .05$ . † $p < .01$ .

TABLE 5 (CONT'D)  
CORRELATIONS BETWEEN THE PERSONALITY ASSESSMENT INVENTORY AND THE SYMPTOM CHECKLIST-90-R

Subscale	GSI	SOM	OBS	SENS	DEP	ANS	HOST	FOB	PAR	PSY
ANT	.34†	.32†	.25†	.22†	.25†	.35†	.30†	.25†	.24†	.48†
ANT-A	.16†	ns	.20†	.14†	.10*	.12*	.21†	ns	.20†	.23†
ANT-E	.27†	.14*	.22†	.20†	.23†	.21†	.30†	.15†	.30†	.15†
ANT-S	.15*	.13*	.17†	.11*	ns	ns	.26†	ns	.19*	.27†
ALC	.18†	.10*	.21†	.13†	.15†	.13†	.11*	.11*	.13†	.21†
DRG	.18†	.13†	.17†	.17†	.14†	.15†	.10*	.14†	.12*	.20†
AGG	.33†	.24†	.22†	.23†	.25†	.28†	.50†	.19†	.31†	.28†
AGG-A	.32†	.23†	.23†	.22†	.26†	.27†	.48†	.19†	.29†	.27†
AGG-V	.18†	.14†	ns	.13†	.13*	.17†	.32†	.10*	.18†	.17†
AGG-P	.31†	.22†	.24†	.22†	.23†	.26†	.45†	.19†	.30†	.25†
SUI	.47†	.34†	.35†	.38†	.44†	.42†	.31†	.37†	.36†	.45†
STR	.42†	.30†	.34†	.34†	.42†	.34†	.37†	.26†	.34†	.23†
NON	.27†	.12*	.20†	.26†	.30†	.18†	.19†	.17†	.26†	.27†
RXR	-.60†	-.34†	-.56†	-.53†	-.61†	-.51†	-.39†	-.43†	-.44†	-.50†
DOM	-.27†	-.10*	-.30†	-.27†	-.31†	-.20†	ns	-.28†	-.15†	-.22†
WRM	-.17†	-.14†	-.17†	-.14†	-.15†	-.14*	ns	-.21†	ns	-.13†

Note.—GSI: Global Severity Index; SOM: Somatization; OBS: Obsessive–compulsive; SENS: Interpersonal sensitivity; DEP: Depression; ANS: Anxiety; HOST: Hostility; FOB: Phobic anxiety; PAR: Paranoid ideation; PSY: Psychoticism. \* $p < .05$ . † $p < .01$ .

tion (Paranoia), Negative relationships (Borderline features), Antisocial behaviors (Antisocial features), Egocentricity (Antisocial features), Drug problems, and Physical aggression (Aggression). Low and moderate effect sizes prevailed. The American sample had higher means on Obsessive–compulsive (Anxiety-related disorders), Psychotic experiences (Schizophrenia), Alcohol problems, Suicidal ideation, and Warmth, whereas the Argentinean sample had higher scores than the American sample on the remaining scales and subscales. Values with recommended minimum practical effect sizes were found for Infrequency ( $d=0.45$ ), Anxiety ( $d=0.46$ ), and Paranoia ( $d=0.60$ ) and its subscales Hypervigilance ( $d=0.91$ ) and Resentment ( $d=0.56$ ). That happened for Identity problems ( $d=0.44$ ) and Warmth ( $d=0.56$ ) as well.

#### DISCUSSION

This study presented the results of the adaptation and preliminary psychometric analyses of the PAI in an Argentinean adult population. Taking the Spanish version as a basis (Ortiz-Tallo, *et al.*, 2011), after performing linguistic translation and minor adaptations in items, the raw scores' internal consistency reliability was analyzed. In line with previous

TABLE 6

PERSONALITY ASSESSMENT INVENTORY: DIFFERENCES IN SCALES' AND SUBSCALES' RAW SCORES BY SEX

	Men		Women		Student's <i>t</i> Test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
INC	12.39	4.62	12.11	4.42	0.97	.33	0.06
INF	3.84	2.58	3.80	2.55	0.24	.80	0.01
NIM	1.53	1.87	1.89	2.51	-2.58	.01	-0.16
PIM	15.38	4.47	14.95	4.62	1.46	.14	0.09
SOM	12.46	8.36	14.57	9.85	-3.63	<.001	-0.23
SOM-C	2.67	3.17	3.06	3.49	-1.84	.06	-0.11
SOM-S	4.81	3.48	5.97	4.18	-4.73	<.001	-0.30
SOM-H	4.98	3.54	5.54	3.80	-2.39	.01	-0.15
ANX	19.69	9.21	22.78	10.68	-4.85	<.001	-0.30
ANX-C	7.07	3.57	7.87	4.07	-3.28	.001	-0.20
ANX-A	7.40	3.81	8.93	4.15	-6.00	<.001	-0.38
ANX-P	5.22	3.14	5.98	3.85	-3.39	.001	-0.21
ARD	19.80	8.59	23.95	9.64	-7.14	<.001	-0.45
ARD-O	8.35	4.17	8.75	4.32	-1.47	.14	-0.09
ARD-F	6.59	3.59	9.00	4.19	-9.70	<.001	-0.61
ARD-T	4.86	4.20	6.21	4.72	-4.72	<.001	-0.30
DEP	15.05	7.76	16.71	9.45	-3.01	.003	-0.19
DEP-C	5.14	3.01	5.46	3.28	-1.55	.12	-0.10
DEP-A	4.05	2.83	4.45	3.59	-1.95	.05	-0.12
DEP-P	5.86	3.85	6.81	4.38	-3.59	<.001	-0.23
MAN	23.81	9.49	22.34	9.47	2.42	.01	0.15
MAN-A	5.79	3.37	5.79	3.56	0.02	.97	0
MAN-G	9.61	4.39	8.14	3.95	5.50	<.001	0.35
MAN-I	8.41	4.69	8.41	4.66	-0.01	.98	0
PAR	23.90	7.84	23.21	8.54	1.32	.18	0.08
PAR-H	11.07	3.45	10.63	3.90	1.88	.06	0.11
PAR-P	3.42	3.09	3.52	3.16	-0.47	.63	-0.03
PAR-R	9.41	3.63	9.06	3.64	1.49	.14	0.09
SCZ	15.74	7.27	16.24	8.41	-0.99	.32	-0.06
SCZ-P	3.44	2.77	4.03	3.49	-2.92	.004	-0.18
SCZ-C	6.71	4.04	6.43	4.11	1.06	.28	0.06
SCZ-T	5.59	3.37	5.78	3.62	-0.84	.39	-0.05
BOR	20.52	9.80	21.80	10.28	-2.00	.04	-0.12
BOR-A	6.23	3.47	6.55	3.46	-1.46	.14	-0.09
BOR-I	5.49	2.98	6.05	3.40	-2.72	.01	-0.17

(continued on next page)

TABLE 6 (CONT'D)  
 PERSONALITY ASSESSMENT INVENTORY: DIFFERENCES IN SCALES' AND SUBSCALES' RAW SCORES BY SEX

	Men		Women		Student's <i>t</i> Test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
BOR-N	4.78	3.18	5.12	3.39	-1.66	.09	-0.10
BOR-S	4.03	3.02	4.08	2.85	-0.30	.76	-0.01
ANT	17.20	8.56	12.63	7.05	9.14	<.001	0.58
ANT-A	6.01	4.39	3.81	3.41	8.78	<.001	0.55
ANT-E	3.81	2.86	3.27	2.56	3.14	.002	0.19
ANT-S	7.38	3.82	5.56	3.20	8.10	<.001	0.51
ALC	5.38	5.22	3.17	3.74	7.61	<.001	0.48
DRG	4.95	5.48	3.62	4.08	4.30	<.001	0.27
AGG	16.93	8.43	16.13	7.77	1.53	.13	0.09
AGG-A	6.92	3.61	7.04	3.29	-0.56	.57	-0.03
AGG-V	7.41	3.58	7.20	3.53	0.91	.36	0.05
AGG-P	2.60	2.92	1.89	2.47	4.11	<.001	0.26
SUI	2.22	3.22	2.40	4.02	-0.75	.44	-0.04
STR	5.80	3.55	6.74	3.68	-4.09	<.001	-0.25
NON	6.07	3.60	5.26	3.44	3.62	<.001	0.23
RXR	15.39	4.39	14.03	4.55	4.75	<.001	0.30
DOM	22.54	4.86	21.72	5.23	2.53	.01	0.16
WRM	20.42	5.53	20.30	5.30	0.37	.71	0.02

research, the American (Morey, 1991, 2007), the German (Groves & Engel, 2011), the Spanish (Ortiz-Tallo, *et al.*, 2011), and the Greek (Lyraeos, 2011) versions of the PAI show Cronbach's  $\alpha$  coefficients varying from .60 to .86. As in those studies, lower  $\alpha$ s were found for the validity scales and subscales, while higher coefficients were obtained for the Somatic complaints, Anxiety, and Depression scales. This pattern of lower values in validity scales and subscales, and higher coefficients in other scales, seems reasonable due to the larger number of items in the latter scales (Osburn, 2000). Therefore, these results support the adequate reliability of scores in terms of internal consistency when employing the PAI in an Argentinean adult non-clinical sample. The inventory arises as useful for clinicians assessing psychopathological features in a non-clinical population.

Considering factor structure, a number of similarities to and differences from previous studies were found. In accordance with the Spanish version (Groves & Engel, 2011; Ortiz-Tallo, *et al.*, 2011), the analysis including the 22 scales isolated a five-factor solution. Both structures resulted congruent enough in terms of factors. Describing these groupings in detail, it can be observed that the first factor represents subjective discomfort—Treatment rejection with negative loadings—associated with symp-

TABLE 7  
 PERSONALITY ASSESSMENT INVENTORY: DIFFERENCES IN RAW SCORES OF SCALES  
 BETWEEN U.S. AND ARGENTINEAN SAMPLES

	U.S.		Argentina		Student's <i>t</i> Test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
INF	2.66	2.57	3.82	2.50	10.22	<.001	0.45
NIM	1.69	2.70	1.71	2.22	0.18	.86	0.00
PIM	15.07	4.36	15.16	4.55	0.45	.65	0.02
SOM	11.09	10.07	13.52	9.19	5.63	<.001	0.25
SOM-C	2.50	3.37	2.87	3.34	2.46	<.001	0.11
SOM-S	4.51	3.73	5.39	3.89	5.16	<.001	0.23
SOM-H	4.09	4.25	5.26	3.68	6.57	<.001	0.29
ANX	16.47	10.56	21.24	10.08	10.21	<.001	0.46
ANX-C	6.05	4.33	7.47	3.84	7.71	<.001	0.34
ANX-A	6.24	3.83	8.17	4.05	10.94	<.001	0.10
ANX-P	4.17	3.55	5.60	3.53	9.02	<.001	0.40
ARD	19.91	8.30	21.88	9.36	4.97	<.001	0.22
ARD-O	9.33	3.75	8.55	4.25	4.29	<.001	0.19
ARD-P	6.70	3.61	7.79	4.09	6.31	<.001	0.30
ARD-T	3.88	4.12	5.54	4.51	8.58	<.001	0.38
DEP	14.28	9.43	15.88	8.68	3.94	<.001	0.17
DEP-C	4.34	3.43	5.30	3.15	6.51	<.001	0.29
DEP-A	4.04	3.66	4.25	3.23	1.35	.17	0.06
DEP-P	5.89	4.16	6.34	4.15	2.42	<.001	0.10
MAN	23.01	9.22	23.08	9.50	0.16	.86	0.00
MAN-A	6.69	3.20	5.79	3.46	6.03	<.001	0.26
MAN-G	8.39	4.37	8.87	4.24	2.49	<.05	0.11
MAN-I	7.92	4.27	8.41	4.67	2.44	<.05	0.10
PAR	18.45	8.69	23.56	8.20	13.51	<.001	0.60
PAR-H	7.60	3.42	10.85	3.68	18.74	<.001	0.91
PAR-P	3.64	3.41	3.47	3.12	1.16	.24	0.05
PAR-R	7.21	3.53	9.24	3.64	12.65	<.001	0.56
SCZ	13.99	7.79	15.99	7.86	5.71	<.001	0.25
SCZ-P	4.09	2.99	3.73	3.16	2.61	<.001	0.11
SCZ-S	5.59	3.94	6.57	4.08	5.46	<.001	0.24
SCZ-T	4.32	3.41	5.69	3.50	8.86	<.001	0.39
BOR	18.03	10.00	21.16	10.06	6.97	<.001	0.31
BOR-A	4.71	3.27	5.77	3.21	7.31	<.001	0.32
BOR-I	4.87	3.37	6.39	3.47	9.93	<.001	0.44

(continued on next page)



TABLE 7 (CONT'D)  
 PERSONALITY ASSESSMENT INVENTORY: DIFFERENCES IN RAW SCORES OF SCALES  
 BETWEEN U.S. AND ARGENTINEAN SAMPLES

	U.S.		Argentina		Student's <i>t</i> Test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
BOR-N	5.14	3.17	4.95	3.29	1.31	.18	0.05
BOR-S	3.32	2.57	4.05	2.93	5.92	<.001	0.26
ANT	13.16	9.11	14.91	8.16	4.52	<.001	0.20
ANT-A	4.99	4.42	4.91	4.08	0.42	.66	0.01
ANT-E	3.43	3.01	3.54	3.54	0.74	.45	0.03
ANT-S	4.74	3.66	6.47	3.64	10.59	<.001	0.32
ALC	4.83	5.62	4.28	4.67	2.37	<.05	0.10
DRG	4.09	4.99	4.28	4.87	0.86	.38	0.03
AGG	14.81	8.42	16.53	8.11	4.65	<.001	0.20
AGG-A	5.80	3.59	6.98	3.45	7.49	<.001	0.33
AGG-V	6.72	3.52	7.31	3.55	3.73	<.001	0.16
AGG-P	2.29	2.96	2.24	2.73	0.39	.69	0.01
SUI	3.28	4.86	2.31	3.64	5.05	<.001	0.22
STR	5.80	4.45	6.27	3.64	2.58	<.001	0.11
NON	4.90	3.67	5.66	3.54	4.71	<.001	0.21
RXR	13.76	4.65	14.71	4.52	4.63	<.001	0.20
DOM	20.60	5.59	22.13	5.06	6.41	<.001	0.28
WRM	23.48	5.63	20.36	5.41	12.63	<.001	0.56

tomatology mainly related to anxiety and stress (Anxiety, Anxiety-related disorders, Somatic complaints, Stress), and to more severe affective and thought disorders (Depression, Borderline features, Schizophrenia, Suicidal ideation; Ortiz-Tallo, *et al.*, 2011). On the other hand, positive attitudes toward treatment seem consistent with high perceived discomfort, which arises as a reason for the inclusion of the Negative impression scale in this factor. Examining the second factor, it comprises scales related to poor impulse control (Antisocial features, Alcohol problems, Drug problems) and the inability to give consistent answers (Inconsistency). This appears to be logical, as impulsiveness is likely to be associated to poor concentration, inconsistent answers, or similar response patterns. The third factor grouped scales related to social isolation, extravagant ideation, difficulties towards reality, interpersonal mistrust, and lack of social support (Schizophrenia, Paranoia, and Nonsupport; Warmth with negative loadings) as well as disrespect toward socially accepted norms (Aggression). Due to thinking confusion, all these attributes are probably associated to inconsistency in answers (Inconsistency). The fourth factor included the Mania, Aggression, and Dominance scales, describing a personality un-

able to empathize with others or to accept norms, tending to excessive energy and impulsiveness. The fifth factor reflected disinterest in treatment (Treatment rejection) and, hence, an insincere attitude when answering (Positive impression and Negative impression), either showing a negative or a positive self-image.

The analysis on the 11 clinical scales reported a three-factor solution, differing from the two-factor structure of previous studies (Morey, 1991, 2007; Ortiz-Tallo, *et al.*, 2011; Groves & Engel, 2011). The first factor grouped the same six clinical scales included in the first dimension of the solution obtained for the 22 scales of the PAI (Depression, Anxiety, Somatic complaints, Anxiety-related disorders, Schizophrenia, and Borderline features), bringing together affective and thought disorders and symptoms of anxiety. The second factor included the Borderline features, Paranoia, Mania, and Antisocial features scales, which mainly identify externalizing symptomatology. The third latent variable was similar to the second factor in the analysis conducted with the 22 scales (Antisocial features, Drug problems, and Alcohol problems).

Future studies should explore the difference in factor structure when comparing these current findings to previous research. As pointed out by Hoelzle and Meyer (2009), the PAI's structure varies according to the type of sample, since the results differed from non-clinical population to clinical participants or patients suffering from some specific disorder. These authors highlight differences in methods as a possible source of divergence in results. Regarding that, this study reproduced the analyses developed in previous adaptations of the PAI in a non-clinical population. As mentioned above, the structure isolated only corresponds to that reported for the Spanish version when analyzing the 22 scales. When retaining four factors in order to compare this solution and those reported in former studies, an adequate congruence was found in most of the cases. This addresses the idea of some generalization, which must be tested in the field using new and wider samples and by confirmatory methodologies.

As for criterion validity, low to moderate associations with almost every scale were found (e.g., Morey, 1991; Ortiz-Tallo, *et al.*, 2011; Newberry & Shuker, 2012; Sinclair, *et al.*, 2012; Vossler-Thies, *et al.*, 2013). They were moderate mostly in scales and subscales assessing similar traits in the PAI and the SCL-90-R, according to expectations, and providing validity evidence for the Argentinean version of the PAI.

Examining sex differences reported in scales and subscales, most of these showed effect sizes lower than the minimum .41 criterion suggested by Ferguson (2009), as happens when psychopathological variables are analyzed (Eagly, 1995). These results do not support the idea of separate norms for women and men, a matter of interest with reference to the use of the PAI in a non-clinical population.

### *Limitations and Conclusion*

Finally, some weaknesses of the study must be indicated. Concerning sampling limitations, only residents of Buenos Aires City and its suburbs were selected. This region, though, is the most densely populated in the country, as well as that accounting for most inhabitants (National Statistics and Censuses Institute of Argentina, 2012). On the other hand low scores can be observed, considering that this is a non-clinical sample. Therefore, the solution reported could be specific for this type of population. As posed by Hoelzle and Meyer (2009), non-clinical samples show less correlated factors and diverse structures.

Although validity scales were included in these analyses, it is noteworthy to mention that answer sheets with possibly invalid profiles were not eliminated since local data were not available to establish comparisons. Second, to replicate previous studies only principal components analyses were conducted, ignoring possible solutions provided by other methods. Furthermore, to reproduce previous research procedures, substantial cross-loadings of items were admitted. Stability of scores over time was not analyzed either. Despite these limitations, this study provides a preliminary adaptation of the PAI in an Argentinean adult non-clinical population, allowing clinical psychologists to assess psychopathological symptoms. Future studies should continue this work completing pending analyses in a non-clinical population, such as confirmatory factor analysis, test-retests stability procedures, and so on. Evidences of empirical validity, as well as psychometric properties in clinical samples, must be developed as a priority.

When comparing this sample with the American standardization sample (Morey, 1991), differences in most scales and subscales were found, with higher scores mainly for the Argentinean sample. That stresses the above-mentioned importance of adaptations for every population, since huge differences might be manifested according to the country, the region, the culture or subculture, or the kind of specific population involved. Moreover, 24 years had elapsed between the two studies, suggesting changes in symptomatology patterns in time, possibly due to multiple factors. Issues around the translation and the use of idioms must be reviewed in depth in future studies, as well as in the professional use of the PAI. For instance, a bilingual test-retest analysis to evaluate if the scales are functioning in a similar way across cultures could be an interesting future challenge.

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