Accept to change: Translation and validation of the Acceptance/Avoidance-Promoting Experiences Questionnaire (APEQ) in an international survey of Spanish-speaking psychedelic users

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ARTICLE INFO

ABSTRACT

Introduction: The Acceptance/Avoidance-Promoting Experiences Questionnaire (APEQ) is a theory-based instrument designed to assess acceptance-related (ACE) and avoidance-related experiences (AVE) during psychedelic-induced altered states of consciousness, proposing a model in which these experiences shape psychological flexibility. This study aimed not only to translate and evaluate the psychometric properties of a Spanish version of the APEQ, but also to test its theoretical assumptions and examine contextual and motivational factors modulating therapeutic processes in psychedelic experiences across diverse Spanish-speaking populations.

Material and methods: An international retrospective survey was conducted in a Spanish-speaking cohort (n = 715) reporting a single psychedelic experience in a therapeutic, ritualistic or ceremonial context involving LSD, psilocybin, ayahuasca, mescaline, MDMA, or ketamine. Participants resided in Spain (n = 420), Latin America (n = 274), or other countries (n = 21).

Results: The Spanish APEQ demonstrated good construct, criterion and cross-cultural validity, as well as internal consistency across scales and in diverse Spanish-speaking populations. Indicating context-dependency, ACE scores were positively associated with therapeutic and growth-oriented motives and with increased psychological flexibility, whereas AVE scores were associated with hedonic/escapist motives and decreased flexibility. High rates of comorbid mental health conditions and concurrent substance use were observed, reflecting relevant patterns in naturalistic psychedelic users.

Conclusion: This study supports the validity and reliability of the Spanish APEQ and provides cross-cultural evidence for the context-dependent nature of psychedelic experiences and their psychological consequences. Beyond validation, these findings confirm core theoretical assumptions of the APEQ and suggest that promoting acceptance during psychedelic states may enhance therapeutic outcomes. The observed comorbidities and substance use patterns point to the need for informed risk-reduction strategies in these populations.

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1. Introduction

The term *psychedelic* describes a heterogeneous group of substances that have the capacity to induce altered states of consciousness (ASC. These states are characterized by alterations in sensation, emotion, cognition, and self-perception (Preller & Vollenweider, 2016). For centuries, natural compounds containing psychedelics have been employed for spiritual and therapeutic purposes by traditional and indigenous cultures (Schultes & Hoffman, 1992). Currently, several of these substances are undergoing clinical trials as treatments for a variety of mental disorders, including major depressive disorder and post-traumatic stress disorder (Mitchell et al., 2021; Murnane, 2018). Furthermore, psychedelic substances are used outside of clinical contexts (e.g., for recreational, spiritual, or self-medication purposes), with evidence of benefits (Jungaberle et al., 2018; Raison et al., 2022) and (more rarely) harms (Bouso et al., 2022; Gómez-Sousa et al., 2021; Simonsson et al., 2023).

Despite extensive research, the exact mechanisms by which psychedelic drugs such as psilocybin or ayahuasca produce long-lasting psychological effects remain unclear. Current evidence suggests a complex interplay of mechanisms involving molecular, neurophysiological and psychological pathways (Heifets & Olson, 2023; Jaster & González-Maeso, 2023). There is extensive evidence that the quality of the acute subjective drug effect – the *psychedelic experience* – predicts longer-term psychological changes, including symptom reductions in psychedelic therapy (Aday et al., 2020; Yaden & Griffiths, 2021). The psychedelic experience, in turn, depends strongly on psychological and situational context factors ("set and setting") (Aday et al., 2021; Carhart-Harris et al., 2018a; Wolff et al., 2024). Current clinical practices in the treatment of mental disorders take this into account by always administering psychedelics in the context of psychotherapy (sometimes referred to as "psychological support") (Gründer et al., 2024).

A proposed psychological mechanism of psychedelic therapy involves acceptance-related psychedelic experiences. These experiences, which can occur during the acute drug effect, have been described as a learning process yielding a motivational shift from avoidance to acceptance ("learning to let go") (Wolff et al., 2020). *Acceptance* refers to the ability to acknowledge and tolerate negative emotional experiences in a non-judgmental manner, and has been linked to a number of psychological benefits (Ford et al., 2018). *Experiential avoidance* refers to the converse unwillingness or inability to tolerate negative emotional experiences, including attempts to avoid, suppress, or control these experiences (Mitmansgruber et al., 2009). Psychological change from excessive experiential avoidance towards more acceptance has been linked to increased psychological flexibility and improved mental health after psychedelic use and psychedelic therapy (Watts & Luoma, 2020; Wolff et al., 2020).

The Acceptance/Avoidance-Promoting Experiences Questionnaire (APEQ) (Wolff et al., 2022) is a theory-based psychometric instrument designed to measure experiences related to acceptance and avoidance that occur during psychedelic-induced ASC. The APEQ is self-reported and comprises 32 items, divided into two main scales, Acceptance-Related Experience (ACE) and Avoidance-Related Experience (AVE), and two ancillary scales, Introspection and Interaction. The ACE scale encompasses the subscales Accepting Response, Relief, and Pro-Acceptance Insights, while the AVE scale comprises the subscales Avoidant Response, Distress, and Pro-Avoidance Insights. The ACE and AVE scales were developed as complementary measures of features of a psychedelic experience that cannot occur simultaneously because one private event (i.e., a thought, feeling or bodily sensation) cannot be avoided and accepted at the same time, although both ACEs and AVEs can occur in different moments over the course of an experience. Due to their complementarity, the ACE and AVE scales are not or only slightly negatively correlated (Wolff et al., 2022). Conversely, the three subscales within the ACE and AVE scale, respectively, are assumed to be intertwined and strongly correlated. Items in the APEQ are presented as

a visual analogue scale that can be converted to values from 0 to 100. Value 0 means total disagreement with the item, represented by the phrase "No, not at all", whereas value 100 means total agreement with the item, represented by the phrase "Yes, extremely or absolutely".

Another key concept related to the APEQ (and psychedelic-induced experiences in general) is context dependency. It is theorized that psychedelics induce a relaxation of beliefs and a heightened suggestibility (Dupuis, 2021; Zeifman et al., 2025); hence the context in which they are taken would significantly modulate the quality of the resultant experience, which in turn predicts longer-term outcomes (Carhart-Harris et al., 2018b). Consequently, AVE and ACE are influenced by context factors such as use motives or the setting in which the experience occurs. Specifically, approach-motivated uses of psychedelics, such as having a therapeutic intention (e.g., using psychedelics to engage with emotional problems), are associated with higher ACE scores, whereas avoidance-related motives, such as escapist intentions (e.g., using psychedelics to distract oneself from, predict higher AVE scores (Wolff et al., 2022).

Finally, longer-term outcomes related to AVE and ACE are assumed to be not solely related to their additive effects, but also to the interaction between AVE and ACE. This implies that avoidance-related psychedelic experiences do not inevitably lead to a longer-term increase in avoidance, provided that the individual also achieves acceptance during the experience. This shift could even result in a therapeutic outcome comparable to post-traumatic growth (Tedeschi & Calhoun, 1996). In line with this, Wolff et al. (2022) found evidence that changes in experiential avoidance following a psychedelic experience are not only positively associated with ACE and negatively associated with AVE, but also depend on the interaction between ACE and AVE, asAVE was found to have a negative effect on psychological flexibility only in the absence of ACE; however, when ACE were present, no effect was found. This supports the theoretical assumption that challenging, avoidance-promoting experiences can be therapeutic and promote positive outcomes if a shift to acceptance towards them is eventually achieved.

The two ancillary APEQ scales, Introspection and Interaction, were developed to measure complementary attentional and behavioral aspects of psychedelic experiences that are more indirectly related to avoidance and acceptance. For instance, switching from introspection to interaction with the environment may serve as distractions from distressful or challenging situations and could thus be used as an avoidance strategy (Wolff et al., 2020, 2022).

The APEQ so far exists in German and English (Wolff et al., 2022). The German and English versions were developed simultaneously to avoid problems associated with item translation (Tanzer, 2005). As a result, the APEQ is assumed to contain relatively few language- or culture-specific idiosyncrasies and is therefore expected to be easily translatable into third languages. It should be noted that most psychometric instruments to assess psychedelic-induced ASC are only available in English and (to a lesser extent) in German, with limited evidence regarding the validity of these instruments in other languages. Although extensive research has been conducted in populations that speak other languages, such as Spanish or Portuguese, the lack of validated instruments in these languages could potentially limit the external validity of findings. Furthermore, this presents a challenge for researchers studying populations that do not speak English, who are already underrepresented in psychedelic research (Hovmand et al., 2023).

1.1. Objectives

The principal objective of this study was to assess the psychometric properties of a Spanish version of the APEQ. Spanish is the second-most spoken language worldwide, with approximately 500 million native speakers. The large and culturally diverse linguistic area makes Spanish a highly heterogeneous language, which is spoken differently in different parts of the world. This must be acknowledged when

translating a questionnaire into Spanish: the goal here was to achieve a translation that can be used in all parts of the Spanish-speaking world.

Besides replicating the theorized and empirically established factor structure of the APEQ in a Spanish-speaking population, this study aimed to replicate previous results (Wolff et al., 2022): First, the finding that ACE and AVE are associated with context factors (use motives); second, the finding that ACE, AVE, and their interaction are associated with longer-term changes in psychological flexibility. Furthermore, we aimed to establish convergent validity with external scales. The theoretical model underlying the APEQ suggests that mystical experiences (Barrett & Griffiths, 2017) would be positively related to acceptance-related psychedelic experiences, as both involve a sense of openness and acceptance. Conversely, challenging experiences (Barrett et al., 2016), which involve distress, should be positively correlated with AVE scores. Finally, the Psychological Insight Questionnaire (PIQ) (Davis et al., 2021), which measures psychedelic-occasioned insights of a therapeutic quality, was theorized to be correlated with ACE scores. Another objective was to gain insight into possible differences surrounding the naturalistic use of psychedelics between Spanish-speaking population in Spain and Latin America.

2. Material and methods

2.1. Instrument translation

First, the APEQ was translated to Spanish. The translations were carried out by the first author of the present article, fluent in Spanish and English, and the originator of the original APEQ, fluent in Spanish, English and German. Each author performed an independent translation using the English and German original versions of the scale, and then both authors agreed on a final common translation. Then, a team of four experts who are native Spanish speakers, fluent in English and speak or understand German to varying degrees, reviewed this translation, suggested changes, and verified the retro-translation of the Spanish versions. Members of the translation team speak European, Venezuelan, and Guatemalan Spanish, or Spanish as a second language. Together, the team aimed for translations with maximally equivalent meanings across various varieties of the Spanish language by avoiding cultural bias, idioms and other country-specific expressions. Finally, the first and the last author reviewed this second version and agreed on a final version. The resultant Spanish version of the APEQ instrument is publicly available (https://doi.org/10.17605/OSF.IO/JBVDC).

2.2. Survey design

A retrospective online survey was implemented, using Research Electronic Data Capture (REDCap) (Harris et al., 2009, 2019). The survey was accessible through a link and a QR code, as well as from a landing page on the MIND Foundation's website. Between September 2022 and April 2023, the survey link was distributed to different harm reduction associations, retreat centers, internet forums, universities, health care centers, research institutes and other foundations and institutions related to psychedelic use, research, therapy, or teaching, for dissemination among the general Spanish-speaking population. The survey was also posted on different social networks and displayed in newspapers. Participants were asked about a single past psychedelic experience of their choice, and all survey items were framed as related to that specific experience. The complete survey is publicly available (https://doi.org/10.17605/OSF.IO/JBVDC).

2.3. Ethical considerations

No data allowing identification of survey participants were gathered. All data was stored on a secure server physically located at the Vall d'Hebron Research Institute. Access to the survey data was limited to members of the research team, and no data was shared with third parties. Informed consent was obtained from all participants prior to giving them access to the survey. Consent from the Vall d'Hebron Research Institute Ethics Committee was obtained prior to the start of the study (PR(AG)136/2022). Participants were not compensated for their participation. The full survey is available upon request from the corresponding author.

2.4. Participants

Any person that was fluent in Spanish, was older than 18 years, gave informed consent, and indicated having consumed at least once a psychedelic in a therapeutic, ceremonial, or ritualistic setting was eligible to complete the survey. Other settings, such as party settings, were excluded. Only the following substances were included: ayahuasca, lysergic acid diethylamide (LSD) or derivatives, psilocybin or psilocybin containing mushrooms, mescaline or mescaline containing cacti, ketamine, and 3,4-methylenedioxymethamphetamine (MDMA). Short-acting psychedelics such as 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT) or smoked dimethyltryptamine (DMT) were excluded, as we considered that the rapid onset, intensity, and shortness of the experience might prevent meaningful avoidance-related or acceptance-related experiences that could be captured with the APEQ.

2.5. Sample size

Regarding sample size, the current consensus recommends a ratio of 10 participants per item to ensure robust factor analysis (Boateng et al., 2018; Nunnally, 1978). A minimum of 300 participants is generally considered sufficient for achieving acceptable pattern comparability, while sample sizes between 500 and 1000 are regarded as very good to excellent, reducing measurement error and enhancing the generalizability of findings (Guadagnoli & Velicer, 1988). Given that the APEQ instrument comprises 32 items, a minimum sample size of 320 participants was deemed appropriate, with a target range of 500 to 1000 respondents to optimize statistical power.

2.6. Study measures

2.6.1. Sociodemographic data
Data about the sociodemographic characteristics of participants were gathered: age, sex, country of residence, and level of education. Participants were also asked about lifetime diagnosis of mental disorders.

2.6.2. Selected psychedelic experience
Participants were asked to select one psychedelic experience to report in the rest of the survey. Both positive and negatively evaluated experiences were eligible. After having chosen an experience to report on, participants were asked to indicate the psychedelic used, the time that passed since the experience, the subjective clarity of their memory of the experience, the perceived strength of the dose, the valence of the acute effects, any concomitant use of other psychoactive substances besides caffeine and nicotine, and global lifetime psychedelic use.

2.6.3. Setting
Participants were asked several questions about specific setting categories (calm and undisturbed; familiar environment; nature or close-to-nature; festival; retreat; ceremonial; therapeutic). They were also asked whether a sitter (i.e., a person who took care of the participant's safety and wellbeing) was present during the reported experience. Participants were also asked to provide an estimate of the total number of people present during the experience.

2.6.4. Use motives
A total of 22 possible motives for psychedelic use were presented. We used the items included in the original development of the APEQ (Wolff

et al., 2022) and added an additional item: "to connect with a community of people". Participants were asked to rate the extent to which each item corresponded to their motives for undergoing the reported experiences at that time on a four-point Likert scale ("not at all"; "somewhat", "moderately", "very much").

2.6.5. Mystical experiences questionnaire (MEQ)

The Mystical Experiences Questionnaire (Barrett & Griffiths, 2017) is a scale designed to assess mystical experiences in the context of psychedelic use. It comprises 30 items and a four-factor structure: (a) mysticality (freedom from the limitations of one's personal self and feelings of unity), (b) positive mood, (c) transcendence of time and space (the sense of being outside of time, beyond past and future), and (d) ineffability (the sense that the experience cannot be described adequately in words). MEQ scores have shown to predict long-term positive therapeutic outcomes in a variety of psychedelic substances used to treat several mental disorders (Ko et al., 2022).

The total score of the Spanish version of the MEQ (Davis et al., 2023) was used in the present study. The measure demonstrated good internal consistency (Cronbach's $\alpha = .96$).

2.6.6. Challenging experiences questionnaire (CEQ)

The Challenging Experience Questionnaire (Barrett et al., 2016) was developed to measure psychologically difficult experiences during the acute effects of psychedelics. The CEQ has 26 items on seven subscales (fear, grief, physical distress, insanity, isolation, death, and paranoia). In the present study, the validated Spanish version of the main scale was used (Davis et al., 2023), showing good internal consistency (Cronbach's $\alpha = .94$).

2.6.7. Psychological Insight Questionnaire (PIQ)

The PIQ is a recently developed questionnaire that assesses acute psychological insights that may occur during psychedelic experiences (Davis et al., 2021). The Psychological Insight Questionnaire consists of 23 items with a main scale and two subscales: (a) Avoidance and Maladaptive Patterns Insights and (b) Goals and Adaptive Patterns Insights. In the present study, the Spanish version of the main scale was used (Davis et al., 2023), showing good internal consistency (Cronbach's $\alpha = .96$).

2.6.8. The Acceptance and Action Questionnaire II (AAQ-II)

The Acceptance and Action Questionnaire II (Bond et al., 2011) measures psychological (in-) flexibility using seven items (e.g., "I am afraid of my feelings"). Lower scores on the AAQ-II indicate greater psychological flexibility. The Spanish-validated version (Ruiz et al., 2013) was used, after being adapted with statements in past tense to assess psychological flexibility retrospectively. Each participant completed two versions of this adapted questionnaire: one referred to the 3–4 weeks preceding the reported psychedelic experience, while the other referred to the 3–4 weeks following the experience. The difference score between both was used as an indirect measure of change in psychological flexibility (Davis et al., 2023; Wolff et al., 2022).

2.7. Data analysis

To favor comparability between different versions of the APEQ, and to test its underlying theoretical assumptions, this study followed the same analysis plan as was carried out in the original development of the English and German versions of the APEQ (Wolff et al., 2022).

2.7.1. Sociodemographic data and reported psychedelic experiences

The final sample that was subjected to analysis included all participants that completed the whole survey, after excluding the responses that indicated: (1) not being able to remember with clarity the selected psychedelic experience, (2) concomitant use of more than one psychedelic during the reported experience, or (3) open-item answers

suggesting that responses were invalid. The survey was sequential and required completion of all data to be considered complete, ensuring that there was no missing data amongst the respondents that completed the whole survey and were included in the analysis.

The sociodemographic data gathered from the final sample was analyzed to assess its specific characteristics. The global sample was divided into three subsamples: (1) participants who reported living in Spain, (2) participants who reported living in Latin American countries (where Spanish is the primary language), and (3) participants who reported living elsewhere. Participants' responses related to the reported psychedelic experiences were also analyzed. The Spanish and Latin-American subsamples were then compared to assess for relevant differences.

2.7.2. Confirmatory Factor Analysis (CFA) of APEQ items

Confirmatory factor analyses (CFAs) were performed to test the factor structure that was previously found for the English and German versions of the APEQ (Wolff et al., 2022) in the translated Spanish version. CFAs were calculated using Mplus 8.9. We first calculated a baseline model including all 32 APEQ items, eight first-order factors (Accepting Response, Avoidant Response, Relief, Distress, Pro-Acceptance Insights, Pro-Avoidance Insights, Introspection, and Interaction), and the two complementary second-order factors AVE (representing the shared variance of the first-order factors Avoidant Response, Distress, and Pro-Avoidance Insights) and ACE (representing the shared variance of the first-order factors Accepting Response, Relief, and Pro-Acceptance insights). We then compared the baseline model to a more constrained alternative model where the two first-order factors Accepting Response and Pro-Avoidance Insights were collapsed into one single factor. In the original study that tested the psychometric properties of the German and English versions of the APEQ (Wolff et al., 2022), this more constrained model exhibited only insignificantly poorer model fit compared to the baseline model and was therefore selected for further analyses. Model fit was assessed using the root-mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR) the confirmatory fit index (CFI), and the Tucker-Lewis index (TLI).

2.7.3. Principal component analysis (PCA) of use motives

Use motives were evaluated by means of a principal component analysis (PCA) to examine the underlying factor structure, following the same approach that was used previously (Wolff et al., 2022, 2024). Factor scores from this PCA were subsequently used to test the context-dependence of ACE and AVE (see below section on path analysis).

2.7.4. Path analysis testing context dependence and potential mediation effects

A path analysis was defined a priori to test the context-dependence and interaction assumptions: ACE and AVE scores were regressed onto component scores obtained from the previous PCA of use motives, which were introduced as context factors. Retrospective changes in psychological flexibility were regressed onto these component scores, ACE, AVE, and a latent variable accounting for the interaction between ACE and AVE. This last variable was included to test for the interaction assumption.

2.7.5. Reliability

Reliability was evaluated using the Cronbach's alpha coefficient, calculated using SPSS 23.0, to assess for internal consistency in all scales and subscales. This test was performed in the whole sample, as well as in the Latin-American and Spanish subsamples.

2.7.6. Convergent validity

Convergent validity with external scales was evaluated by examining correlations between APEQ scales and MEQ, CEQ, and PIQ scores.

3. Results

3.1. Description of the sample

Of the 2302 volunteers who agreed to participate and started the survey, 756 fulfilled the inclusion criteria and completed the survey. Out of these, 45 volunteers were excluded for one or more of the following reasons: Thirty-nine volunteers indicated concomitant use of more than one psychedelic during their reported experience, one volunteer left a feedback request stating that he had responded randomly, and two participants indicated that their used substance was 5-MeO-DMT, despite having selected another substance when responding to the inclusion criteria items.

Characteristics of the final sample of 715 participants are presented in Table 1. Four hundred and twenty participants (58.7 % of the total sample) reported living in Spain. 275 participants (38.3 %) reported living in Latin America, and 21 participants (2.9 %) reported living elsewhere. Countries in the Latin American subsample included Colombia (n = 155, 21.7 % of the total sample), Mexico (n = 33, 4.6 %), Argentina (n = 32, 4.5 %), Chile (n = 24, 3.4 %), Costa Rica (n = 11, 1.5 %), Ecuador (n = 7, 1 %), Peru (n = 5, .7 %), Bolivia (n = 2, .3 %), Venezuela (n = 2, .3 %), El Salvador (n = 1, .1 %), Guatemala (n = 1, .1 %), and Uruguay (n = 1, .1 %). Countries in the "Rest of the World" subsample included Germany (n = 4, .6 % of the total sample), USA (n = 3, .4 %), France (n = 3, .4 %), Italy (n = 3, .4 %), Andorra (n = 1, .1 %), Austria (n = 1, .1 %), Brazil (n = 1, .1 %), Canada (n = 1, .1 %), Moldova (n = 1, .1 %), the Netherlands (n = 1, .1 %), Portugal (n = 1, .1 %) and Romania (n = 1, .1 %).

Characteristics of the selected psychedelic experience are summarized in Table 2. Significant differences between the Spanish, Latin-American and "rest of the world" subsamples were found for some characteristics, albeit with mostly small effect sizes. Medium effect sizes were only found for the psychedelic used (with the Spanish sample reporting more ayahuasca use and less use of LSD and psilocybin mushrooms), presence of other people (with the Spanish sample reporting less unaccompanied psychedelic use and more use in larger groups) and previous psychedelic use (with a larger proportion of individuals in the Spanish sample reporting more than a hundred previous episodes of psychedelic use).

3.2. APEQ scores and comparison between Spanish and Latin American subsamples

Mean scores of all APEQ items, scales and subscales are listed in Table 3. Compared to the Spanish subsample, the Latin American subsample scored higher on both main scales (ACE and AVE) and on all subscales except for the AVE subscale Distress.

Several item scores were non-normally distributed, with univariate skewness ranging from −2.07 to 1.96 and kurtosis ranging from −1.54 to 4.21. Mahalanobis distance procedures (with p < .001) classified 49 participants (6.85 % of the sample) as multivariate outliers. Items deviating from univariate or multivariate normality were retained for further analyses. To account for nonnormality in the dataset, CFAs were calculated with the robust maximum likelihood (MLR) estimator in Mplus 8.9.

3.3. Confirmatory Factor Analysis

The baseline model with separate first-order factors Accepting Response and Pro-Acceptance Insights was rejected since the covariance matrix was not positive definite. The more constrained model where these two factors were collapsed into a single factor showed acceptable fit in terms of RMSEA (.054) and SRMR (.075), whereas CFI (.889) and TLI (.880) fell slightly below the commonly preferred threshold of .90. A summary of this model is shown in Fig. 1.

3.4. Use motives

After evaluating Bartlett's test of sphericity ($\chi 2$ (253) = 5346.332; p < 001) and the Kaiser–Mayer–Olkin measure of sampling adequacy (.837), a PCA was calculated, using varimax rotation. Five components were found using PCA, but the scree-plot suggested that a three-component solution was more adequate, explaining 44.264 % of the variance. PCA results are shown in Table 4 Based on their content, the components were labeled (1) "hedonic/escapist", (2) "growth/well-being", and (3) "therapeutic". No significant differences between the

Table 1
Sociodemographic characteristics of participants.

	Global sample (n = 715)	Spain (n = 420)	Latin America (n = 274)	Rest of the world (n = 21)	F or χ2	p	η² or Cramer's V
Mean (SD) age	36.41 (11.08)	39.72 (11.48)	31.75 (8.58)	31.24 (7.90)	51.66	<.001	.02
Gender					7.68	.263	.073
Female	50.2 %	47.6 %	53.3 %	61.9 %			
Male	47.8 %	51.0 %	43.8 %	38.1 %			
Non-binary	1.8 %	1.2 %	2.9 %	.0 %			
Other	.1 %	.2 %	.0 %	.0 %			
Highest educational level					23.181	.026	.127
Middle school or lower	3.5 %	5.2 %	1.1 %	.0 %			
High school	7.1 %	7.1 %	7.3 %	19.0 %			
Professional training/non finished college	25.5 %	22.4 %	30.7 %	19.0 %			
University	30.3 %	28.6 %	33.2 %	28.6 %			
Postgraduate degree	33.6 %	36.7 %	28.8 %	33.3 %			
Lifetime diagnosis of mental disorder							
None	66.0 %	68.8 %	62.0 %	61.9 %	3.546	.170	.070
Depression	23.2 %	21.4 %	25.5 %	28.6 %	1.926	.382	.052
Anxiety	23.2 %	20.0 %	27.7 %	28.6 %	5.917	.052	.091
SUDs	4.3 %	3.6 %	5.1 %	9.5 %	2.350	.309	.057
Mania	1.1 %	.5 %	2.2 %	.0 %	4.646	.098	.081
Psychosis	.6 %	.5 %	.7 %	.0 %	.314	.855	.021
ADHD	7.0 %	5.7 %	8.4 %	14.3 %	3.600	.165	.071
PTSD	2.7 %	3.6 %	.7 %	9.5 %	9.119	.010	.113
OCD	2.1 %	1.4 %	3.3 %	.0 %	3.245	.197	.067
Other	4.5 %	5.2 %	3.6 %	.0 %	1.992	.369	.053

SD: Standard deviation; SUDs: substance use disorders; ADHD: attention deficit/hyperactive disorder; PTSD: posttraumatic stress disorder; OCD: obsessive-compulsive disorder.

Table 2
Characteristics of psychedelic experience reported by participants.

	Global sample (n = 715)	Spain (n = 420)	Latin America (n = 274)	Rest of the world (n = 21)	F or χ2	p	η² or Cramer's V
Mean (SD) years since the experience	2.58 (4.19)	2.73 (4.26)	2.34 (4.12)	2.63 (3.77)	.704	.495	.002
Subjective quality of memory					7.979	.240	.075
Completely clear	39.9 %	36.7 %	44.2 %	47.6 %			
Very clear	37.9 %	40.0 %	35.0 %	33.3 %			
Clear	18.7 %	19.5 %	18.2 %	9.5 %			
Somewhat clear	3.5 %	3.8 %	2.6 %	9.5 %			
Psychedelic used					59.664	<.001	.204
LSD or derivatives	19.6 %	14.8 %	25.9 %	33.3 %			
Psilocybin or psilocybin mushrooms	31.5 %	26.2 %	39.8 %	28.6 %			
Ayahuasca	38.3 %	48.6 %	22.6 %	38.1 %			
Mescaline or mescaline-cacti	2.7 %	1.7 %	4.4 %	.0 %			
MDMA	6.7 %	7.1 %	6.6 %	.0 %			
Ketamine	1.3 %	1.7 %	.7 %	.0 %			
Strength of dose					11.913	.155	.091
Very weak	.7 %	.2 %	1.5 %	.0 %			
Weak	1.3 %	1.7 %	.7 %	.0 %			
Moderate	24.8 %	23.3 %	26.6 %	28.6 %			
Strong	48.4 %	52.4 %	42.7 %	42.9 %			
Very strong	24.9 %	22.4 %	28.5 %	28.6 %			
Valence of acute effects					12.851	.045	.095
Rather pleasant	57.5 %%	53.6 %	63.5 %	57.1 %			
Rather unpleasant	3.4 %	4.0 %	2.2 %	4.8 %			
Both pleasant and unpleasant	35.7 %	37.9 %	32.8 %	28.6 %			
Neither pleasant nor unpleasant	3.5 %	4.5 %	1.5 %	9.5 %			
Concomitant substance use							
None	59.0 %	62.1 %	53.3 %	71.4 %	6.757	.034	.097
Cannabis	24.6 %	21.2 %	30.3 %	19.0 %	7.764	.021	.104
Alcohol	8.4 %	9.0 %	7.3 %	9.5 %	.695	.706	.031
Stimulants	1.3 %	1.4 %	1.1 %	.0 %	.424	.809	.024
Benzodiazepines	.1 %	.2 %	.0 %	.0 %	.703	.704	.031
Opiates/opioids	.1 %	.2 %	.0 %	.0 %	.703	.704	.031
Inhalants	.7 %	.7 %	.7 %	.0 %	.153	.926	.015
Other substances	6.7 %	5.7 %	8.0 %	9.5 %	1.692	.429	.049
Length of the effects					21.911	.005	.124
Less than 1 h	1.8 %	2.1 %	.7 %	9.5 %			
1–2 h	2.1 %	2.6 %	1.5 %	.0 %			
2–5 h	38.6 %	43.1 %	32.5 %	28.6 %			
5–10 h	45.2 %	41.7 %	50.0 %	52.4 %			
Longer than 10 h	12.3 %	10.5 %	15.3 %	9.5 %			
Mood before the experience					16.133	.041	.106
Very bad	2.2 %	2.1 %	1.8 %	9.5 %			
Bad	6.3 %	6.2 %	6.9 %	.0 %			
Neither good not bad	19.6 %	17.9 %	22.6 %	14.3 %			
Good	40.0 %	53.3 %	42.0 %	52.4 %			
Very good	22.9 %	20.5 %	26.6 %	23.8 %			
Preparedness before the experience					11.380	.077	.089
Not at all	3.8 %	2.6 %	4.7 %	14.3 %			
A little	11.6 %	12.1 %	11.3 %	4.8 %			
Moderately	38.2 %	36.4 %	40.9 %	38.1 %			
A lot	46.4 %	48.8 %	43.1 %	42.9 %			
Setting							
Nature or close-to-nature environment	67.5 %	65.5 %	63.5 %	76.2 %	1.468	.480	.045
Setting designed for therapeutic purpose	65.0 %	70.2 %	65.0 %	52.4 %	4.429	.109	.079
Party, concert or festival	4.1 %	2.9 %	6.2 %	.0 %	5.689	.058	.089
Psychedelic retreat	46.5 %	46.2 %	36.2 %	38.1 %	15.855	<.001	.149
Ceremonial, religious or spiritual event	45.3 %	49.3 %	40.1 %	33.3 %	6.843	.033	.098
Presence of other people					102.367	.685	.268
Alone	8.7 %	6.9 %	12.0 %	.0 %			
2–5 people	41.1 %	36.2 %	46.4 %	71.4 %			
6–15 people	27.6 %	25.7 %	20.4 %	19.1 %			
16–30 people	15.5 %	18.3 %	12.1 %	.0 %			
31–100 people	11.2 %	12.9 %	9.1 %	9.5 %			
>100 people	.0 %	.0 %	.0 %	.0 %			
Guide/sitter present	74.4 %	78.3 %	69.7 %	57.1 %	9.864	.007	.117
Number of times of previous psychedelic use					364.177	.265	.505
0 (never before)	.1 %	.2 %	.0 %	.0 %			
1-5	19.6 %	20.0 %	19.3 %	14.3 %			
6-20	27.7 %	23.4 %	34.3 %	42.9 %			
21-50	24.1 %	23.1 %	24.9 %	19.0 %			
51-100	13.9 %	14.7 %	13.1 %	9.5 %			
>100	14.7 %	18.6 %	8.4 %	14.3 %			

SD: Standard deviation.

Table 3
Mean scores of the APEQ items in the whole sample and the Spain and Latin America Subsamples. T and p scores, as well as Cohen's d, refer to *t*-test comparison between the Spain and Latin America subsamples.

Scale/Item	Mean (SD)			t	p	Effect size (Cohen's d)	Skewness	Kurtosis
	Total	Spain	Latin America				Total	Total
Acceptance-Related Experience (ACE)	71.04 (21.18)	69.15 (21.98)	73.97 (19.58)	−2.943	.003	.234	−.854	.151
Accepting Response	66.67 (26.12)	64.67 (26.64)	69.91 (24.77)	−2.605	.009	.202	−.675	−.400
7. I was able to accept uncomfortable thoughts or memories	72.37 (29.78)	70.28 (30.18)	75.53 (28.74)	−2.281	.023	.177	−1.180	.376
13. I was open to difficult sensations or emotional states	77.10 (27.14)	76.11 (27.14)	79.08 (26.79)	−1.416	.157	.110	−1.443	1.311
18. I looked at painful memories with openness	53.93 (38.03)	52.25 (38.14)	57.20 (37.62)	−1.679	.094	.130	−.212	−1.538
32. I managed to confront a personal fear	63.28 (34.72)	60.03 (35.61)	67.84 (32.84)	−2.962	.003	.226	−.674	−.944
Relief	77.02 (20.74)	74.94 (21.54)	79.86 (19.58)	−3.044	.002	.236	−1.152	1.103
3. It seemed to me as if some kind of blockage was being resolved	70.96 (30.96)	68.97 (32.28)	74.26 (28.64)	−2.258	.024	.171	−1.024	−.102
9. I had a positive emotional breakthrough	84.54 (21.97)	83.11 (22.93)	86.51 (20.90)	−1.977	.048	.154	−2.035	4.207
22. I felt a sense of relief	78.78 (25.31)	75.82 (26.25)	82.61 (23.84)	−3.450	<.001	.268	−1.500	1.775
27 Things became easier for me in a liberating way	73.82 (26.68)	71.87 (27.38)	76.05 (26.03)	−2.006	.045	.156	−1.124	.546
Pro-Acceptance Insights	69.44 (23.81)	67.85 (24.34)	72.14 (22.40)	−2.341	.020	.182	−.966	.428
4. I learned to better understand certain emotional states.	76.57 (27.43)	74.78 (28.66)	79.76 (24.81)	−2.431	.015	.174	−1.372	1.083
11. I discovered a deeper acceptance of certain difficult feelings or sensations	77.62 (26.76)	76.88 (27.00)	79.45 (25.49)	−1.251	.211	.104	−1.554	1.713
20. I noticed that certain thoughts or memories are not as dangerous for me as I had previously thought	60.02 (33.62)	57.72 (34.13)	63.55 (32.50)	−2.266	.024	.176	−.556	−.994
30. I learned to appreciate certain uncomfortable feelings or sensations more	63.55 (30.72)	62.01 (31.07)	65.78 (29.88)	−1.588	.113	.123	−.779	−.480
Avoidance-Related Experience (AVE)	26.70 (20.24)	27.26 (19.63)	30.70 (21.07)	−2.192	.029	.172	.690	−.172
Avoidant Response	33.53 (24.17)	31.92 (23.50)	35.76 (24.89)	−2.052	.041	.162	.478	−.544
5. I tried to lessen, or rid myself of, certain perceptions or bodily sensations	43.54 (34.59)	41.72 (33.80)	46.34 (35.76)	−1.718	.086	.133	.158	−1.419
15. I tried to change my mood	35.48 (33.30)	34.24 (32.13)	37.69 (35.08)	−1.309	.191	.104	.464	−1.161
24. I attempted to suppress certain emotions of thoughts	25.26 (30.28)	22.79 (28.12)	28.71 (32.72)	−2.463	.014	.197	1.076	−.152
28. I made efforts to avoid or control difficult feelings	29.85 (31.78)	28.94 (30.83)	30.28 (32.50)	−.549	.583	.043	.857	−.611
Distress	28.89 (29.10)	28.36 (28.64)	29.35 (29.74)	−.440	.660	.031	.871	−.393
8. I felt tormented	28.29 (32.29)	28.38 (32.33)	27.98 (32.16)	.160	.873	.012	.917	−.519
14. I panicked	26.12 (32.79)	24.57 (31.90)	28.59 (34.12)	−1.554	.121	.122	1.058	−.319
23. I experienced a state of distress	32.28 (34.06)	31.27 (33.16)	33.01 (35.00)	−.662	.508	.051	.657	−1.063
31. I suffered from what I was experiencing	28.88 (33.05)	29.21 (32.99)	27.82 (32.80)	.542	.588	.042	.858	−.704
Pro-Avoidance Insights	23.64 (20.44)	21.50 (19.76)	26.99 (20.80)	−3.506	<.001	.273	.862	.204
6. I learned to fear or detest certain uncomfortable feelings or sensations more strongly	26.10 (31.30)	26.90 (31.20)	25.46 (31.65)	.589	.556	.046	1.009	−.356
16. I noticed that I can tolerate certain mental states less than I thought	31.31 (32.86)	24.56 (28.12)	41.30 (36.54)	−6.440	<.001	.528	.789	−.772
19. I learned that is better for me not to experience certain emotional states at all	15.67 (24.72)	14.03 (21.90)	18.34 (28.42)	−2.129	.034	.174	1.961	2.965
29. I learned that certain thoughts or memories are more dangerous for me than I previously thought	21.50 (27.62)	20.51 (27.07)	22.88 (28.20)	−1.106	.269	.086	1.330	.614
Ancillary scales								
Introspection	76.46 (20.70)	76.03 (21.61)	77.10 (19.10)	−.671	.503	.05	−1.248	1.431
2. I was engaged with what was going on inside me	78.86 (25.12)	77.55 (25.96)	80.42 (24.10)	−1.463	.144	.114	−1.548	1.922
12. I looked inside	84.88 (22.79)	83.99 (23.31)	86.31 (22.00)	−1.310	.191	.102	−2.066	4.031
17. My attention was turned inward	74.00 (27.72)	72.88 (28.46)	75.92 (26.02)	−1.422	.155	.110	−1.166	.519
25. I was absorbed in my inner experience	68.10 (29.94)	69.68 (29.28)	65.75 (30.95)	1.687	.092	.131	−.881	−.244
Interaction	65.05 (22.87)	61.85 (23.68)	69.61 (20.84)	−4.543	<.001	.34	−.489	−.502
1. I observed my external environment	67.71 (30.57)	63.87 (30.90)	73.47 (28.77)	−4.175	<.001	.319	−.716	−.645
10. I actively engaged with my surroundings	63.73 (31.61)	60.94 (32.11)	66.81 (30.78)	−2.392	.017	.186	−.557	−.900
21. I interacted with other people	58.42 (35.34)	54.79 (35.89)	63.97 (33.66)	−3.419	.001	.262	−.432	−1.238
26. I moved my body	70.36 (27.40)	67.79 (27.89)	74.19 (26.50)	−3.013	.003	.234	−.901	−.084

Each number refers to the order of each item in the original APEQ instrument.

Spanish and Latin American sample were found for the hedonic/escapist component (t(694) = −1.3424; p = .180; cohen's d = .51), and the therapeutic component (t(694) = −.883; p = .378; cohen's d = .27), whereas the Spanish subsample scored significantly lower in the growth/wellbeing component (t(694) = −4.353; p < .001; cohen's d = .34).

3.5. Path analysis of potential mediation effects

Fig. 2 summarizes the path model assessing associations between use motives, ACE, AVE, and retrospective changes in psychological

flexibility. ACE was positively associated with growth/wellbeing (β = .33; $p < .001$) and therapeutic intention (β = .45; $p < .001$), and negatively associated with hedonic/escapist intention (β = −.22; $p < .001$). AVE was positively correlated with therapeutic (β = .26; $p < .001$) and hedonic/escapist intention (β = .11; $p < .001$), whereas no significant association was found with growth/wellbeing intention (β = −.02; p = .677). Retrospective changes in psychological flexibility were positively associated with ACE (β = .23; $p < .001$), and negatively associated with AVE (β = −.08; p = .032), but no significant effect of the interaction between ACE and AVE was found (β = −.01; p = .677). Furthermore, therapeutic intention had a positive direct effect on changes in
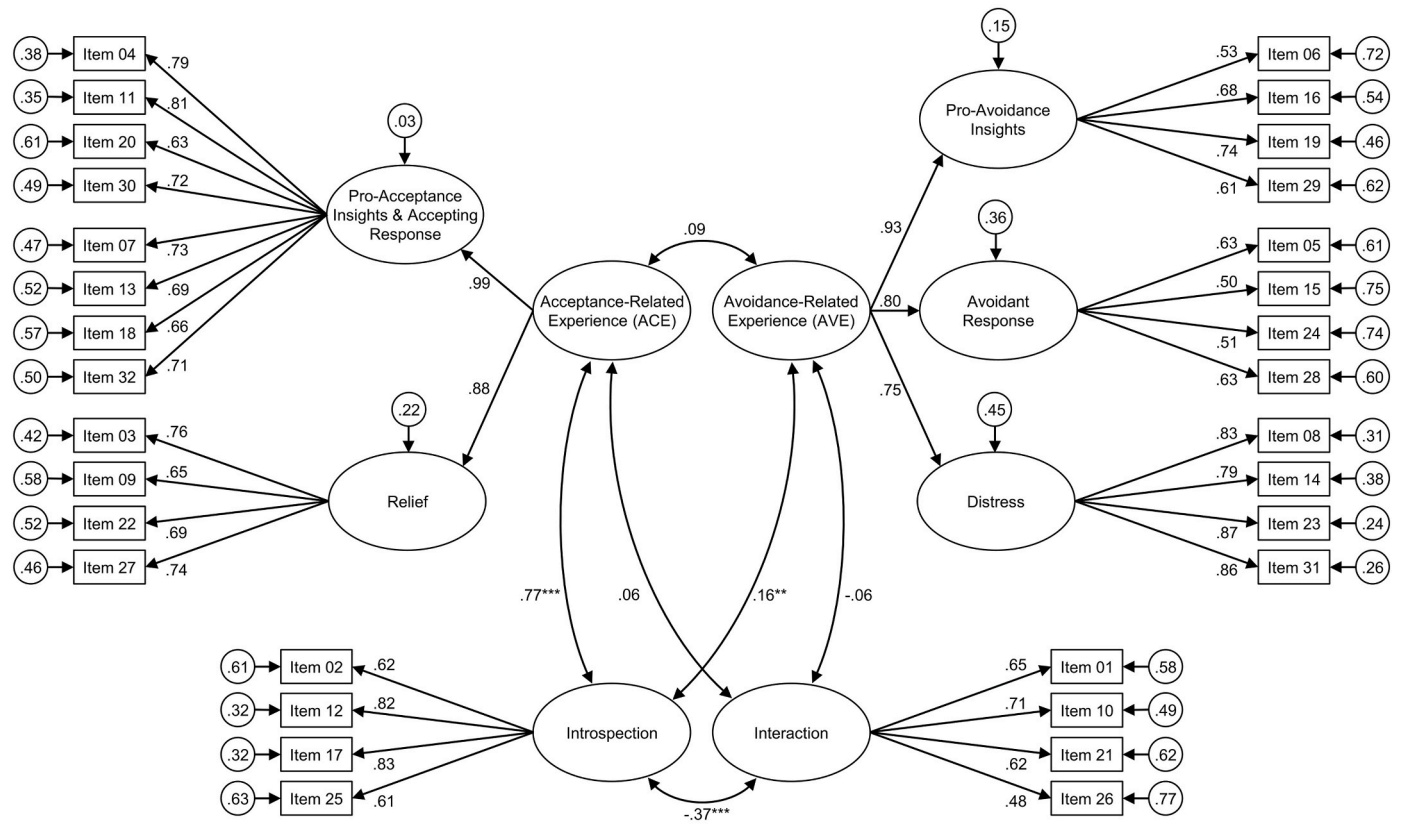
Fig. 1. Summary of Confirmatory Factor Analysis (CFA) of the global sample.

Table 4
Item loadings from the principal component analysis (PCA) of use motives for the global sample.

Item	1 – Hedonic/ escapist	2 – Growth/ wellbeing	3 - Therapeutic
To have fun	**.771**	−.037	−.375
For partying	**.747**	.042	−.319
To share my experience with my friends	**.625**	.063	−.420
To distract myself from problems	**.608**	−.194	.323
To relax	**.605**	.347	.117
To intoxicate myself	**.586**	−.063	.006
To increase my sexual pleasure	**.519**	.235	−.009
Out of boredom	**.501**	−.045	.008
Out of curiosity	**.341**	−.025	−.213
To fit in	**.269**	.192	.063
To have an experience with nature	.099	**.681**	.048
To increase my creativity	.357	**.647**	−.015
For spiritual reasons	−.293	**.625**	.224
To increase my performance	.145	**.583**	.288
For self-awareness	−.319	**.551**	.355
For personal growth	−.417	**.500**	.421
To connect with a community of people	.171	**.481**	.000
For religious reasons	−.041	**.444**	−.053
To confront difficult feelings	−.143	.150	**.785**
To escape from difficult feelings	.263	−.163	**.694**
To treat psychological problems	−.113	.088	**.693**
To increase my wellbeing	−.082	.454	**.523**
To treat physical problems	−.075	.210	**.371**

Note: The highest loading of each item is written in bold font.

psychological flexibility ($\beta = .25$; $p < .001$), whereas growth/wellbeing and hedonic/escapist intention were negatively associated with changes in psychological flexibility ($\beta = -.11$; $p = .003$) and $\beta = -.09$; $p = .012$, respectively). This points to the presence of associations between intentions and changes of psychological flexibility that are not completely mediated by ACE and AVE.

3.6. Reliability

Table 5 shows internal consistencies for all APEQ scales and subscales. All scales and subscales showed at least acceptable reliability.

3.7. Convergent validity

Table 6 summarizes correlations between scores of the APEQ mains scales, subscales and ancillary scales, and external scales. As hypothesized, ACE scores were found to positively correlate with MEQ and PIQ scores, while AVE scores were positively correlated with CEQ scores, supporting convergent validity.

4. Discussion

This study was conducted to evaluate the psychometric properties of the Spanish version of the APEQ. It also tested the theoretical model underlying this instrument and explored its value as a relevant measure that can help in understanding the relationship between the subjective effect elicited by a psychedelic, and the outcomes reported by a participant.

The Spanish version of the APEQ showed acceptable model fit after collapsing the first-order factors Accepting Response and Pro-Acceptance Insights into a single factor. In the original development of the APEQ scale, this more constrained model showed no worse fit than the baseline model with separate factors for the two scales (Wolff et al.,
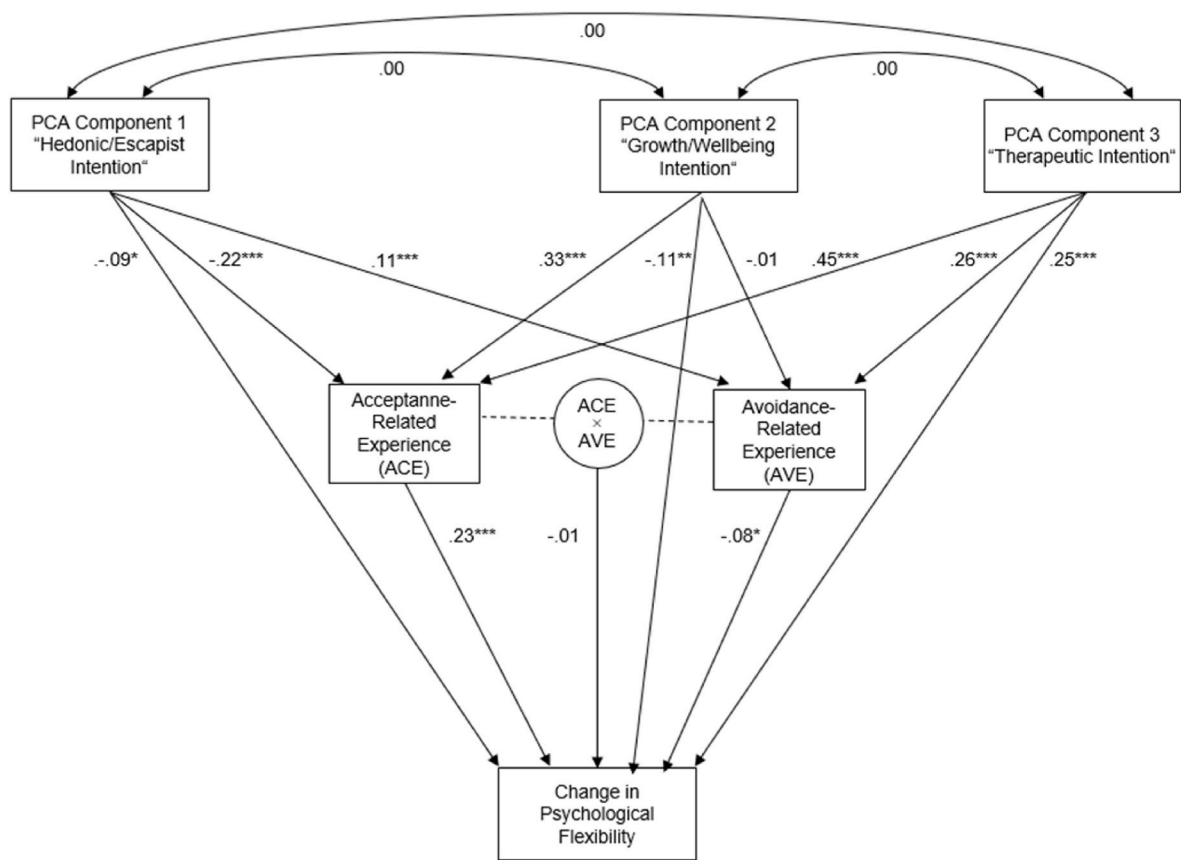
Fig. 2. – Path model showing associations between use motives, ACE, AVE, and changes in psychological flexibility.
PCA= Principal Component Analysis; ACE = Acceptance-related experience; AVE = Avoidance-related experience; * = p < .05; ** = p < .01; *** = p < .001. All coefficients are standardized. Correlations between use motives were all 0 since PCA component scores are by default uncorrelated.

Table 5
– Reliability test of APEQ scales and subscales are provided. Results show standardized Cronbach's alpha coefficients.

Scale	Global sample (n = 715)	Spain (n = 420)	Latin America (n = 274)
ACE	.92	.92	.90
Accepting Response	.82	.83	.79
Relief	.80	.80	.80
Pro-Acceptance Insights	.82	.82	.81
AVE	.87	.87	.87
Avoidant Response	.73	.75	.71
Distress	.90	.90	.91
Pro-Avoidance Insights	.65	.70	.59
Introspection	.79	.82	.73
Interaction	.71	.73	.64

ACE = acceptance-related experience; AVE = avoidance-related experience.

2022), hinting at the strong correlation between them. This could mean that accepting responses cannot be dissociated from acceptance-related cognitions, at least when a relatively long time has elapsed since the reported experiences (on average 2.58 years in the present study). Experimental and clinical studies administering the APEQ directly after psychedelic dosing sessions are needed to determine whether the two factors can be separated when less time has elapsed between psychedelic administration and test administration.

All APEQ scales and subscales showed good internal consistency in the global sample. Of note, the "Pro-Avoidance Insights" and the "Interaction" subscales of the Latin-American subsample performed slightly worse, perhaps indicating minor problems regarding transcultural translation or the influence of outliers, since the Latin American subsample was smaller than the Spanish subsample.

Using PCA, three main factors underlying psychedelic use motives were identified: "hedonic/escapist", "growth/wellbeing" and "therapeutic" intention. These results are largely consistent with previous studies of psychedelic use motives that used the same or similar items (Wolff et al., 2022, 2024), although the present study was limited to therapeutic and ceremonial uses of psychedelics. Also consistent with previous results (Wolff et al., 2022), path analysis showed that use motives were associated with ACE and AVE scores, providing further evidence for the assumed context-dependence of acceptance and avoidance in psychedelic states. While therapeutic intentions were positively associated with both ACE and AVE, growth/wellbeing intentions were positively associated only with ACE but unassociated with AVE. This is in line with the view that approach motives are conducive to therapeutic experiences in psychotherapeutic contexts and beyond, and that problem-focused therapeutic experiences additionally require a motivation to confront and work on problems (Wolff et al., 2024). In contrast, "hedonic/escapist intention" (at least in therapeutic or ceremonial settings) can be considered to reflect avoidance motives, involving the search for pleasure instead of confronting difficult feelings or situations. In line with this, hedonic/escapist intentions were negatively associated with ACE but positively associated with AVE.

Also replicating previous results (Wolff et al., 2022), path analysis showed that ACE was positively associated with retrospective changes in psychological flexibility, whereas AVE showed a negative association. These results further support the view that acceptance during psychedelic experiences has a therapeutic value and mediate longer-term effects (Wolff et al., 2020), and more generally is in line with the

Table 6
– Intercorrelations between APEQ scales and external scales in the complete sample.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
APEQ main scales													
1. ACE													
2. Accepting Response	.903***												
3. Relief	.850***	.604***											
4. Pro-Acceptance Insights	.938***	.787***	.736***										
5. AVE	.091*	.230***	-.131***	.106**									
6. Avoidant Response	.061	.153***	-.104**	.085*	.844***								
7. Distress	.101**	.258***	-.120**	.092*	.849***	.554***							
8. Pro-Avoidance Insights	.055	.133***	-.095*	.083*	.762***	.536***	.443***						
9. Introspection	.607***	.599***	.460***	.563***	.176***	.106**	.227***	.075*					
10. Interaction	-.037	-.120**	.077*	-.033	-.038	.042	-.129**	.021	-.310***				
External scales													
11. MEQ	.566***	.436***	.253***	.577***	.529***	.014	.003	.012	.471***	.021			
12. CEQ	.114**	.253***	-.100**	.113***	.712***	.487***	.799***	.401***	.250***	-.127***	.148***		
13. PIQ-AMP	.788**	.786**	.572**	.748**	.207**	.207**	.245**	.205**	.551***	-.112***	.277**		
14. PIG-GAP	.770**	.671**	.655**	.751**	.751**	.096**	.096**	.081**	.562**	-.038	.770**		
15. PIQ total	.815***	.770***	.631***	.781***	.215***	.167***	.167***	.179***	.582***	-.089*	.607***	.227***	
16. AAQ-II-change	.321***	.316***	.269***	.276***	.001	-.009	-.009	.061	.257***	-.106***	.218***	.105***	.317***

*** = $p < .001$ (two-sided); ** = $p < .01$ (two-sided); * = $p < .05$ (two-sided); ACE = Acceptance-Related experience; AVE = Avoidance-Related experience; MEQ = Mystical Experience Questionnaire; CEQ = Challenging Experience Questionnaire; PIQ= Psychological Insight Questionnaire; PIQ-AMP = maladaptive patterns insight; PIQ-GAP = goals and adaptative partners; AAQ-II-change = difference between pre- and post-experience Acceptance and Action Questionnaire II scores.

consistently replicated finding that the subjective experience plays a substantial role in the therapeutic benefits provided by psychedelics (e. g., Dahan et al., 2024). However, no interaction effect was found between ACE and AVE variables, contrary to previous findings (Wolff et al., 2022). This may be due to an overrepresentation of positive experiences in our sample, potentially reducing statistical power to detect such an effect. Another possible explanation lies in the fact that our survey only assessed therapeutic settings, which might have an attenuating effect on the impact of AVEs. This warrants the need to further research to assess the specific role of AVEs and their relationship with context.

In summary, the present results suggest that crafting a therapeutic, approach-oriented intention prior to a psychedelic experience can promote acceptance-related psychedelic experiences, which in turn can maximize therapeutic outcomes.

Correlations found between APEQ scales and external scales support the underlying theories proposed in the methodology: ACE scores were strongly correlated with mystical experiences and psychological insights. AVE scores, in turn, were strongly correlated with challenging experiences and significantly, but weakly, with psychological insights. It is worth noting that psychological insights are not necessarily positive or adaptive, and challenging experiences have been associated with avoidance-related psychological insights (Davis, Barrett, et al., 2021). Overall, the Spanish APEQ showed good convergent validity with external measures of the acute psychedelic experience.

The sample gathered had a similar proportion of female and male participants, and was balanced between subsamples, as no significant difference was found in any demographic indicator. Interestingly, 44 % of the whole sample presented with some type of mental health diagnosis, which points to a relevant naturalistic use of psychedelics for self-treating purposes. Participants resided in 25 different countries but were grouped in three subsamples to assess for differences between Latin-American and Spain.

Regarding the experience reported, there were relevant differences in relation to the substance used in the reported experience. Interestingly, the Spanish population reported a higher proportion of ayahuasca experiences than the Latin-American population, which reported more psilocybin mushrooms and LSD experiences. This finding is quite relevant and could point to a selection bias in the Latin American population, where ayahuasca use could be more restricted to collectives with less access to the means through which this survey was disseminated. Also, the Latin-American subsample scored significantly higher on ACE and all its subscales, AVE and its subscales Avoidant Response and Pro-Avoidance Insights, and the Interaction ancillary scale. Most reported experiences were of a strong or very strong dose with rather pleasant effects, which could have caused an underrepresentation of challenging or difficult experiences (AVE scores). Also, the Latin-American subsample had a higher proportion of participants with the diagnosis of a mental disorder, especially depression and anxiety, which could point to an intention to treat themselves. This is also supported by the fact that this subsample scored significantly higher in growth/well-being intentions, which likely had an impact on the reported subjective experience. Moreover, although cases where more than one psychedelic was used were excluded from the analysis, up to 41 % of the participants in the whole sample did take concomitantly other psychoactive substances, mainly cannabis and alcohol. This fact is not considered a confounding factor given the purpose of this study, but it merits closer attention. In the case of cannabis, for example, some authors consider that it can cause psychedelic effects, especially when used in high doses (Wolinsky et al., 2024). In the Latin-American subsample, a higher concomitant use of cannabis was reported (30.3 % vs 21.2 %); which could also partially explain the differences observed in the subjective effects experienced. Future studies should control for the concurrent use of other substances, as this may hinder causal interpretations of the subjective effects of specific psychedelic substances.The fact that most people reported being in a good or very good mood before the experience, felt moderately or

well prepared, had a guide or sitter present, and were not alone, supports the theory that the naturalistic use of psychedelics tends to be performed by well-informed people that takes care to ensure proper preparation and risk-prevention. Of note, most of the population had previously taken psychedelics more than once, and more that 50 % took them more than 20 times before the reported experience, which hints to a very experienced population. This is a relevant selection bias that is also present in the population participating in current and recent clinical trials (Hovmand et al., 2023; Ona et al., 2022). Future research should focus on assessing differences between naïve or almost naïve populations and experienced uses.

The main limitations of this study have to do with the fact that it was cross-sectional and retrospective, so it is not possible to properly test assumptions in a causal manner. Also, participants reported on the memory of a subjectively chosen experience, an average of 2.58 years before the completion of the survey. This could imply another selection bias that may explain some demographic findings, such as a majority of positive experiences, and should be taken into account when interpreting these data or crafting future studies.

Another limitation concerns the study's primary outcome: retrospective change in AAQ-II scores before and after psychedelic use. The validity of the AAQ-II as a measure of psychological flexibility has been debated, as it primarily captures psychological inflexibility, a construct not necessarily equivalent to the inverse of flexibility and is known to correlate with psychological distress (Wolgast, 2014). Moreover, retrospective self-assessments are prone to memory bias, reducing methodological rigor and limiting causal inference. Nonetheless, given the retrospective design of our study, chosen to ensure sufficient sample size, we considered this approach to be the most feasible. Despite its limitations, the AAQ-II has been widely used in psychedelic research (e. g., Davis, Barrett, et al., 2021; Pilecki et al., 2024) and has a validated Spanish version, whereas alternative instruments lack such validation. Future research would benefit from prospective designs and the use of more comprehensive tools, such as the Multidimensional Psychological Flexibility Inventory (MPFI; Rolffs et al., 2018).

Due to the design of this study, test-retest reliability could not be assessed, as participants remained anonymous and completed the survey only once. However, there is no clear consensus about evaluating test-retest reliability for instruments designed to capture complex experiences such as those assessed by the APEQ. Variability in participant responses over time may not necessarily indicate a flaw in the instrument but could instead reflect various biases, such memory bias or shifts in perception following an integration process.

Finally, the instruments used to test construct validity do not measure the exact same constructs as the APEQ instrument, but rather related and similar characteristics of the psychedelic experience. This is because there exist no other instruments to date that measure acceptance-related and avoidance-related experiences occurred during a psychedelic experience. However, given the phenomenological similarity of the experiences measured with the chosen instruments, as well as their relationship with similar outcomes, as explained in the "Objectives" section, we can conclude that the findings related to construct validity can be considered sufficiently valid and relevant.

In conclusion, this study evaluated the psychometric properties of the Spanish version of the APEQ, demonstrating good construct, criterion, and cross-cultural validity, along with high internal consistency. These findings support its use as a reliable instrument for assessing acceptance- and avoidance-related experiences during psychedelic states, providing insights into the contextual dependency of ACEs and AVEs and their association with long-term changes in psychological flexibility. Our results align with the existing literature by reinforcing the notion that the quality of the subjective psychedelic experience is central to therapeutic outcomes (Yaden & Griffiths, 2021). Beyond translation and validation, this study provides empirical support for the APEQ's underlying theoretical framework, showing that acceptance-related experiences mediate positive psychological

outcomes across diverse cultural contexts; this contributes to the understanding of how contextual and experiential dimensions of psychedelic use affect psychological flexibility, a key therapeutic mechanism. By confirming the APEQ's theoretical model in a large, non-English-speaking population, this study expands the cultural generalizability of psychological flexibility as a therapeutic mechanism and offers a validated instrument to investigate experiential processes in psychedelic therapy. These findings may inform both future clinical applications and the design of context-sensitive interventions. For example, and although further research is needed to clarify the specific role of ACEs and AVEs in clinical settings, these findings suggest that intentionally promoting ACEs may enhance therapeutic effectiveness of psychedelic-assisted therapeutic interventions.

Finally, this study also explored patterns of psychedelic use across a broad international sample, revealing high rates of comorbid substance use and mental health conditions among naturalistic users. These data points to the importance of integrating risk-reduction strategies and epidemiological insights into future research and public health efforts in the psychedelic field.

CRediT authorship contribution statement

Óscar Soto-Angona: Writing – review & editing, Writing – original draft, Visualization, Validation, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Amanda Rodríguez-Urrutia:** Writing – review & editing, Supervision, Conceptualization. **Josep Antoni Ramos-Quiroga:** Writing – review & editing, Supervision, Conceptualization. **Óscar Álvarez-Bobo:** Writing – review & editing, Methodology, Investigation. **Genís Ona:** Writing – review & editing, Validation, Methodology, Investigation. **Sergio Pérez Rosal:** Writing – review & editing, Investigation. **Juan París-Pérez:** Writing – review & editing, Investigation. **Max Wolff:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Data sharing statement

Data is available upon reasonable request.

Funding

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Oscar Soto Angona reports a relationship with Multidisciplinary Association for Psychedelic Studies that includes: consulting or advisory. Oscar Soto-Angona reports a relationship with Lundbeck Foundation that includes: speaking and lecture fees and travel reimbursement. Oscar Soto-Angona reports a relationship with Janssen-Cilag that includes: travel reimbursement. Amanda Rodriguez Urrutia reports a relationship with Danone SA that includes: speaking and lecture fees. Amanda Rodriguez Urrutia reports a relationship with Lundbeck Foundation that includes: travel reimbursement. Josep Antoni Ramos Quiroga reports a relationship with Janssen-Cilag that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Josep Antoni Ramos Quiroga reports a relationship with Novartis Pharmaceuticals Corporation that includes: consulting or advisory. Josep Antoni Ramos Quiroga reports a relationship with Shire that includes: consulting or advisory and travel reimbursement. Josep Antoni Ramos Quiroga reports a relationship with Takeda Pharmaceutical Company Limited that includes: consulting or advisory and travel reimbursement. Josep Antoni Ramos Quiroga reports a relationship with Bial that includes: consulting

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