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Assessing psychological flexibility and mental health in adults: The Psy-Flex European Portuguese version

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ABSTRACT

The current study developed the European Portuguese version of the Psy-Flex. Its factor structure was studied through confirmatory factor analysis in a large community sample (N = 700) and cross-validated in calibration and validation samples created from the original sample. Confirmatory factor analyses confirmed a sample and sex-invariant single-factor structure with a very good fit to the data. These analyses supported good reliability and test-retest reliability in the PsyFlex European Portuguese version. Correlations with related and unrelated constructs were indicative of convergent and predictive validity. Because it is short and easy-to-use, it reduces participant burden and may be useful in clinical and research settings. The European Portuguese Psy-Flex version will allow the broadening of research possibilities not only in Portugal but also across cultural contexts.

Psychological flexibility is a complex and multidimensional construct originally derived from social psychology research on emotion regulation (Kashdan & Rottenberg, 2010). Overall, psychological flexibility has been defined as the tendency to deal with situations in ways that enable the pursuit of meaningful goals and selection of adequate self-regulatory skills, particularly in distress-inducing and challenging situations (Doorley et al., 2020).

Psychological flexibility is a core construct in the Acceptance and Commitment Therapy (ACT) model (e.g,; Arch et al., 2023; Cherry et al., 2021; Doorley et al., 2020; Tyndall et al., 2020). The ACT model, also known as the hexaflex model, theorizes about six interdependent processes of psychological flexibility: acceptance (willingness to embrace private events, even the ones that are unwanted or painful), cognitive defusion (being able to create space and have a more mindful perspective on thoughts), present moment awareness (being in touch and aware of one's experiences as they unfold in a non-judgmental way), self as context (the self as the context for experiencing), values (chosen life directions, staying connected with what is really important and meaningful), committed action (effective action linked to chosen life values; Arch et al., 2023; Hayes et al., 2006; Hayes et al., 2012a). Simultaneously, the model also comprises six psychopathological processes that have been claimed to contribute to human suffering: experiential avoidance (attempts to control or modify the form and frequency of internal events such as thoughts, emotions, and bodily sensations), cognitive fusion (tendency to get caught up in the content of thoughts), lack of contact with the present moment (not paying attention to one's experiences as they occur in the present moment), self as content (identifying with a particular conceptualized self), lack of contact with values (being disengaged from meaningful life areas), inaction (behavior patterns that are inconsistent with one's values; Arch et al., 2023; Hayes et al., 2006, 2012a).

Adopting psychologically flexible behaviors seems to be associated with psychological well-being (Tyndall et al., 2020), whereas inflexible patterns of behavior are linked to the development of psychopathology (Renshaw, 2018). Therefore, psychological flexibility may have a protective role in physical and mental health; on the contrary, psychological inflexibility may act as a facilitator for psychopathology (Chawla & Ostafin, 2007; Ruiz, 2010). In fact, Gloster et al. (2017) reported that higher levels of psychological flexibility were associated with fewer daily stress symptoms, physical and mental health problems, and greater well-being. Furthermore, a large body of research has supported the usefulness and efficacy of ACT-based interventions in a wide range of conditions (Gloster et al., 2020). In this context, the development of psychometrically sound measures assessing psychological flexibility is relevant, as such measures would allow for a deeper understanding of this construct (e.g., mediating, moderator role) and increased sensitivity

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to change in ACT-based interventions.

Throughout time, various measures have been developed to assess psychological flexibility/inflexibility and related constructs. For example, the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011), the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gámez et al., 2011), the Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014), the Comprehensive of Acceptance and Commitment Therapy (Compact 21; Francis et al., 2016), and the Multidimensional Psychological Flexibility Inventory (MPFI; Rolffs et al., 2016). Nonetheless, these self-report instruments have been criticized for distinct reasons, such as defining psychological flexibility and psychological inflexibility as a single dimension despite lack of theoretical or empirical evidence or failing to differentiate psychological flexibility from other constructs (e.g., neuroticism and negative affect; for a review, see Cherry et al., 2021). Moreover, several of these assessment instruments do not address all six skills encompassing psychological flexibility, are not context-specific, and do not specify a time frame for answering the items (Gloster et al., 2021).

Considering some of the previously mentioned shortcomings, Gloster et al. (2021) recently developed a brief and clinically useful self-report measure to assess psychological flexibility, the Psy-Flex. The Psy-Flex is a 6-item instrument, with each item corresponding to the six psychological flexibility processes. The items assess the existence (rather than the absence) of a specific skill (e.g., being open to experiences and awareness of one's own values) in a particular situation. The Psy-Flex specifically addresses psychological flexibility and is sensitive to both situational and temporal contexts. This context-sensitivity allows assessing the use of a particular ability during the last seven days (e.g., "I can look at hindering thoughts from a distance without letting them controlling me"). This time frame may increase the focus on more recent and distinct memories, possibly contributing to a higher sensitivity to change (Benoy et al., 2019). The Psy-Flex original version had a single-factor solution using a community and two clinical samples. It also showed good reliability, convergent, discriminant, and incremental validities (e.g., predicted unique variance in well-being; Gloster et al., 2021).

There was no consistency in the data regarding differences between men and women on the Psy-Flex scores. In the Gloster et al. (2021) study, when examining each subsample for significant biserial correlations, sex was significantly associated with Psy-Flex in some samples, but not with other samples. Whenever a significant association was found, men showed higher scores (Gloster et al., 2021). These findings suggest the relevance of examining the Psy-Flex's sex invariance, exploring whether the scale measures the same theoretical construct similarly in both groups. This analysis (at least scalar invariance) supports mean scores comparison between males and females. The authors suggest its use in clinical (e.g., for treatment planning) and non-clinical settings (e.g., screening) as a brief psychological flexibility measure. The Psy-Flex also discriminated clinical and non-clinical samples well, suggesting its utility for the assessment of ACT-related interventions (Arch et al., 2023) or other psychotherapies (Probst et al., 2020). Moreover, Arch et al. (2023) state that, although the Psy-Flex does not allow for differentiation of the unique contribution of different processes, it is a useful instrument to evaluate psychological flexibility while incorporating all proposed processes in ACT.

The current study aimed to test the factor structure of the European Portuguese version of the Psy-Flex through confirmatory factor analysis (CFA). The CFA was first conducted in a large community sample. The Psy-Flex was then cross-validated in calibration and validation samples (two independent sub-samples derived from the total sample). Moreover, given the mixed results regarding the relationship between the Psy-Flex scores and sex (e.g., Gloster et al., 2021), a multi-group analysis was also conducted for sex differences. Psychometric properties of the Psy-Flex were also inspected, namely, the items' descriptives, reliability, and test-retest reliability. Furthermore, convergent validity was examined through the Psy-Flex's correlation with the Multidimensional Psychological Flexibility Inventory, which measures a similar construct. Predictive validity was assessed through correlations between the Psy-Flex and the Patient and Health Questionnaire for Anxiety and Depression (measuring anxiety and depressive symptoms) and the Mental Health Continuum - Short Form, these being independent, albeit related, constructs. Finally, the Psy-Flex mean score differences between men and women were calculated, given that scalar invariance was achieved.

1. Method

1.1. Participants

A community sample ($N = 700$) was used in the current study. The total sample included 246 men and 454 women aged 18–75 years old. Two independent sub-samples were formed from the total sample by a randomization procedure. Sample 1 (calibration sample; $N = 391$) was used to test the Psy-Flex structure through confirmatory factor analysis, and Sample 2 (validation sample; $N = 309$) was used to confirm its structure through cross-validation. The samples' sociodemographic characteristics are presented in Table 1.

1.2. Measures

Psy-Flex (Gloster et al., 2021). The Psy-Flex is comprised of six items designed to assess the six processes underlying psychological flexibility over the last seven days. According to the ACT therapeutic model, these six processes are interdependent and include: (1) present moment awareness; (2) values clarification; (3) committed action; (4) self as context; (5) cognitive defusion; and (6) acceptance. Items are answered on a 5-point scale ranging from *very seldom* (1) to *very often* (5). The Psy-Flex showed a single-factor structure, with higher scores indicating greater psychological flexibility. The original version showed good reliability ($\alpha = 0.91$; Gloster et al., 2021).

Patient and Health Questionnaire for Anxiety and Depression (PHQ-4; Kroenke et al., 2009) consists of 4 items assessing the frequency of anxiety (2 items; e.g., "Over the last two weeks, how often have you been bothered by feeling nervous, anxious or on edge") and depression (2 items; e.g., "Over the last two weeks, how often have you been bothered by little interest or pleasure in doing things") symptoms during the last two weeks. The response to each item can range from *not at all* (0) to *nearly every day* (3). Higher scores correspond to higher levels of anxiety and depressive symptoms. Kroenke et al., 2009 suggest that a score above three on each subscale indicates an anxiety and depression disorder. As a composite index, the PHQ-4 revealed a Cronbach's alpha of 0.85 (Kroenke et al., 2009). In the current study, the PHQ-4 showed Spearman-Brown coefficient values of 0.85 for the anxiety subscale and 0.81 for the depression subscale.

Multidimensional Psychological Flexibility Inventory (MPFI-24; Grégoire et al., 2020; Portuguese version by Pereira et al., 2023). The MPFI-24 is a 24-item inventory, 12 of which assess psychological flexibility (e.g., "In the last two weeks, I was attentive and aware of

Table 1
Sociodemographic characteristics of the samples.

	Total Sample (N = 700)	Sample 1 (n = 391)	Sample 2 (n = 309)
Age			
Mean (SD)	34.84 (15.11)	34.68 (14.97)	35.05 (15.31)
Sex			
Male N (%)	246 (35.1)	129 (33)	117 (37.9)
Female N (%)	454 (64.9	262 (67)	191 (61.8)
Non-binary	1 (01)	–	1 (0.3)
School Years			
Mean (SD)	15.09 (3.09)	14.99 (3.11)	15.22 (3.05)

emotions"), and the remaining 12 assess psychological inflexibility (e.g., "In the last two weeks, negative feelings often trapped me in inaction"). Two distinct overall scores referring to psychological flexibility and inflexibility can be computed. The items are answered based on a scale ranging from *never true* (1) to *always true* (6). Higher scores indicate greater psychological flexibility and inflexibility. In the Portuguese study, the two composite indices showed adequate reliability, with Cronbach alpha values of 0.92 and 0.89 for the psychological flexibility and psychological inflexibility subscales, respectively (Pereira et al., 2023). In the current study, a Cronbach's alpha of 0.92 was found for psychological flexibility and 0.87 for psychological inflexibility.

Mental Health Continuum - Short Form (MHC-SF; Keyes et al., 2002; Portuguese version by Monteiro, Fonseca, Pereira, & Canavarro, 2021). The MHC-SF is a widely used measure to assess well-being. Its short version encompasses 14 items assessing emotional (e.g., "During the past month, how often did you feel happy?"), social (e.g., "During the past month, how often did you feel that you belonged to a community?"), and psychological well-being (e.g., "During the past month, how often did you feel that you had experiences that challenged you to grow and become a better person?"). Items are answered using a 6-point scale ranging from *never* (0) to *every day* (5). The overall score can range from 0 to 70, with higher scores indicating a perception of better mental health. The global score is recommended for research purposes in the MHC-SF Portuguese version study, having found a Cronbach's alpha value of 0.97 (Monteiro, Fonseca, Pereira, & Canavarro, 2021). In this study, the MHC-SF showed a Cronbach's alpha of 0.94.

1.3. Procedures

The current study was approved by the Ethics Committee of the Instituto Superior Miguel Torga (CE-P01-22). The corresponding author of the original version authorized the translation and use of the Psy-Flex (Gloster et al., 2021). The authors of the Portuguese versions of the other measures also gave permission for their use.

The sample was recruited through social media advertising (i.e., snowball sampling). Participants were informed about the study aims, the voluntary nature of participation, and the anonymity and confidentiality of the collected data. Informed consent was mandatory before completing the study protocol. Inclusion criteria were age between 18 and 75 years old and fluency in Portuguese. Participants completed the self-report measures online. Data collection took place between February and April 2022. To analyze test-retest reliability, participants who were interested (optional) provided their email addresses and, four weeks later, were invited to complete the Psy-Flex.

1.4. Psy-Flex translation procedures

After obtaining authorization from the authors of the original English version of the Psy-Flex, the process of translation and adaptation consisted of three phases. As a first step, the Psy-Flex instructions and items were translated into Portuguese by a professional English translator who is also fluent in Portuguese. In the second step, the research team performed back-translation and compared it with the original scale, incorporating four psychologists with clinical and research experience with ACT. After a critical discussion about the content validity of the items, equivalence was confirmed between the original and the translated versions. In the third step, a pilot study was conducted with a small sample of Portuguese university students ($n = 22$). These voluntary participants were invited to complete the Portuguese version of the Psy-Flex and comment on the instructions and the items' intelligibility and comprehensibility. These students did not report difficulties or inconsistencies. These procedures were in accordance with Hambleton et al. (2005) and the International Test, 2017 recommendations.

1.5. Data analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS, Chicago, IL, USA) and the JASP software package (Team JASP, 2018). The normality of the distributions was assessed using the Kolmogorov-Smirnov (S–K) test with the Lillieford correction and the analyses of Skewness (Sk) and Kurtosis (Ku) values. SK and Ku values were greater than −7 and lesser than 7, indicating there were no severe violations of the normal distribution (Byrne, 2010).

Confirmatory Factor Analyses (CFA) were conducted using the Diagonally Weighted Least Squares estimation method (DWLS) to confirm the one-dimensional theoretical model proposed in the Psy-Flex original version (Li, 2016). Mahalanobis squared distance (MD2) was used to analyze the existence of outliers. Model fit was inspected using the following fit indexes: the CFI and the TLI indicate a good fit to the data when values range between 0.90 and 0.95, and the SRMR indicates an acceptable fit when values are less than 0.08 (Hu & Bentler, 1999). The Root Mean Square Error of Approximation (RMSEA) was also utilized, with values lower than 0.10 being considered good, with a 90% confidence interval (Kline, 2015). Local adjustment of the items was analyzed using standardized regression weights and squared multiple correlations (Tabachnick & Fidell, 2007). For model comparisons, the Expected Cross-Validation Index (ECVI) was used. The ECVI is recommended as a particularly accurate index for confirmatory factor analysis, with lower values indicating better model fit (Bandalos, 1993).

The Psy-Flex model invariance tests (configural, metric, and scalar) were analyzed in two community samples and across sex groups as a criterion for cross-group comparisons. The first step sought to test the configural invariance (i.e., to fit a baseline model for each group separately; Dimitrov, 2010). The second step addressed metric invariance; equal factor loadings across groups were a prerequisite to guarantee equivalent relationships between the latent factor and its items (Dimitrov, 2010). Lastly, the scalar invariance was examined and equal factor loadings and indicator intercepts across groups were required (Dimitrov, 2010). In interpreting invariance, the non-significant $\chi 2$ difference statistic and the Comparative Fit Index (ΔCFI) change value equal to or less than −0.01 were considered. For metric invariance, the change value of the SMRS should be less than 0.030, and for scalar invariance, it should be less than 0.015 (Chen, 2007).

In the reliability analysis, Cronbach's alpha with a cut-off point of 0.70 was considered adequate, and item-total correlations equal to or greater than 0.42 were considered adequate (Field, 2013). Composite Reliability (CF) was also computed using Colwell's (2016) calculator, which estimates the internal reliability of each construct and indicates the degree to which the individual indicators are all consistent with their common latent construct. The average variance extracted (AVE) reflecting the overall variance in the indicators accounted for by the latent construct was also calculated. According to Hair et al. (2018), AVE values should equal or exceed 0.50.

Test-retest reliability was assessed through the computation of the intraclass correlation coefficient. Given the context-sensitivity nature of the Psy-Flex, a poor to moderate stability was expected. Koo and Li (2016) suggest that values lower than 0.50 indicate poor reliability, values between 0.50 and 0.75 indicate moderate reliability, values between 0.75 and 0.90 indicate good reliability, and values higher than 0.90 indicate excellent reliability.

Pearson's correlation coefficients (r) were calculated to address the associations between the Psy-Flex and other measures (psychological flexibility/inflexibility, mental health, anxiety, and depression symptoms), as well as between the Psy-Flex and sociodemographic variables (age and education). According to Gignac and Szodorai (2016) and Funder and Ozer (2019), correlation coefficients between 0.10 and 0.20 indicate small correlations, between 0.20 and 0.30 medium, between 0.30 and 0.40 large, and above 0.40 very large. Independent samples t-tests were used to compare men's and women's Psy-Flex total scores. Sawilowsky (2009) suggests that effect sizes $d = 0.01$ are considered

very small, $d = 0.20$ as small, $d = 0.50$ as medium, d = 0.80 as large, $d = 1.20$ as very large, and $d = 2.00$ as huge.

2. Results

2.1. Psy-Flex Portuguese version factor analyses

As a first step, a single-factor model was tested in the total sample through a CFA. Model fit results were: $\chi^2_{(9)} = 40.51$, $p < 0.001$, CMIN/*DF* = 4.50, $p < 0.001$, CFI = 0.975, TLI = 0.959, RMSEA = 0.071 (0.049 - 0.094), SRMS = 0.069, ECVI = 0.092. Although these fit indices suggest a good fit to the data, in the original version, the final model included the specification of a correlation between item 5 and item 6 residuals. The inspection of modification indices in the current CFA also suggested that defining this correlation would improve the model fit. Moreover, the theoretical rationale for this specification also applies to the Portuguese version (items 5 and 6 are related to values clarification and committed action, and these skills are necessarily connected). Model fit results were: $\chi^2_{(8)} = 16.25$, $p = 0.039$, CMIN/*DF* = 2.03, $p = 0.039$, CFI = 0.993, TLI = 0.988, RMSEA = 0.038 (0.008 - 0.065), SRMS = 0.039, ECVI = 0.060.

As a second step, a two-factor model was tested, as suggested by Hooper & Larsson (2015), with one factor including the items related to the process components (acceptance, awareness and cognitive defusion) and the other comprising the items related to the outcome components (values, committed action, self as context). Model fit results of the two-factors model were: $\chi2_{(8)} = 38.47$, $p < 0.001$, CMIN/DF = 4.81, $p < 0.001$, CFI = 0.976, TLI = 0.955, RMSEA = 0.074 (0.051 - 0.098), SRMS = 0.067, ECVI = 0.092. These are good fit indices, similar to the ones found for the single-factor model. However, it is also worth noting that the inspection of modification indices continues to suggest the specification of a correlation between items 5 and 6 residuals to improve model fit. Model fit results were: $\chi^2_{(7)} = 16.19$, $p = 0.023$, CMIN/*DF* = 2.31, $p = 0.023$, CFI = 0.993, TLI = 0.984, RMSEA = 0.043 (0.015 - 0.071), SRMS = 0.039, ECVI = 0.063.

Based on these different models' similar results, we opted for the model proposed by the authors of the original Psy-Flex (single factor model with the specification of a correlation between items 5 and 6 error terms) and tested it in all samples. Model fit results are displayed in Table 2.

The single-factor structure of the Portuguese version of the Psy-Flex was replicated in the total sample and the two independent subsamples, showing a very good fit to the data. In the total sample, the Psy-Flex items showed standardized regression weights ranging from 0.36 (item 2) to 0.84 (item 4) and squared multiple correlations ranging from 0.13 (item 2) to 0.70 (item 4). Subsequent analyses considered this model, establishing a correlation between items 5 and 6 residuals.

2.2. Multi-group confirmatory analysis factor – samples

Multi-group CFA results revealed configural, metric, and scalar invariance for the two independent samples (samples 1 and 2). Results are presented in Table 3. Chi-square differences statistics were non-significant, CFI change values were lower than −0.01, and SRMR values were within the recommended intervals.

Table 2
Model fit of the one-factor model of the Psy-Flex assuming correlated residuals for the items five and six using Confirmatory Factor Analysis.

Non-Clinical Sample	χ^2 (*p* value)	CFI	TLI	RMSEA (90% CI)	SRMR
Total Sample (*N* = 700)	16.25 (*p* = 0.039)	0.993	0.988	0.038 (0.008 - 0.065)	0.039
Sample 1 (*n* = 391)	10.31 (*p* = 0.224)	0.997	0.994	0.027 (0.000 - 0.069)	0.041
Sample 2 (*n* = 309)	7.69 (*p* = 0.464)	1.000	1.001	0.000 (0.000- 0.065)	0.041

2.3. Multi-group confirmatory analysis factor – sex

Multi-group CFA results revealed configural, metric, and scalar invariance for sex. Results are presented in Table 4. Chi-square differences statistics were non-significant, CFI change values were lower than −0.01, and SRMR values were within the recommended intervals.

2.4. Psy-Flex items analyses

In the total sample ($N = 700$), the Portuguese version of the Psy-Flex had a Cronbach alpha of 0.82. The Psy-Flex items mean, standard deviation, skewness, kurtosis, item-total correlations, and Cronbach's alpha of the item deleted are presented in Table 5. The Psy-Flex reliability was further examined through the Composite Reliability (CF) computation, showing a value of 0.85. The average variance extracted (AVE) was 0.51, suggesting that the global score is representative of the latent construct.

2.5. Test-retest reliability

Test-retest reliability of the Psy-Flex (4-week interval) was calculated in a sub-sample comprising 181 participants (137 females and 44 males), corresponding to 25.86% of the total sample. Age ranged from 18 to 73 ($M = 36.54$; $SD = 14.97$) years old. Participants had a mean education of 15.80 years ($SD = 2.92$). This subsample participants encompassed a higher proportion of female participants ($n = 137$; 75.7%) when compared to the subsample of participants who did not complete the retest ($n = 333$; 64.2%) and a lower proportion of male participants ($n = 44$; 24.3% vs. $n = 184$; 35.5%), ($\chi^2_{(2)} = 8.47$, $p = 0.014$). No significant differences were found between these two subsamples regarding age ($t_{(698)} = 1.77$; $p = 0.078$). Concerning years of education, significant differences were found ($t_{(698)} = 4.13$; $p < 0.001$), with retest participants revealing more years of education ($M = 15.80$, $SD = 2.92$ vs. $M = 14.75$, $SD = 2.94$). The intraclass correlation coefficient was 0.62 [0.58–0.0.65; 95% CI], a moderate effect.

2.6. Correlation results between the Psy-Flex and other measures

Correlation results are displayed in Table 6. The Psy-Flex showed a very large positive association with psychological flexibility as measured by MPFI-24-FP and with global mental health perception (MHC). Conversely, it showed very large negative associations with psychological inflexibility as assessed by MPFI-24-IP, anxiety (PHQ-4-Anxiety), and depression (PHQ-4-Depression).

2.7. Correlation results between the Psy-Flex, age and years of education, and sex differences

The Psy-Flex global score showed a significant positive correlation with age ($r = 0.29$, $p < 0.001$) and with years of education ($r = 0.31$, $p < 0.001$). Concerning sex differences, there was a significant difference, $t(698) = 2.69$; $p = 0.007$, with men showing higher values ($M = 22.61$; $SD = 4.19$) than women ($M = 21.72$; $SD = 4.21$), with a medium effect size ($d = 0.21$).

3. Discussion

Psychological flexibility is considered a pertinent construct associated with mental health and well-being (Doorley et al., 2020; Gloster et al., 2021; Rolffs et al., 2016). Therefore, it is relevant to assess this construct and its association with other variables. The Psy-Flex is a self-report instrument that assesses psychological flexibility using temporal and situational specifiers, increasing context-specificity (Gloster et al., 2021). The current study aimed to translate and test the factor

Table 3
Results of Psy-Flex measurement invariance tests for two independent non-clinical samples.

	χ^2 (*df*)	CFI	RMSEA (90%CI)	SRMR	Model Comp	$\Delta\chi^2$ Δ(*df*)	ΔCFI	ΔRMSEA	ΔSRMR
M1: Configural Invariance	18.00 (16) $p = 0.324$	0.998	0.019 (0.000–0.055)	0.041	–	–	–	–	–
M2:MetricInvariance	22.436 (21) $p = 0.375$	0.999	0.014 (0.000–0.048)	0.046	M1	4.46 (5)	0.001	−0.005	0.005
M3: Invariance Scalar	23.136 (26) $p = 0.625$	1.00	0.000 (0.000–0.036)	0.041	M2	1.299 (5)	0.001	−0.014	−0.005

Note. $N = 700$; Sample 1: $n = 391$; Sample 2: $n = 309$; χ^2 = chi-square goodness-of-fit statistic; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error Approximation; Δ = Differences between two indices.

Table 4
Results of Psy-Flex measurement invariance tests for gender.

	χ^2 (*df*)	CFI	RMSEA (90%CI)	SRMR	Model Comp	$\Delta\chi^2$ Δ(*df*)	ΔCFI	ΔRMSEA	ΔSRMR
M1: Configural Invariance	18.792 (16) $p = 0.280$	0.998	0.022 (0.000–0.057)	0.041	–	–	–	–	–
M2:MetricInvariance	21.836 (21) $p = 0.409$	0.999	0.011 (0.000–0.047)	0.046	M1	3.044 (5)	0.001	−0.011	0.005
M3: Invariance Scalar	36.304 (26) $p = 0.086$	0.992	0.034 (0.000–0.058)	0.049	M2	14.468 (5)	−0.007	−0.023	0.003

Note. $N = 700$; Males: $n = 246$; Females: $n = 454$; χ^2 = chi-square goodness-of-fit statistic; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error Approximation; Δ = Differences between two indices.

structure of the European Portuguese version of the Psy-Flex, as well as its psychometric properties (items' characteristics, reliability, test-retest reliability) and correlations with other variables.

The plausibility of the one-factor model was tested through a CFA in the total sample ($N = 700$) and revealed a good fit for the data. On the contrary, Gloster et al. (2021) reported an unacceptable fit with this one-factor model and defined the specification of item error correlations to achieve model fit. As such, as indicated in the Psy-Flex original study, a model specifying items 5 ("I determine what's important to me and decide what I want to use my energy for") and 6 ("I engage thoroughly in things that are important, useful, or meaningful to me") residuals correlations was also tested. This specification aligns with the ACT theoretical model (Hayes et al., 2012b), given that values and committed action are interdependent psychological flexibility skills. Developing greater patterns of effective action towards a more vital and meaningful life is driven by chosen life directions (i.e., values; Luoma et al., 2007). Furthermore, in the original and the European Portuguese versions, items 5 and 6 are linguistically related; they both use the word "important." Moreover, this second model showed a fit improvement, and subsequent analyses were therefore conducted considering this model.

This single-factor model was invariant with Sample 1 and Sample 2 data and sex. Either for sample or sex, the Psy-Flex revealed a similar factor structure (configural invariance), similar factor loadings in the latent construct (metric invariance), and similar intercepts (scalar invariance). This invariance allows for a more robust and reliable comparison of psychological flexibility in different samples and sexes.

Regarding the Psy-Flex European Portuguese version psychometric characteristics, Cronbach's alphas and composite reliability values were above 0.70. The AVE value above 0.50 corroborated the convergent validity of the items (Hair et al., 2018). The Psy-Flex also evidenced good test-retest reliability, as studied in a sub-sample of 25.86% of the total sample participants. The retest subsample comprised of more women and participants with more years of education, but this was somewhat expected given that women tend to participate in research more than men (Stone et al., 2023) and people with more years of education may be more sensitive to the relevance of contributing to research (Keeble et al., 2016). In the original version (Gloster et al., 2021), test-retest reliability was not tested, and the current study results overcome this limitation.

As expected, the Psy-Flex European Portuguese version showed very large positive associations with psychological flexibility (as assessed by MPFI-24-FP) and with global mental health perception (MHC). On the other hand, it showed very large negative associations with psychological inflexibility (as measured by MPFI-24-IP), anxiety, and depression. Overall, these findings attest to the convergent validity of this measure and are in line with those reported by Gloster et al. (2021).

Concerning the association of the Psy-Flex European Portuguese version and sociodemographic variables, a medium positive correlation was found regarding age and a positive large correlation regarding years of education. In the current study, older participants and the ones presenting more years of education tended to show greater psychological flexibility. We may hypothesize that age and education may reflect different levels of maturity and life experiences that tend to promote the individual's ability to change their behavior in favor of what is really important to them, thus facilitating a more flexible behavior pattern. These findings seem to be in line with other studies that also found a weak correlation between age and psychological flexibility, evidencing a tendency for greater psychological flexibility in older participants (García-Rubio et al., 2020; Gloster et al., 2021; Pereira et al., 2023). Nevertheless, other studies did not reveal a significant relationship between age and psychological flexibility (e.g., Christodoulou et al., 2018; Gloster et al., 2011; Karekla & Michaelides, 2017; Soares et al., 2023; Yildirim & Aziz, 2017, 2023).

As for sex, there was a significant difference between men and women, with men showing higher values of psychological flexibility than women. Gloster et al. (2021) only partially confirmed these results. In fact, only some of the samples of the Gloster et al. (2021) study showed a significant correlation between the Psy-Flex scores and sex. A similar result (sex being associated with the Psy-Flex scores) was found by Soares et al. (2023) in a sample of adolescents. It is worth noting that several studies have suggested that men also showed lower levels of skills associated with psychological inflexibility (e.g., experiential avoidance, cognitive fusion; Greco et al., 2008; Livheim et al., 2016; Salazar et al., 2019). Similar to what has been described for age, mixed results have been reported for the relationship between sex and psychological flexibility. There are also studies that did not find a significant effect of sex (Cunha et al., 2022; Christodoulou et al., 2018; Landi et al., 2021; Pereira et al., 2023; Karekla & Michaelides, 2017; Yildirim & Aziz, 2023). Future research may contribute to a better understanding of these variables (age and sex), bearing in mind that psychological flexibility is a complex and multifaceted construct that can be influenced by interdependent biological, psychological, and sociocultural aspects.

The current study findings should be interpreted with some limitations in mind. The study was conducted with a convenience sample, which does not guarantee a proper representation of the Portuguese population. Nevertheless, it was a large community sample. Potential sampling bias, self-selection, or underrepresentation of the population

Table 5
Psy-Flex items' descriptives (N = 700).

Psy-Flex Items (PT/EN)	*M*	*SD*	Sk	Ku	Item-total *r*	α if item deleted
1. Mesmo que esteja com os meus pensamentos noutro lugar, consigo focar-me no que está a acontecer em momentos importantes. 1. Even if I am somewhere else with my thoughts, I can focus on what's going on in important moments	3.82	0.99	−0.80	0.39	0.61	0.76
2. Se for preciso, posso estar com pensamentos e experiências desagradáveis, sem ter que me livrar deles de imediato. 2. If need be, I can let unpleasant thoughts and experiences happen without having to get rid of them immediately.	3.17	1.09	−0.35	−0.48	0.32	0.83
3. Consigo olhar com distanciamento para os meus pensamentos difíceis sem deixar que eles me controlem. 3. I can look at hindering thoughts from a distance without letting them control me.	3.45	1.02	−0.44	−0.36	0.63	0.76
4. Consigo notar algo dentro de mim como sendo um núcleo estável, mesmo quando os pensamentos e as experiências me estão a deixar confuso/a. 4. Even if thoughts and experiences are confusing me I can notice something like a steady core inside of me.	3.63	1.00	−0.59	−0.04	0.70	0.74
5. Determino o que é importante para mim e decido em que é que quero gastar a minha energia. 5. I determine what's important for me and decide what I want to use my energy for.	3.84	0.94	−0.78	0.49	0.63	0.76
6.Envolvo-me verdadeiramente em coisas que são importantes, úteis, ou significativas para mim. 6. I engage thoroughly in things that are important, useful, or meaningful to me	4.12	0.88	−0.94	0.71	0.52	0.78
Total	22.03	4.22				

(e.g., exclusion of participants with no access to online platforms), deriving from the recruitment process, restricts the generalizability (Wright, 2005).

Future studies may address the Psy-Flex discriminant validity and sensitivity to change, allowing its use in clinical contexts and ACT-based intervention programs efficacy studies. It is also worth noting that calculating Psy-Flex cut-off points may be relevant for discriminating between clinical and non-clinical populations, facilitating early screening of psychological difficulties, and promoting preventive measures.

Overall, the Psy-Flex is a brief instrument, adding the advantage of incorporating situational and temporal specifiers, increasing its sensitivity to context (Gloster et al., 2021). The current study confirms that the Psy-Flex European Portuguese version has a sound psychometric structure and is reliable for assessing psychological flexibility in adults. These findings were supported by using a cross-validation analysis, which is of added value, showing that the scales' structure is replicable in an independent sample.

Because the Psy-Flex is a short and easy-to-use measure, it may reduce respondents' burden and be potentially valuable for clinical and research settings. The European Portuguese Psy-Flex version will allow the broadening of research possibilities not only in Portugal but also in promoting cross-cultural research.

Table 6
Correlation matrix between Psy-Flex and other measures (N = 700).

	Psy-Flex	MPFI-PF	MPFI-PI	MHC	PHQ4-Dep
Psy-Flex	–				
MPFI24-PF	0.58**	–			
MPFI24-PI	−0.40**	−0.20**	–		
MHC	0.50**	0.54**	−0.38**	–	
PHQ4-Dep	−0.50**	−0.44**	0.57**	−0.65**	–
PHQ4-Anx	−0.47**	−0.34**	0.52**	−0.53**	0.69**

Nota. $^{**}p < 0.001$.
MPFI-24 = Multidimensional Psychological Flexibility Inventory-24; PF = Psychological Flexibility; PI = Psychological Inflexibility; MHC = Mental Health Continuum - Short Form; PHQ4-Dep = Patient Health Questionnaire – Depression; PHQ4-Anx = Patient Health Questionnaire – Anxiety.

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Data sharing statement

Data is available upon reasonable request.

Declaration of competing interest

None.

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References

Arch, J. J., Fishbein, J. N., Finkelstein, L. B., & Luoma, J. B. (2023). Acceptance and Commitment Therapy processes and mediation: Challenges and how to address them. *Behavior Therapy*. https://doi.org/10.1016/j.beth.2022.07.005

Bandalos, D. L. (1993). Factors influencing cross-validation of confirmatory factor analysis models. *Multivariate Behavioral Research, 28*(3), 351–374. https://doi.org/10.1207/s15327906mbr2803_3

Benoy, C., Knitter, B., Schumann, I., Bader, K., Walter, M., & Gloster, A. T. (2019). Treatment sensitivity: Its importance in the measurement of psychological flexibility. *Journal of Contextual Behavioral Science, 13*, 121–125. gghncn.

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

Byrne, B. M. (2010). *Structural equation modeling with Amos: Basic concepts, applications, and programming* (2nd ed.). Taylor and Francis Group.
Chawla, N., & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. *Journal of Clinical Psychology, 63* (9), 871–890. d69c2j.
Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling, 14*(3), 464–504. dmtdv9.
Cherry, K. M., Vander Hoeven, E., Patterson, T. S., & Lumley, M. N. (2021). Defining and measuring "psychological flexibility": A narrative scoping review of diverse flexibility and rigidity constructs and perspectives. *Clinical Psychology Review, 84*. https://doi.org/10.1016/j.cpr.2021.101973
Christodoulou, A., Michaelides, M. P., & Karekla, M. (2018). Greek version of the avoidance and fusion questionnaire for youth: Psychometric evaluation and gender multi-group invariance in adolescents. *Journal of Psychoeducational Assessment, 36* (8), 844–849. https://doi.org/10.1177/0734282917713500
Colwell, R. (2016). The composite reliability calculator. Technical Report https://doi.org/10.13140/RG.2.1.4298.088.
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
Field, A. (2013). *Discovering statistics using IBM SPSS Statistics* (4th ed.). SAGE Publication Ld.
Francis, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development and validation of the comprehensive assessment of acceptance and commitment therapy processes (CompACT). *Journal of Contextual Behavioral Science, 5*(3), 134–145. https://doi.org/10.1016/j.jcbs.2016.05.003
Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science, 2*(2), 156–168. https://doi.org/10.1177/2515245919847202
Gámez, W., Chmielewski, M., Kotov, R., Ruggero, C., & Watson, D. (2011). Development of a measure of experiential avoidance: The multidimensional experiential avoidance questionnaire. *Psychological Assessment, 23*(3), 692–713. https://doi.org/10.1037/a0023242
García-Rubio, C., Lecuona, O., Blanco Donoso, L. M., Cantero-García, M., Paniagua, D., & Rodríguez-Carvajal, R. (2020). Spanish validation of the short-form of the Avoidance and Fusion Questionnaire (AFQ-Y8) with children and adolescents. *Psychological Assessment, 32*(4), e15–e27. https://doi.org/10.1037/pas0000801
Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences, 102*, 74–78. https://doi.org/10.1016/j.paid.2016.06.069
Gillanders, D. T., Bolderston, H., Bond, F. W., Dempster, M., Flaxman, P. E., Campbell, L., et al. (2014). The development and initial validation of the Cognitive Fusion Questionnaire. *Behavior Therapy, 45*(1), 83–101. https://doi.org/10.1016/j.beth.2013.09.001
Gloster, A. T., Block, V. J., Klotsche, J., Villanueva, J., Rinner, M. T. B., Benoy, C., Walter, M., Karekla, M., & Bader, K. (2021). Psy-flex: A contextually sensitive measure of psychological flexibility. *Journal of Contextual Behavioral Science, 22*, 13–23. https://doi.org/10.1016/j.jcbs.2021.09.001
Gloster, A. T., Klotsche, J., Chaker, S., Hummel, K. V., & Hoyer, J. (2011). Assessing psychological flexibility: What does it add above and beyond existing constructs? *Psychological Assessment, 23*, 970–982. https://doi.org/10.1037/A0024135
Gloster, A. T., Meyer, A. H., & Lieb, R. (2017). Psychological flexibility as a malleable public health target: Evidence from a representative sample. *Journal of Contextual Behavioral Science, 6*(2), 166–171. https://doi.org/10.1016/j.jcbs.2017.02.003
Gloster, A. T., Walder, N., Levin, M. E., Twohig, M. P., & Karekla, M. (2020). The empirical status of acceptance and commitment therapy: A review of meta-analyses. *Journal of Contextual Behavioral Science, 18*, 181–192. https://doi.org/10.1016/j.jcbs.2020.09.009
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*, 99–110. https://doi.org/10.1016/j.jcbs.2020.06.004
Hair, J., Black, W., Babin, B., & Andreson, R. (2018). *Multivariate data analysis* (8th ed.). Cengage.
Hambleton, R. K., Merenda, P. F., & Spielberger, C. D. (2005). *Adapting educational and psychological tests for cross-cultural assessment. L.* Erlbaum Associates.
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., Pistorello, J., & Levin, M. E. (2012a). Acceptance and commitment therapy as a unified model of behavior change. *The Counseling Psychologist, 40*(7), 976–1002. https://doi.org/10.1177/0011000012460836
Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012b). Acceptance and commitment therapy. In *The process and practice of mindful change* (2nd ed.). The Guilford Press. bwnm.
Hooper, N., & Larsson, A. (2015). *The research journey of acceptance and commitment Therapy (ACT)*. Palgrave Macmillan.
Hu, L., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance, structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118
International Test Commission.. (2017). In *The ITC Guidelines for Translating and Adapting Tests* (Second edition, pp. 1–41). www.InTestCom.org.
JASP Team. (2018). *Jasp* [Computer software] Version 0.9. .
Karekla, M., & Michaelides, M. P. (2017). Validation and invariance testing of the Greek adaptation of the Acceptance and Action Questionnaire -II across clinical vs. non-clinical samples and sexes. *Journal of Contextual Behavioral Science, 6*(1), 119–124. https://doi.org/10.1016/j.jcbs.2016.11.006
Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review, 30*(7), 865–878. https://doi.org/10.1016/j.cpr.2010.03.001
Keeble, C., Baxter, P. D., Barber, S., & Law, G. R. (2016). Participation rates in epidemiology studies and surveys: A review 2005-2007. *The Internet Journal of Epidemiology, 14*(1), 1–14. https://doi.org/10.5580/IJE.34897
Keyes, C. L. M., & Brim, G. (2002). The mental health continuum: From anguishing to flourishing in life. *Journal of Health and Social Research, 43*(2), 207–222.
Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of chiropractic medicine, 15*(2), 155–163. b84r.
Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B., Berry, J. T., & Mokdad, A. H. (2009). An ultra-brief screening scale for anxiety and depression: The PHQ–4. *Psychosomatics, 50*(6), 613–621. https://doi.org/10.1016/s0033-3182(09)70864-3
Landi, G., Pakenham, K. I., Giovannetti, A. M., Presti, G., Boccolini, G., Cola, A., … 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
Li, C. H. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior Research Methods, 48*(3), 936–949. https://doi.org/10.3758/s13428-015-0619-7
Livheim, F., Tengström, A., Bond, F. W., Andersson, G., Dahl, J., & Rosendahl, I. (2016). Psychometric properties of the avoidance and fusion questionnaire for youth: A psychological measure of psychological inflexibility in youth. *Journal of Contextual Behavioral Science, 5*, 103–110. https://doi.org/10.1016/j.jcbs.2016.04.001
Luoma, J. B., Hayes, S. C., & Walser, R. D. (2007). *Learning ACT: An acceptance & Commitment Therapy skills-training manual for therapists*. New Harbinger Publications.
Monteiro, Fonseca, A., Pereira, M., & Canavarro, M. C. (2021). Measuring positive mental health in the postpartum period: The bifactor structure of the Mental Health Continuum–Short Form in Portuguese women. *Assessment, 28*(5), 1434–1444. https://doi.org/10.1177/1073191120910247
Pereira, C., Cunha, M., & Massano-Cardoso, I. (2023). Avaliação da (in)flexibilidade psicológica na população portuguesa: Validação da versão breve do Multidimensional Psychological Flexibility Inventory (MPFI-24). [Assessment of psychological (in)flexibility in the Portuguese population: Validation of the brief version of the Multidimensional Psychological Flexibility Inventory (MPFI-24)]. *Revista Portuguesa de Investigação Comportamental e Social, 9*. https://doi.org/10.31211/rpics.2023.9.1.285
Probst, T., Mühlberger, A., Kühner, J., Eifert, G. H., Pieh, C., Hackbarth, T., et al. (2020). Development and initial validation of a brief questionnaire on the patients' view of the in-session realization of the six core components of Acceptance and Commitment Therapy. *Clinical Psychology in Europe, 2*(3). https://doi.org/10.32872/cpe.v2i3.3115
Renshaw, T. L. (2018). Probing the relative psychometric validity of three measures of psychological inflexibility. *Journal of Contextual Behavioral Science, 7*, 47–54. gdbsks.
Rolffs, J. L., Rogge, R. D., & Wilson, K. G. (2016). Disentangling components of flexibility via the hexaflex model: Development and validation of the multidimensional psychological flexibility inventory (MPFI). *Assessment, 25*(4), 458–482. gdmhtg.
Ruiz, F. J. (2010). A review of Acceptance and Commitment Therapy (ACT) empirical evidence: Correlational, experimental psychopathology, component and outcome studies. *International Journal of Psychology and Psychological Therapy, 10*(1), 125–162. https://www.redalyc.org/articulo.oa?id=56017066008.
Salazar, D. M., Ruiz, F. J., Suárez-Falcón, J. C., Barreto-Zambrano, M. L., Gómez-Barreto, M. P., & Flórez, C. L. (2019). Psychometric properties of the avoidance and fusion questionnaire–youth in Colombia. *Journal of Contextual Behavioral Science, 12*, 305–313. https://doi.org/10.1016/j.jcbs.2018.11.008
Sawilowsky, S. S. (2009). New effect size rules of thumb. *Journal of Modern Applied Statistical Methods, 8*(2), 26. https://doi.org/10.22237/jmasm/1257035100
Soares, R., Cunha, M., Massano-Cardoso, I., & Galhardo, A. (2023). Assessing psychological flexibility in adolescents: Validation of PsyFlex-A. *Revista Portuguesa de Investigação Comportamental e Social, 9*(1), 1–18. https://doi.org/10.31211/rpics.2023.9.1.284
Stone, A. A., Schneider, S., Smyth, J. M., Junghaenel, D. U., Couper, M. P., Wen, C., & Goldstein, S. (2023). A population-based investigation of participation rate and self-selection bias in momentary data capture and survey studies. *Current Psychology*, 1–17. https://doi.org/10.1007/s12144-023-04426-2
Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistic* (5th ed.). Allyn and Bacon.
Tyndall, I., Waldeck, D., Pancani, L., Whelan, R., Roche, B., & Pereira, A. (2020). Profiles of psychological flexibility: A latent class analysis of the acceptance and commitment therapy model. *Behavior Modification, 44*(3), 365–393. ggttxc.
Yildirim, M., & Aziz, I. A. (2023). Turkish validation of the Psy-Flex Scale and its association with resilience and social support. *Environment and Social Psychology, 8* (1). https://doi.org/10.18063/esp.v8.i1.1513