

Adaptation and validation into Spanish of the Multidimensional Psychological Flexibility Inventory (MPFI): evidence of internal validity and factorial Invariance.

Adaptación y validación al Español del Inventario Multidimensional de Flexibilidad Psicológica (MPFI): evidencia de validez interna e Invarianza factorial.

Adaptação e validação para o espanhol do Inventário Multidimensional de Flexibilidade Psicológica (MPFI): evidências de validade interna e invariância fatorial.

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ABSTRACT

This study aims to assess the psychometric properties and internal consistency of the Spanish version of the Multidimensional Psychological Flexibility Inventory (MPFI) within a general population of Argentina. A total of 866 participants with ages between 18 and 84 years ($M = 47.33$; $SD = 17.26$) and of both sexes (Men = 40.9%; Women = 59.1%) participated in the main study. A 2-factor higher order model resulted in acceptable fit indices (NFI = .97; NNFI = .98; CFI = .98; IFI = .98; RMSEA .41). The Spanish MPFI also demonstrated both weak (metric) and strong (scalar) factor invariance when compared to the English MPFI given to a United States sample ($N = 1630$; 18 to 85 years old, $M = 50.1$, $SD = 18.7$; 77.0% identifying as women; 86.6% White). Results indicated an acceptable internal consistency in all factors ($\omega > .74$). The adaptation into Spanish of the MPFI presents 60 and 24 items similar to those proposed by the original authors and adequate psychometric properties in the study sample. Regarding its limitations, it should be noted that results only report the factor structure -factor validity- and the internal consistency -reliability- of the MPFI, which is only a first exploratory approach in adapting the scale to the local context. For this reason, future research should continue to explore the psychometric properties of the MPFI in Argentina.

Keywords: *Psychological Flexibility, Adaptation, Validation, Psychometric Properties, Confirmatory Factor Analysis.*

RESUMEN

Este estudio tiene como objetivo evaluar las propiedades psicométricas y la consistencia interna de la versión en español del Inventario de Flexibilidad Psicológica Multidimensional (MPFI) en población general de Argentina. En el estudio principal participaron un total de 866 participantes con edades entre 18 y 84 años ($M = 47,33$; $DT = 17,26$) y de ambos sexos (Hombres = 40,9%; Mujeres = 59,1%). Un modelo de orden superior de 2 factores resultó en índices de ajuste aceptables ($NFI = .97$; $NNFI = .98$; $CFI = .98$; $IFI = .98$; $RMSEA .41$). El MPFI español también demostró una invariancia factorial tanto débil (métrica) como fuerte (escalar) en comparación con el MPFI inglés proporcionado a una muestra de los Estados Unidos ($N = 1630$; 18 a 85 años, $M = 50,1$, $SD = 18,7$; 77,0 %). identificándose como mujeres; 86,6% blancos). Los resultados indicaron una consistencia interna aceptable en todos los factores ($\omega > .74$). La adaptación al español del MPFI presenta 60 y 24 ítems similares a los propuestos por los autores originales y adecuadas propiedades psicométricas en la muestra de estudio. En cuanto a sus limitaciones, cabe señalar que los resultados solo reportan la estructura factorial -validez factorial- y la consistencia interna -confiabilidad- del MPFI, lo cual es solo una primera aproximación exploratoria en la adaptación de la escala al contexto local. Por esta razón, futuras investigaciones deben continuar explorando las propiedades psicométricas del MPFI en Argentina.

Palabras clave: *Flexibilidad Psicológica, Adaptación, Validación, Propiedades Psicométricas, Análisis Factorial Confirmatorio.*

RESUMO

Este estudo tem como objetivo avaliar as propriedades psicométricas e a consistência interna da versão em espanhol do Inventário Multidimensional de Flexibilidade Psicológica (MPFI) em uma população geral da Argentina. Um total de 866 participantes com idades entre 18 e 84 anos ($M = 47,33$; $DP = 17,26$) e de ambos os sexos (homens = 40,9%; mulheres = 59,1%) participaram do estudo principal. Um modelo de ordem superior de 2 fatores resultou em índices de ajuste aceitáveis ($NFI = 0,97$; $NNFI = 0,98$; $CFI = 0,98$; $IFI = 0,98$; $RMSEA 0,41$). O MPFI espanhol também demonstrou invariância fatorial fraca (métrica) e forte (escalar) quando comparado ao MPFI inglês dado a uma amostra dos Estados Unidos ($N = 1630$; 18 a 85 anos, $M = 50,1$, $SD = 18,7$; 77,0% identificando-se como mulheres; 86,6% brancas). Os resultados indicaram uma consistência interna aceitável em todos os fatores ($\omega > .74$). A adaptação para o espanhol do MPFI apresenta 60 e 24 itens semelhantes aos propostos pelos autores originais e propriedades psicométricas adequadas na amostra do estudo. Em relação às suas limitações, deve-se notar que os resultados apenas relatam a estrutura fatorial - validade fatorial- e a consistência interna -confiabilidade- do MPFI, o que é apenas uma primeira abordagem exploratória na adaptação da escala ao contexto local. Por esse motivo, pesquisas futuras devem continuar explorando as propriedades psicométricas do MPFI na Argentina.

Palavras-chave: *Flexibilidade Psicológica, Adaptação, Validação, Propriedades Psicométricas, Análise Fatorial Confirmatória.*

Psychological flexibility has been conceptualized as the capacity to alter the function of internal experiences by responding flexibly to negative thoughts, feelings, and events, improving well-being, and helping people open up to these experiences, while continuing to make behavioral decisions in the service of what is valuable in their lives (Hayes et al., 2011; Rolffs et al., 2018). It is linked to a wide range of personal and social skills: adaptation to situational demands, modification of dysfunctional behaviors, maintenance of balance between the important domains of life and a conscious, open and committed attitude through behaviors that express congruence with the values held by the individual (Kashdan et al., 2020; Kashdan & Rottenberg, 2010).

The hexaflex model identifies six dimensions of psychological flexibility considered fundamental to well-being (Doorley et al., 2020; Rolffs et al., 2018; Stabbe et al., 2019): Acceptance – implies fully accepting one's own experience, it is the ability to remain in contact with painful intimate experiences without trying to alter their form or frequency; Contact with the Present Moment Awareness – consists of paying attention, intentionally and without judgment, counteracting the tendency to avoid or withdraw from painful thoughts, feelings and circumstances; Self as Context - fostering a perspective of the self as an observer; Defusion – a process that makes it possible to observe products and thought processes; Committed Action – implies acting in the direction of one's own values considered important; Values – directions for intentional action, which can give new meaning, purpose, and vitality to a range of behaviors (Forsyth & Eifert, 2008; Kashdan et al., 2020).

The model proposes, in turn, six dimensions that comprise Psychological Inflexibility (Rolffs et al., 2018): Experiential avoidance - unwillingness to come into contact with unpleasant inner experiences; Lack of contact with the present moment - not paying attention to present experiences; fusion with a particular concept of itself; Fusion - implies the inability to detect the current thought process as different from the product of thinking; Lack of contact with values – difficulty connecting with what is valuable and meaningful in life; Inaction - a tendency to avoid painful events that can lead to losing contact with values, with effective action, and the present moment - (Hayes et al., 2006; Kashdan et al., 2020).

Measuring Psychological Flexibility

The most widely used measures of psychological flexibility have been the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004), the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011), and the Avoidance and Fusion Questionnaire for Youth (AFQ-Y; Greco et al., 2008). Nevertheless, these scales consider psychological flexibility as a single dimension, despite the fact that the theory postulates up to twelve different

dimensions. Scales have also been developed using some of the individual components, for example, the Conscious Attention Awareness Scale (MAAS; Brown & Ryan, 2003).

However, because these scales have never been integrated into a complete measure with a stable twelve-factor structure, making it directly mapped to the hexaflex model, Rolfs et al., (2018) developed the Multidimensional Inventory of Psychological Flexibility (MPFI), a self-administered 60-item questionnaire that assesses its twelve dimensions. A shorter version of the MPFI also includes 24 items assessing the twelve dimensions of the original scale.

Psychological flexibility has been explored in its different aspects and contexts. Numerous studies indicate that it is related to broad benefits in the physical and psychological functioning of people, and interventions aimed at increasing the level of psychological flexibility have shown valuable results (see Hayes et al., 2006 for a review). Studies carried out with the oncological population consistently show that psychological flexibility is associated with high levels of well-being in cancer patients (Aguirre-Camacho & Moreno-Jiménez, 2017) and acceptance of pain in patients with chronic pain (Flores, 2016). Likewise, young people who present destructive or dysfunctional experiential avoidance (Cobos-Sánchez et al., 2017).

The MPFI demonstrated adequate psychometric properties in different countries such as Canada (Grégoire et al., 2020), China (Lin et al., 2020), France (Grégoire et al., 2020), Italy (Landi et al., 2021), Japan (Lin et al., 2020), Taiwan (Lin et al., 2020) and the United States (Seidler et al., 2020).

Grégoire et al. (2020) translated the MPFI-24 into French and administered to the population of French-speaking students in Canada and France and to the population of French-speaking employees in Canada, Belgium, France, Switzerland and Luxembourg, demonstrating validity and reliability. The results of the confirmatory factor analysis indicated that a second order structure with six flexibility factors and six inflexibility factors constitutes the best fit model. The findings suggest that the MPFI-24 scale is a short, reliable, and valid measure of flexibility and psychological inflexibility (Grégoire et al., 2020).

Seidler et al. (2020) performed a confirmatory factor analysis of the short scale composed of 24 items, supporting the proposed factorial structure for both the short scale and the extensive scale of the MPFI. The authors suggest potential areas of improvement for the elements of the “defusion” dimension. They point out that the pattern of the findings indicates that although flexibility and psychological inflexibility are related, they correspond to different repertoires of responses.

This suggests that flexibility and inflexibility are unlikely to simply belong to a single common dimension, since they show distinct patterns of results, can change independently of one another over time, and only demonstrate weak to modest negative correlations, that is, a low score in psychological flexibility does not necessarily correspond to a high level of

inflexibility. In fact, the results with the MPFI suggest that examining each of the 12 processes that make up the scale could offer critical information for the planning and evaluation of patients' treatments (Rogge et al., 2019).

Lin et al. (2020) developed the MPFI translation in three Asian languages (Traditional Mandarin, Simplified Mandarin, and Japanese). The MPFI subscales demonstrated excellent internal consistency in all languages and subscales continued to show convergent patterns of correlation with indices of well-being and psychological distress in all languages.

Landi et al., (2021) demonstrated that the Italian MPFI reproduced the original factorial structure of the MPFI, demonstrating an excellent construct validity, demonstrating a measurement invariance for sex, age and clinical status. The Italian MPFI showed good internal consistency and convergent and concurrent validity.

The Present Study

Given the lack of studies in Spanish-speaking populations this study aims to explore evidence of internal validity and factorial Invariance of the Multidimensional Psychological Flexibility Inventory.

METHOD

Participants

Main Spanish-speaking Sample

An incidental non-probabilistic sample was used that included 866 participants from the general population of Argentina with ages between 18 and 84 years ($M = 47,33$; $SD = 17,26$) and of both sexes (Men = 40,9%; Women = 59,1%).

Comparison English-speaking Sample

A convenience sample of 1630 online, English-speaking respondents from the United States was recruited primarily (88.5%) using the ResearchMatch system. Respondent ages ranged from 18 to 85 years old ($M = 50.1$; $SD = 18.7$), they were predominantly White (86.6%) and identified as women (77.0) with 20.6% identifying as men and 2.4% identifying as gender minorities.

Measures

Multidimensional Inventory of Psychological Flexibility

Multidimensional Inventory of Psychological Flexibility (MPFI) (Rolffs et al., 2018) is a self-administered 60-item questionnaire with a Likert-type format with six response anchors,

1 being "Never" and 6 "Always". Although the English-speaking comparison sample used the original 6-point response scale, in the survey for the main Spanish-speaking sample, those responses were simplified slightly to a 5 point scale. The MPFI assesses the twelve dimensions of the hexaflex model. Psychological Flexibility includes six dimensions (1) Acceptance (5 items; e.g. "I allowed myself to have negative thoughts and emotions accepting them instead of rejecting them" / "Me permití tener pensamientos y emociones negativas aceptándolos en lugar de rechazarlos"); (2) Contact with the Present Moment Awareness (5 items; e.g. "I paid close attention to what I was thinking and feeling" / "Presté mucha atención a lo que estaba pensando y sintiendo"); (3) Self as Context (5 items; e.g. "I tried to stay centered even when life collapsed me" / "traté de mantenerme centrado incluso cuando la vida me derrumbó"); (4) Cognitive Defusion (5 items; e.g. "I was able to let negative emotions come and go without being trapped in them" / "pude dejar que las emociones negativas vayan y vengan sin quedar atrapado en ellas"); (5) Contact with Values (5 items; e.g., "I was very connected with what is important to me and to my life" / "estuve muy conectado con lo que es importante para mi y para mi vida"); (6) Committed Action (5 items; e.g., "even in the face of failure I did not stop pursuing what is important to me" / "Incluso ante el fracaso no dejé de perseguir aquello que es importante para mi").

For its part, Psychological Inflexibility is made up of six components: (7) Experiential avoidance (5 items; e.g. "when I had a bad memory, I tried to distract myself to disappear" / "cuando tuve un mal recuerdo, traté de distraerme para que desapareciera"); (8) Lack of contact with the present moment (5 items; e.g., "I did most things automatically without paying much attention to what he was doing" / "hice la mayoría de las cosas de forma automática sin prestar mucha atención a lo que estaba haciendo"); (9) Self as Content (5 items; e.g., "I thought that some of my emotions were bad or inappropriate and that I shouldn't have them" / "pensé que algunas de mis emociones eran malas o inapropiadas y que no debería tenerlas"); (10) Cognitive Fusion (5 items; e.g., "my negative thoughts and emotions accompanied me for a long time" / "mis pensamientos y emociones negativas me acompañaron por mucho tiempo"); (11) Lack of Contact with Values (5 items; e.g., "often my priorities and values were left behind in my daily life" / "a menudo mis prioridades y valores quedaron postergados en mi vida cotidiana"); (12) Inaction (5 items; e.g., "often negative emotions paralyzed me and prevented me from acting" / "a menudo las emociones negativas me paralizaron y me impidieron actuar").

The questionnaire of the abbreviated version of the MPFI respects the twelve dimensions of the original scale, and is made up of 12 items that are grouped into the six factors Psychological Flexibility (items 3 and 4 from the "Acceptance" subscale; items 7 and 9 representing "Contact with the Present Moment"; 13 and 14 "Self as Context"; 16 and 17 "Cognitive Defusion"; 21 and 23 "Values"; 26 and 27 "Action Committed") and six factors of Psychological Inflexibility (31 and 33" Experiential Avoidance; 36 and 39 "Lack of Contact with the Present Moment"; 41 and 45 "I as Content"; 46 and 47 "Fusion"; 51 and 53 " Lack of Contact with the Values "; 56 and 58" Inaction").

Procedure

For the adaptation and validation of the MPFI, the team approach procedure was used, two independent experts were asked to translate the instrument and subsequently compare the translation to locate the problem areas. In a second instance, they discuss both versions and between the two they agree on a single final version (Bolaños-Medina & González-Ruiz, 2013; Douglas & Craig, 2007), from which an attempt was made to maintain the psychological meaning of each term.

The main study was carried out on a population of individuals living in Argentina. The questionnaires were administered through a digital form, guaranteeing the anonymity of the participants. The execution time of the questionnaire took approximately 20 minutes. Participation was voluntary and none of the participants received any financial compensation for collaborating with the study. Similarly, the survey within the comparison sample was conducted entirely online, took approximately 20-25 minutes, and none of the participants received any financial compensation for collaborating with the study.

Ethics Statement

Main Spanish-speaking Study

This study adheres to ethical standards aimed at protecting the rights of individuals who participate in the reported research, in accordance with the Declaration of Helsinki. Specifically, measures have been taken to ensure the anonymity of the participants and to obtain their informed consent for their involvement in the research. The research project in which the study is framed was, in the first place, subjected to evaluation by an ethics committee. Once approved, the participants were invited to participate voluntarily in the study requesting their informed consent, complying with the codes of ethical conduct established by the National Council for Scientific and Technical Research (CONICET) (Res. D N ° 2857/06). Finally, participants were informed that the results would be used for exclusively academic-scientific purposes in accordance with National Law 25,326 on the protection of personal data.

Comparison English-speaking Sample

The study conducted in the United States was evaluated and approved as a minimal risk study by a university IRB. The study was conducted adhering to ethical guidelines for human subject research and the first webpage of the survey presented participants with an information sheet to obtain informed consent prior to any survey responses being collected. The data was collected in a completely anonymous manner to protect the privacy of respondents and only aggregate findings are presented.

Data analysis

In the adaptation and validation of the MPFI, descriptive and inferential statistics were used with the support of the statistical software SPSS 22 and Lisrel 22 For data analysis, a polychoric correlation matrix was applied, considering the ordinal nature of the items. First, construct validity was analyzed using confirmatory factor analysis. This type of analysis makes it possible to verify whether the data collected in the field conform to the factorial structure of the technique and to the theoretical model proposed by the author (Medrano & Muñoz-Navarro, 2017; Weston & Gore, 2006). For this purpose, the Robust Maximum Likelihood Estimation method was used (Holgado-Tello et al., 2018; Ruiz et al., 2010).

To evaluate the goodness of fit of the model, the χ^2 , the Incremental or Incremental Adjustment Index or Fit Index (IFI), the Normed Fit Index (NFI), the Non-Normed Adjustment Index or Non-Normed Fit Index (NNFI), the Comparative Fit Index (CFI) and the RMSEA were considered because they tend to be among the most robust indicators to estimate factorial models (Bandalos & Finney, 2010; Medrano & Muñoz-Navarro, 2017). The IFI, NNFI and CFI indices values higher than .90 and the RMSEA lower than .05 figures were considered as indicators of a good fit (Jordán Muiños, 2021; Kline, 2005).

The reliability of the MPFI was subsequently evaluated from the internal consistency analysis taking into account the McDonald's Omega coefficient, following the recommendations of the literature (Zhang & Yuan, 2016). Values above .70 were considered as indicators of a good fit (Martínez Arias et al., 2006; Raykov & Marcoulides, 2011).

Finally, the measurement invariance of the Spanish MPFI in comparison to the original English MPFI was evaluated using multi-group CFA analyses in Mplus (version 7.11). Using procedures outlined by van de Schoot and colleagues (2012), we specified the scale of our latent variables by setting their intercepts (i.e., means) to zero and their variances to 1, as this allowed the factor loadings of all items to be estimated. Consistent with the factor structure of the MPFI, we ran models in which 12 subscales loaded onto two higher order factors.

Our first multi-group model allowed the item loadings to freely vary across the Spanish-speaking and English-speaking samples. Obtaining adequate fit from that model would demonstrate configural invariance as it suggests that both forms of the MPFI have the same basic factor structure. Our second multi-group model then constrained the item loadings to be identical across the two forms of the MPFI. Obtaining adequate fit from that model would demonstrate metric as it suggests that the items load on their respective factors to the same degree across the two forms of the MPFI.

RESULTS

Scale translation.

First, the experts independently translated the items of the original version of the MPFI. Then, these direct translations were reviewed and after discussing the differences between the two versions, an agreement was reached between the experts. To evaluate the preliminary Spanish version of the MPFI, and to ensure its clarity and comprehension, it was administered to a group of 30 respondents from the general population and additional modifications were subsequently introduced.

Confirmatory Factor Analysis.

In order to adapt the MPFI, a confirmatory factor analysis was first performed. In Table 1 it can be seen that the analysis has contributed to confirm that the proposed model fits the data collected in the field (Hair et al., 2009) (see Table 2).

Table 2

MPFI Confirmatory Factor Analysis

	$X^2_{(gl)}$	<i>NFI</i>	<i>NNFI</i>	<i>CFI</i>	<i>IFI</i>	<i>RMSEA</i>
MPFIlf	4033.096 ₍₁₆₉₇₎	.97	.98	.98	.98	.041
MPFIsf	630.945 ₍₂₃₉₎	.97	.98	.98	.98	.044

Note. MPFIlf= Multidimensional Psychological Flexibility Inventory Long Form; MPFIsf= Multidimensional Psychological Flexibility Inventory Short Form; IFI= Índice de Ajuste Incremental, NFI= Índice de Ajuste Normado, NNFI= Índice de Ajuste No Normado, CFI= Índice de Ajuste Comparado SRMR= Residuo Estandarizado Cuadrático Medio, IFI= *Incremental Fit Index*; NNFI = *Non-Normed Fit Index*; CFI= *Comparative fit index*.

Determination coefficients

Determination coefficients were tested for MPFI long form (see Table 3).

Table 3

Coefficients

ITEM	R ²	P	ITEM	R ²	P	ITEM	R ²	P
MPFI1—A	.352	.594	MPFI21—V	.664	.815	MPFI41—T	.837	.915
MPFI2—A	.535	.732	MPFI22—V	.698	.836	MPFI42—T	.877	.937
MPFI3—A	.408	.639	MPFI23—V	.702	.838	MPFI43—T	.574	.758
MPFI4—A	.585	.765	MPFI24—V	.609	.781	MPFI44—T	.605	.778
MPFI5—A	.407	.638	MPFI25—V	.491	.701	MPFI45—T	.494	.703
MPFI6—P	.712	.844	MPFI26—C	.755	.869	MPFI46—F	.736	.858

MPFI7—P	.786	.887	MPFI27—C	.806	.898	MPFI47—F	.839	.916
MPFI8—P	.743	.862	MPFI28—C	.806	.898	MPFI48—F	.866	.931
MPFI9—P	.606	.779	MPFI29—C	.758	.871	MPFI49—F	.715	.846
MPFI10—P	.430	.656	MPFI30—C	.649	.806	MPFI50—F	.582	.763
MPFI11—S	.627	.792	MPFI31—E	.755	.869	MPFI51—W	.580	.762
MPFI12—S	.819	.905	MPFI32—E	.802	.896	MPFI52—W	.724	.851
MPFI13—S	.822	.907	MPFI33—E	.813	.902	MPFI53—W	.790	.889
MPFI14—S	.685	.828	MPFI34—E	.628	.793	MPFI54—W	.700	.837
MPFI15—S	.648	.805	MPFI35—E	.574	.758	MPFI55—W	.737	.859
MPFI16—D	.672	.820	MPFI36—L	.595	.772	MPFI56—I	.797	.893
MPFI17—D	.669	.818	MPFI37—L	.784	.886	MPFI57—I	.762	.873
MPFI18—D	.641	.801	MPFI38—L	.891	.944	MPFI58—I	.826	.909
MPFI19—D	.519	.721	MPFI39—L	.894	.946	MPFI59—I	.813	.902
MPFI20—D	.627	.792	MPFI40—L	.893	.945	MPFI60—I	.707	.841

Note: A=Acceptance; P=Present Moment Awareness; S=Self as Context; D=Defusion; V=Values; C=Committed Action; E=Experiential Avoidance; L=Lack of Contact with the Moment Present; T=Self as Content; F=Fusion; W=Lack of Contact with Values I=Inaction

Determinant coefficients were then tested then for MPFI Short Form (see Table 4).

Table 4
Coefficients

ITEM	R^2	λ	ITEM	R^2	λ
MPFI3—A	.221	0.471	MPFI31—E	.436	0.661
MPFI4—A	.839	0.916	MPFI33—E	.902	.950
MPFI7—P	.624	0.790	MPFI36—L	.521	0.722
MPFI9—P	.731	0.855	MPFI39—L	.952	0.979
MPFI13—S	.674	0.821	MPFI41—T	.546	0.739
MPFI15—S	.749	0.866	MPFI45—T	.700	0.837
MPFI16—D	.783	0.885	MPFI46—F	.826	0.909
MPFI17—D	.654	0.809	MPFI47—F	.813	0.902
MPFI21—V	.678	0.824	MPFI51—W	.532	0.730
MPFI23—V	.624	0.790	MPFI53—W	.797	0.893
MPFI26—C	.774	0.880	MPFI56—I	.767	0.876
MPFI27—C	.883	0.940	MPFI58—I	.874	0.935

Note: A=Acceptance; P=Present Moment Awareness; S=Self as Context; D=Defusion; V=Values; C=Committed Action; E=Experiential Avoidance; L=Lack of Contact with the Moment Present; T=Self as Content; F=Fusion; W=Lack of Contact with Values I=Inaction

Internal Consistency

The internal consistency was then tested using McDonald's Omega (Ventura León & Caycho Rodríguez, 2017), obtaining acceptable values (Martínez Arias et al., 2006; Raykov & Marcoulides, 2011) (see Table 5).

Table5

Consistency

		Long [IC 95%]	Short [IC 95%]	X^2	<i>df</i>	<i>p</i>
A	□	.807 [.786-.826]	.672 [.626-.712]	29.109	1	.000
P	□	.904 [.894-.914]	.808 [.781-.832]	50.206.	1	.000
S	□	.928 [.920-.935]	.832 [.808-.853]	75.536	1	.000
D	□	.893 [.881-.904]	.836 [.813-.856]	18.737	1	.000
V	□	.896 [.885-.906]	.789 [.759-.815]	52.340	1	.000
C	□	.939 [.932-.945]	.906 [.893-.918]	19.220	1	.000
E	□	.926 [.918-.933]	.797 [.768-.822]	107.666	1	.000
L	□	.956 [.951-.960]	.848 [.827-.867]	162.918	1	.000
T	□	.912 [.903-.921]	.767 [.734-.796]	100.152	1	.000
F	□	.948 [.942-.953]	.901 [.887-.913]	43.208	1	.000
W	□	.923 [.915-.931]	.797 [.768-.822]	99.258	1	.000
I	□	.947 [.941-.952]	.901 [.887-.913]	40.645	1	.000

Note: A=Acceptance; P=Present Moment Awareness; S=Self as Context; D=Defusion; V=Values; C=Committed Action; E=Experiential Avoidance; L=Lack of Contact with the Moment Present; T=Self as Content; F=Fusion; W=Lack of Contact with Values; I=Inaction

Measurement Invariance

The invariance of the MPFI factor structure was tested across the main Spanish-speaking sample and the English-speaking comparison sample using multi-group CFA models. The configural model allowing the item loadings to freely vary across the two groups demonstrated adequate fit ($\chi^2(3290) = 9758.4$; CFI = .946; SRMR = .044; RMSEA = .039, 90% CI: LL = .039, UL = .040). Moreover, the metric model constraining the item loadings to be identical across groups also demonstrated adequate fit ($\chi^2(3350) = 10531.9$; CFI = .941; SRMR = .070; RMSEA = .041, 90% CI: LL = .040, UL = .042) with only nominal shifts in the CFI and RMSEA fit indices, well below the thresholds indicating a lack of invariance (see Chen, 2007), thereby supporting strong factorial invariance (i.e., scalar invariance). Taken together, these results suggest that the Spanish translation of the MPFI has a highly similar factor structure to the original English version of the scale. The Spanish MPFI was shown to have both weak (metric) and strong (scalar) factor invariance compared to the English MPFI given to a sample from the United States.

DISCUSSION

The present study has intended to provide a Spanish version of the Multidimensional Psychological Flexibility Inventory (MPFI). The 60 items in the adapted version are similar to those proposed by Rolffs et al. (2018) in the original version. The results of the confirmatory factor analysis allow us to observe an adequate fit of the data to the model proposed by the authors, similar that those reported in Italy (Landi et al., 2021) the United States (Seidler et al., 2020) Canada (Grégoire et al., 2020), China (Lin et al., 2020), France (Grégoire et al., 2020), Japan (Lin et al., 2020), Taiwan (Lin et al., 2020) ($RMSEA \leq .08$; $CFI \geq .95$). Measurement invariance analyses suggested metric factorial invariance of the Spanish MPFI when contrasted with the English MPFI in multigroup analyses.

On the other hand, it is important to note that the values of the estimated parameters are adequate ($\geq .50$), considering that the factor loadings tend to oscillate around .50 in most studies psychological (Beauducel & Herzberg, 2006).

Regarding internal consistency, McDonald's Omega reached adequate values in both versions -long and short-. When comparing the internal consistency indices of both versions of the MPFI -long vs. short-, statistically significant differences were observed in all dimensions. This means that the homogeneity of each dimension was affected by the reduction of items. Although it is expected to obtain lower consistency indices by reducing the number of items (Tavakol & Dennick, 2011), it is important to ensure that item selection in the design of a short version does not affect its homogeneity (Robinson, 2018). The item pool of the long version could be reviewed in the future to make a new selection of items that will result in a new short version that guarantees equivalent homogeneity indices.

It should be noted, regarding its limitations, that the results of the study reported refer exclusively to the factorial structure -factor validity- and the internal consistency -reliability- of the MPFI, which only implies a first approach in the task of adapting the instrument to the local environment. In this sense, future research should continue exploring the psychometric properties of the MPFI in Argentina. It would be convenient to evaluate the convergent validity of the MPFI by studying the correlations with related psychological constructs in the specialized literature, such as the Acceptance and Action Questionnaire-II (AAQ-II) and the Comprehensive Assessment of Acceptance and Commitment Therapy (CompACT).

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REFERENCES

- Aguirre-Camacho, A., & Moreno-Jiménez, B. (2017). La relevancia de la flexibilidad psicológica en el contexto del cáncer: una revisión de la literatura. *Psicooncología*, 14(1), 11–22. <https://doi.org/10.5209/PSIC.55808>
- Bandalos, D. L., & Finney, S. J. (2010). Factor analysis: Exploratory and confirmatory. En G. R. Hancock, L. M. Stapleton, & R. O. Mueller (Eds.), *The reviewer's guide to quantitative methods in Sciences, Social* (pp. 93–114). Routledge.
- Beauducel, A., & Herzberg, P. Y. (2006). On the Performance of Maximum Likelihood Versus Means and Variance Adjusted Weighted Least Squares Estimation in CFA. *Structural Equation Modeling: A Multidisciplinary Journal*, 13(2), 186–203. https://doi.org/10.1207/s15328007sem1302_2
- Bolaños-Medina, A., & González-Ruiz, V. (2013). Deconstructing the Translation of Psychological Tests. *Meta*, 57(3), 715–739. <https://doi.org/10.7202/1017088ar>
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary Psychometric Properties of the Acceptance and Action Questionnaire–II: A Revised Measure of Psychological Inflexibility and Experiential Avoidance. *Behavior Therapy*, 42(4), 676–688. <https://doi.org/10.1016/j.beth.2011.03.007>
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 14(3), 464–504. <https://doi.org/10.1080/10705510701301834>
- Cobos-Sánchez, L., Fluja-Contreras, J. M., & Gómez-Becerra, I. (2017). Intervención en flexibilidad psicológica como competencia emocional en adolescentes: una serie de casos. *Revista de Psicología Clínica con Niños y Adolescentes*, 4(2), 135–141.
- Doorley, J. D., Goodman, F. R., Kelso, K. C., & Kashdan, T. B. (2020). Psychological flexibility: What we know, what we do not know, and what we think we know. *Social and Personality Psychology Compass*, 14(12), 1–11. <https://doi.org/10.1111/SPC3.12566>
- Douglas, S., & Craig, S. S. (2007). Collaborative and Iterative Translation: An Alternative Approach to Instrument Translation. *SSRN Electronic Journal*, 15(1), 30–43. <https://doi.org/10.2139/ssrn.946274>
- Flores, E. P. (2016). Flexibilidad psicológica y aceptación del dolor como variables predictoras de calidad de vida y bienestar emocional en personas con dolor crónico. *Repositorio Institucional de la Universidad de Oviedo*.
- Forsyth, J. P., & Eifert, G. H. (2008). The Mindfulness and Acceptance Workbook for Anxiety. A Guide to Breaking Free from Anxiety, Phobias, and Worry Using Acceptance and Commitment Therapy. *New Harbinger*.
- Greco, L. A., Lambert, W., & Baer, R. A. (2008). Psychological inflexibility in childhood and adolescence: Development and evaluation of the Avoidance and Fusion

- Questionnaire for Youth. *Psychological Assessment*, 20(2), 93–102. <https://doi.org/10.1037/1040-3590.20.2.93>
- Grégoire, S., Gagnon, J., Lachance, L., Shankland, R., Dionne, F., Kotsou, I., Monestès, J. L., Rolffs, J. L., & Rogge, R. D. (2020). Validation of the english and french versions of the multidimensional psychological flexibility inventory short form (MPFI-24). *Journal of Contextual Behavioral Science*, 18(December 2019), 99–110. <https://doi.org/10.1016/j.jcbs.2020.06.004>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis* (p. 816). *Prentice Hall*.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and Commitment Therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, 44(1), 1–25. <https://doi.org/10.1016/j.brat.2005.06.006>
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). Acceptance and Commitment Therapy. An experiential Approach to behavior change. En *Journal of Chemical Information and Modeling* (Vol. 53, Número 9). *The Guilford Press*. <https://doi.org/10.1017/CBO9781107415324.004>
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., Polusny, M. A., Dykstra, T. A., Batten, S. V., Bergan, J., Stewart, S. H., Zvolensky, M. J., Eifert, G. H., Bond, F. W., Forsyth, J. P., Karekla, M., & McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, 54(4), 553–578. <https://doi.org/10.1007/BF03395492>
- Holgado-Tello, F. P., Morata-Ramirez, M. Á., & Barbero García, M. I. (2018). Confirmatory Factor Analysis of Ordinal Variables: A Simulation Study Comparing the Main Estimation Methods. *Avances en Psicología Latinoamericana*, 36(3), 601. <https://doi.org/10.12804/revistas.urosario.edu.co/apl/a.4932>
- Jordán Muiños, F. (2021). Valor de corte de los índices de ajuste en el análisis factorial confirmatorio. *Psocial*, 7(1), 66–71.
- Kashdan, T. B., Disabato, D. J., Goodman, F. R., Doorley, J. D., & McKnight, P. E. (2020). Understanding psychological flexibility: A multimethod exploration of pursuing valued goals despite the presence of distress. *Psychological Assessment*, 32(9), 829–850. <https://doi.org/10.1037/pas0000834>
- Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, 30(4), 865–878. <https://doi.org/10.1016/j.cpr.2010.03.001>
- Kline, R. B. (2005). *Structural equation modeling*. *The Guilford Press*.
- Landi, G., Pakenham, K. I., Giovannetti, A. M., Presti, G., Boccolini, G., Cola, A., Grandi, S., & Tossani, E. (2021). Italian validation of the Italian multidimensional psychological flexibility inventory (MPFI). *Journal of Contextual Behavioral Science*, 21, 57–65. <https://doi.org/10.1016/J.JCBS.2021.05.007>
- Lin, Y. Y., Rogge, R. D., & Swanson, D. P. (2020). Cross-cultural flexibility: Validation of the traditional Mandarin, simplified Mandarin, and Japanese translations of the Multidimensional Psychological Flexibility Inventory. *Journal of Contextual Behavioral Science*, 15(November), 73–84. <https://doi.org/10.1016/j.jcbs.2019.11.008>

- Medrano, L. A., & Muñoz-Navarro, R. (2017). Aproximación conceptual y práctica a los Modelos de Ecuaciones Estructurales. *Revista Digital de Investigación en Docencia Universitaria*, 11(1), 219–239. <https://doi.org/10.19083/ridu.11.486>
- Raykov, T., & Marcoulides, George A. (2011). Introduction to Psychometric Theory. *Taylor & Francis*.
- Robinson, M. (2018). Using multi-item psychometric scales for research and practice in human resource management. *Human Resources Management*, 57, 739-750. <https://doi.org/10.1002/hrm.21852>
- Rolffs, J. L., Rogge, R. D., & Wilson, K. G. (2018). Disentangling Components of Flexibility via the Hexaflex Model: Development and Validation of the Multidimensional Psychological Flexibility Inventory (MPFI). *Assessment*, 25(4), 458–482. <https://doi.org/10.1177/1073191116645905>
- Rogge, R. D., Daks, J. S., Dubler, B. A., & Saint, K. J. (2019). It's all about the process: Examining the convergent validity, conceptual coverage, unique predictive validity, and clinical utility of ACT process measures. *Journal of Contextual Behavioral Science*, 14, 90-102. <https://doi.org/10.1016/j.jcbs.2019.10.001>
- Ruiz, M. A., Pardo, A., & Martín, S. (2010). Modelos de ecuaciones estructurales. *Papeles del psicólogo*, 31(1), 34–45.
- Seidler, D., Stone, B., Clark, B. E., Koran, J., & Drake, C. E. (2020). Evaluating the factor structure of the Multidimensional Psychological Flexibility Inventory: An independent replication and extension. *Journal of Contextual Behavioral Science*, 17(April), 23–31. <https://doi.org/10.1016/j.jcbs.2020.04.007>
- Stabbe, O. K., Rolffs, J. L., & Rogge, R. D. (2019). Flexibly and/or inflexibly embracing life: Identifying fundamental approaches to life with latent profile analyses on the dimensions of the Hexaflex model. *Journal of Contextual Behavioral Science*, 12, 106–118. <https://doi.org/10.1016/j.jcbs.2019.03.003>
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Van de Schoot, R., Lugtig, P., & Hox, J. (2012). A checklist for testing measurement invariance. *European Journal of Developmental Psychology*, 9(4), 486-492. <https://doi.org/10.1080/17405629.2012.686740>
- Ventura León, J. L., & Caycho Rodriguez, T. (2017). El coeficiente Omega: un método alternativo para la estimación de la confiabilidad. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*, 15(1), 625–627.
- Weston, R., & Gore, P. A. (2006). A Brief Guide to Structural Equation Modeling. *The Counseling Psychologist*, 34(5), 719–751. <https://doi.org/10.1177/0011000006286345>
- Zhang, Z., & Yuan, K. (2016). Robust Coefficients Alpha and Omega and Confidence Intervals With Outlying Observations and Missing Data. *Educational and Psychological Measurement*, 76(3), 387–411. <https://doi.org/10.1177/0013164415594658>

APPENDIX

Items of the Psychological Flexibility Scale adapted to the Argentine context

	NUNCA	POCAS VECES	ALGUNAS VECES	VAIRAS VECES	CASI SIEMPRE	SIEMPRE
Aceptación / Acceptance						
1.Me permití tener pensamientos y emociones negativas aceptándolos en lugar de rechazarlos.	1	2	3	4	5	6
2. Cuando tuve un pensamiento o una emoción molesta, traté de aceptarlo en lugar de ignorarlo.	1	2	3	4	5	6
3.* Estuve dispuesto/a a observar pensamientos y emociones desagradables sin interferir con ellos.	1	2	3	4	5	6
4.* Traté de reconciliarme con mis pensamientos y emociones negativas en lugar de resistirlas.	1	2	3	4	5	6
5. Acepté todas mis emociones, las buenas y las malas.	1	2	3	4	5	6
Contacto con el momento presente / Present moment awareness						
6.Presté mucha atención a lo que estaba pensando y sintiendo.	1	2	3	4	5	6
7.* Estuve atento/a y consciente a mis emociones	1	2	3	4	5	6
8.Estuve en contacto con el ir y venir de mis pensamientos y emociones	1	2	3	4	5	6
9.* Estuve en sintonía con mis pensamientos y emociones en cada momento	1	2	3	4	5	6
10.Me esforcé por estar atento/a y consiente a mis pensamientos y emociones.	1	2	3	4	5	6
Yo como contexto / Self as context						
11. Traté de mantenerme centrado incluso cuando la vida me derrumbó	1	2	3	4	5	6
12. Incluso cuando me sentí asustado/a, o temeroso/a intenté mantener una mirada más amplia de lo que estaba ocurriendo	1	2	3	4	5	6
13.* Incluso cuando me sentí herido/a o molesto/a traté de mantener una mirada más amplia	1	2	3	4	5	6
14. Cuando me sucedió algo doloroso, traté de mantener una mirada equilibrada de la situación	1	2	3	4	5	6
15.* Logré atravesar momentos difíciles viendo mi vida desde una mirada más amplia.	1	2	3	4	5	6
Defusión / Defusion						
16.* Pude dejar que las emociones negativas vayan y vengan sin quedar atrapado/a en ellas	1	2	3	4	5	6
17.* Cuando estuve enojado/a pude dejar que las emociones negativas pasaran a través de mi sin aferrarme a ellas.	1	2	3	4	5	6
18. Cuando estuve asustado/a o con miedo, pude experimentar amablemente esas emociones dejándolas pasar.	1	2	3	4	5	6

19. Pude tomar distancia y notar mis pensamientos y emociones negativas sin reaccionar	1	2	3	4	5	6
20. En situaciones difíciles pude notar mis pensamientos y emociones difíciles sin abrumarme.	1	2	3	4	5	6

Valores / Values

21.* Estuve muy conectado con lo que es importante para mi y para mi vida	1	2	3	4	5	6
22. Intenté conectarme diariamente con lo que es verdaderamente importante para mi	1	2	3	4	5	6
23.* Me mantuve aferrado/a a las prioridades más valiosas de mi vida	1	2	3	4	5	6
24. Traté de priorizar las cosas que eran importantes para mí, aún cuando significara tomar decisiones difíciles.	1	2	3	4	5	6
25. Mis valores centrales orientaron la dirección de mi vida de forma constante.	1	2	3	4	5	6

Acción Comprometida / Committed Action

26.*Incluso ante el fracaso no dejé de perseguir aquello que es importante para mí.	1	2	3	4	5	6
27.* Aún en tiempos difíciles, pude perseguir aquello que valoro en la vida.	1	2	3	4	5	6
28. Incluso en tiempos difíciles continué trabajando para conseguir aquello que era importante para mí.	1	2	3	4	5	6
29. No permití que las adversidades me impidieran perseguir aquello que realmente quiero en la vida	1	2	3	4	5	6
30. No dejé que mis propios temores y dudas me impidieran perseguir mis objetivos.	1	2	3	4	5	6

Evitación Experiencial / Experiential avoidance

31.* Cuando tuve un mal recuerdo, traté de distraerme para que desapareciera.	1	2	3	4	5	6
32. Cuando tuve recuerdos desagradables, traté de alejarlos de mi mente	1	2	3	4	5	6
33.* Traté de distraerme cuando sentí emociones desagradables	1	2	3	4	5	6
34. Cuando algo me molestó, trate de esforzarme en dejar de pensar en ello.	1	2	3	4	5	6
35. Cuando apareció algo en lo que no quería pensar intenté muchas cosas para quitarlo de mi mente.	1	2	3	4	5	6

Falta de contacto con el momento presente / Lack of contact with the present

36.* Hice la mayoría de las cosas de forma automática sin prestar mucha atención a lo que estaba haciendo	1	2	3	4	5	6
37. La mayoría de los días funcioné en "piloto automático" sin prestar mucha atención a lo que estaba pensando o sintiendo.	1	2	3	4	5	6
38. La mayoría de mis días transcurrieron sin que preste mucha atención.	1	2	3	4	5	6
39.*Hice la mayoría de las cosas sin pensar, sin prestar mucha atención.	1	2	3	4	5	6
40. La mayoría de las veces, realicé mis actividades automáticamente, sin prestar mucha atención.	1	2	3	4	5	6

Yo como Contenido / Self as Content

41.*Pensé que algunas de mis emociones eran malas o inapropiadas y que no debería tenerlas.	1	2	3	4	5	6
42. Creí que algunos de mis pensamientos eran malos o inapropiados y que no debería tenerlos.	1	2	3	4	5	6
43. Me dije a mi mismo/a que no debería sentirme de la manera en la que me sentía.	1	2	3	4	5	6
44. Me dije a mi mismo/a que no debería pensar de la manera en la que pensaba.	1	2	3	4	5	6
45.* Me critiqué por tener emociones irracionales o inapropiadas.	1	2	3	4	5	6

Fusión / Fusion

46.* Mis pensamientos y emociones negativas me acompañaron durante mucho tiempo.	1	2	3	4	5	6
47.*Pensamientos angustiados tendían a dar vueltas en mi mente todo el tiempo como un disco rayado.	1	2	3	4	5	6
48. Quedé atrapado/a en pensamientos y emociones no deseadas con facilidad.	1	2	3	4	5	6
49. Cuando tuve pensamientos o emociones negativas fue muy difícil ver más allá de ellos.	1	2	3	4	5	6
50. Cuando sucedió algo malo, fue difícil dejar de pensar en ello.	1	2	3	4	5	6

Falta de contacto con valores / Lack of Contact with values

51.* A menudo mis prioridades y valores quedaron postergados en mi vida cotidiana.	1	2	3	4	5	6
52. Frecuentemente aquello que más valoro quedó completamente fuera de mi lista de prioridades.	1	2	3	4	5	6
53.* En tiempos difíciles, en general, perdí contacto con aquello que era importante para mí.	1	2	3	4	5	6
54. En general no he tenido tiempo para enfocarme en las cosas que son realmente importantes para mí.	1	2	3	4	5	6
55. En tiempos difíciles olvidé fácilmente aquello que verdaderamente valoro.	1	2	3	4	5	6

Inacción / Inaction

56.* A menudo las emociones negativas me paralizaron y me impidieron actuar.	1	2	3	4	5	6
57. Sentirme molesto/a frecuentemente me dejó paralizado/a y sin poder reaccionar.						
58.* Mis emociones negativas usualmente obstaculizaron mis planes.	1	2	3	4	5	6
59. Las experiencias negativas me desviaron de lo que considero importante.	1	2	3	4	5	6
60. Pensamientos y emociones desagradables fácilmente impidieron que pueda encontrarle un sentido más profundo a mi vida.	1	2	3	4	5	6

Nota. El asterisco señala los ítems correspondientes a la versión abreviada de la escala.