Psychometric properties of the Avoidance and Fusion Questionnaire – Youth in Colombia

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Abstract

The Avoidance and Fusion Questionnaire – Youth (AFQ-Y) is a widely used measure of psychological inflexibility in children and adolescents. It is a 17-item questionnaire which also has an 8-item version (AFQ-Y-8). The AFQ-Y has been adapted into some languages, including Spanish. Overall, the AFQ-Y seems to be a sound measure although there is some debate concerning the factor structure of the long version, with studies suggesting one- and two-factor structures. This study presents the adaptation of the Avoidance and Fusion Questionnaire – Youth (AFQ-Y) for Colombian participants and its psychometric analysis in a sample of 1127 participants aged 8 to 18 years. All items obtained good discrimination indexes, and both the AFQ-Y and AFQ-Y-8 showed good internal consistency. The confirmatory factor analyses supported the one-factor structure in both versions of the questionnaire. Additionally, both versions showed measurement invariance across gender and age group. Girls obtained higher scores than boys both in the AFQ-Y and the AFQ-Y-8. Both versions showed similar and strong correlations with measures of generalized pliance, repetitive negative thinking, pathological worry, and emotional symptoms. In conclusion, the AFQ-Y and the AFQ-Y-8 seem to be valid and reliable measures of psychological inflexibility in Colombian children and adolescents.

Key words: Psychological inflexibility; Cognitive fusion; Experiential Avoidance; Acceptance and commitment therapy; Children; Adolescents.

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1. Introduction

Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) is a relatively new behavior therapy based on a contextual approach to human language and cognition known as Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001). According to RFT principles and research, ACT considers suffering as part of life and suggests that the way individuals react to difficult thoughts and emotions is crucial to mental health and behavioral effectiveness. Specifically, ACT advocates that the best coping strategy is to accept and take distance from suffering in order to guide action towards valued aims. This ability is called psychological flexibility, which it is counterposed to psychological inflexibility (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Kashdan & Rottenberg, 2010).

Psychological inflexibility entails the dominance of thoughts and emotions over chosen values (Bond et al., 2011) and it is caused by two main interrelated behavioral processes: cognitive fusion and experiential avoidance. Cognitive fusion refers to a verbal process by which individuals fail to discriminate that private events (thoughts, memories, sensations, etc.) are only ongoing experiences and respond according to their immediate functions. When private events have aversive functions (e.g., negative thoughts and feelings), cognitive fusion usually leads the individual to react by trying to avoid them (e.g., engaging in thought suppression, distraction, drinking alcohol, etc.). In the ACT literature, this behavioral process is called experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), which entails the unwillingness to experience aversive private events and

the deliberate attempts to avoid them. Experiential avoidance usually leads to immediate negative reinforcement due to the reduction of the aversive functions of the private events. Unfortunately, it tends to be a counterproductive strategy in the long term because the suffering usually reappears, due to the bidirectional nature of human language, and the individual loses focus on her valued ends (Boulanger, Hayes, & Pistorello, 2010).

As mentioned earlier, cognitive fusion and experiential avoidance are intimately related processes. For instance, consider a 10-year old girl who loves math but thinks: "People will make fun of me if I ask questions in math class." This thought has aversive functions for the girl, and if she does not discriminate that the thought and its functions are only a momentary experience (cognitive fusion), she will not raise her hand to ask questions due to her social anxiety (experiential avoidance). This way, the initial thought instead of her valued ends dominated the action (i.e., she displayed psychological inflexibility). If the girl repeats this inflexible pattern, this might lead to poorer academic performance and greater fear of asking questions.

Psychological inflexibility is a common factor involved in psychological disorders such as depression, anxiety disorders, eating disorders, etc. (Kashdan & Rottenberg, 2010; Ruiz, 2010). For instance, imagine a depressed 12-year-old boy who loved playing soccer but has lately experienced negative thoughts such as "I am a loser," "I will never be a good soccer player," and "I don't deserve to be on the team." When these thoughts appeared, he got entangled with them and engaged in rumination, which prevented him from focusing on the game. Hence, his poor playing reinforced his thoughts about incompetence, and he gave up soccer, which ultimately decreased his self-confidence and made him drop other activities that he enjoyed doing. As can be seen, his inflexible reactions to his negative

thoughts led him to distance himself from what was important for him and made him feel depressed.

Parallel to the development and expansion of ACT, greater efforts have been made to design self-report measures of psychological inflexibility and its main interrelated processes (i.e., experiential avoidance and cognitive fusion). The first attempt in this direction was the development of the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004). The AAQ was designed to measure general levels of experiential avoidance, as averaged across different contexts, in clinical and community samples (note that numerous versions of the AAQ tailored to particular contexts have also been developed: e.g., Bond, Lloyd, & Guenole, 2013; Jurascio, Forman, Timko, Butryn, & Goodwin, 2011; Ruiz & Odriozola-González, 2014). Due to some problems of the AAQ with regard to its internal consistency and factor structure, an improved second version was developed. The AAQ-II (Bond et al., 2011) is designed to measure experiential avoidance and psychological inflexibility. It has good internal consistency and a one-factor structure in clinical and nonclinical population (Bond et al., 2011; Fledderus, Oude, ten Klooster, & Bohlmeijer, 2012). It has been translated into multiple languages, including Spanish (e.g., Ruiz, Langer, Luciano, Cangas, & Beltrán, 2013; Ruiz et al., 2016), showing similar psychometric properties and factor structure in them (Monestès et al., in press). Apart from the AAQs, other self-reports have recently been developed to measure experiential avoidance (Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011), cognitive fusion (Gillanders et al., 2014), and psychological flexibility (Francis, Dawson, & Golijani-Moghaddam, 2016; Rolffs, Rogge, & Wilson, 2018).

Although ACT has been mainly applied in adult settings (Hayes et al., 2006), in the last few years, there has been increasing interest in adapting ACT to children and

adolescents' issues (e.g., Coyne, McHugh, & Martinez, 2011; Hayes & Ciarrochi, 2015; Turrell & Bell, 2016). This has led to designing a self-report measure of psychological inflexibility in children and adolescents, called the Avoidance and Fusion Questionnaire – Youth (Greco, Lambert, & Baer, 2008). The item contents of the AFQ-Y were modeled on the AAQ to reflect psychological inflexibility produced by cognitive fusion and experiential avoidance. The AFQ-Y has a long and a short version with 17 (i.e., AFQ-Y) and 8 items (AFQ-Y-8), respectively. Items are responded on a 5-point Likert-type scale. In the initial validation study, Greco et al. (2008) found that both versions of the AFQ-Y had good internal consistency (alphas of .90 and .83 for the long and short version, respectively). Both versions of the AFQ-Y showed positive correlations with measures of somatic complaints, internalized symptoms, thought suppression, and problem behavior, and negative correlations with measures of mindfulness, quality of life, social skills, and academic competence. The AFQ-Y also showed incremental validity over measures of thought suppression and mindfulness in the prediction of internalized symptoms, somatic complaints, problem behavior, and quality of life. In this initial study (Greco et al., 2008), the AFQ-8 was shown to be a unidimensional measure, whereas the results were not so clear for the AFQ-Y, although the authors argued that the one-factor model could fit.

The AFQ-Y has been subsequently validated in different languages such as Spanish (Valdivia-Salas, Martín-Albo, Zaldívar, Lombas, & Jiménez, 2017), Dutch (Simon & Verboon, 2016), Italian (Schweiger et al., 2017), and Swedish (Livheim et al., 2016). However, some controversy remains about the factor structure of the AFQ-Y. Greco et al. (2008), Simon and Verboon (2016), and Schweiger et al. suggested that the AFQ-Y had a one-factor structure, but other studies have shown that the two-factor model has a better fit

(e.g., Livheim et al., 2016; Renshaw, 2018; Valdivia-Salas et al., 2017). Nonetheless, all studies have found that the AFQ-Y-8 is a unidimensional measure.

There may be several reasons for the different factor structures of the AFQ-Y found across studies. Firstly, the above-mentioned studies varied in the age range of the participants. Adolescents might respond differently to the AFQ-Y than children. For instance, adolescents' more sophisticated relational repertoire might lead them to respond differently to items representing cognitive fusion and experiential avoidance, whereas children might not perceive those differences. This would be consistent with findings in other measures such as the Depression Anxiety and Stress Scales (Lovibond & Lovibond, 1995) where factor analyses of children's responses showed fewer factors than in adolescents and adults (Szabó & Lovibond, 2006). Secondly, the different factor structures might reflect cross-cultural and/or language differences. Thirdly, the number of factors might be related to the number of items, with larger scales showing a tendency towards finding more factors than shorter scales. Lastly, the estimation method used in confirmatory factor analyses might lead to slightly different results. In practical terms, the presence of one or two factors in the AFQ-Y affects the scoring of the scale. In the case of a one-factor structure, only a global score should be taken into consideration, whereas if there are two factors, researchers and practitioners should calculate two different scores, one for cognitive fusion and one for experiential avoidance.

There is little empirical evidence of measurement invariance of the AFQ-Y across different groups. Measurement invariance (or measurement equivalence) means that a given instrument measures the same construct across several groups (e.g., gender, cultures, age group, etc.). Violations of measurement invariance might prevent meaningful comparison of scores across groups (Greiff & Scherer, 2018). There are three levels of

measurement invariance. First, configural invariance means that the construct is understood similarly across groups (i.e., the factor structure is the same across groups). Second, metric invariance means agreement in response style and that items are understood similarly across groups (i.e., factor loadings are similar across groups). Lastly, scalar invariance means that groups are using the response scale indicator in the same way (i.e., values are also equivalent across groups). Only the study by Simon and Verboon (2016) analyzed the measurement equivalence of the AFQ-Y-8 across gender. Their results revealed that the one-factor model of the AFQ-Y-8 showed scalar measurement invariance in the Dutch version. However, no studies have explored the measurement equivalence of the AFQ-Y across different age groups such as children and adolescents. This is especially relevant because, in the absence of data about the measurement invariance of the AFQ-Y across age, comparing the scores of these groups is not methodologically justified.

The aim of this study is to adapt and analyze the factor structure and psychometric properties of the AFQ-Y in Colombian children and adolescents. For this purpose, we recruited a large sample of 1127 participants aged 8 to 18 years. We analyzed the internal consistency of the AFQ-Y and conducted confirmatory factor analyses to analyze its factor structure. Additionally, we analyzed measurement invariance across gender and age groups. Two age groups were established based on the limits of childhood (8-12 years) and adolescence (13-18 years) established by the American Academy of Pediatrics (Greydanus & Bashe, 2003).

2. Method

2.1. Participants

The sample consisted of 1127 participants (57% females) with age ranging between 8 and 18 years ($M = 11.11$, $SD = 2.73$), enrolled in third to eleventh grade (equivalent to

fourth to twelfth grade in USA). All participants were Colombian and attended private

(44.1%) or public schools (55.9%). The study was conducted in nine schools (4 of them

were private schools) that provided 4.8% to 25.4% of the sample.

2.2.   Instruments

Avoidance and Fusion Questionnaire – Youth (AFQ-Y; Greco et al., 2008). This

questionnaire contains 17 items which are responded on a 5-point Likert-type scale (4 =

very true; 0 = *not at all true*). The AFQ-Y was originally developed and validated in the

USA (Greco et al., 2008). The authors provided an 8-item version of the AFQ-Y (i.e., the

AFQ-Y-8) with similar psychometric properties. A Spanish translation of the AFQ-Y was

analyzed in Spain by Valdivia-Salas et al. (2017), showing good psychometric properties

and a two-factor structure. Two Colombian psychologists reviewed this Spanish version of

the AFQ-Y and suggested slightly changing the wording of four items to be more easily

understandable for Colombian children (Items 2, 5, 13, and 14). The item modifications

consisted of changing "fastidian" for "dificultan," "fastidiarla" for "equivocarme," "rindo"

for "me va," and "enrollado" for "chévere." Table 1 and Appendix A and B show the

Spanish version of the AFQ-Y and AFQ-Y-8 for Colombia.

Generalized Pliance Questionnaire – Children (GPQ-C; Salazar, Ruiz, Flórez, &

Suárez-Falcón, 2018). The GPQ-C consists of 8 items that are responded on a 5-point

Likert-type scale (5 = *always true*, 1 = *never true*). The questionnaire is the result of

reducing the original GPQ for adults (Ruiz, Suárez-Falcón, Barbero-Rubio, & Flórez, in

press) by removing items with typical adult content and changing the wording of some

items from the original version to facilitate children's understanding. The alpha of the

GPQ-C in the current study was .83.

Depression, Anxiety, and Stress Scales – 21 (DASS-21; Lovibond & Lovibond,
1995; Spanish version by Daza, Novy, Stanley, & Averill, 2002). The DASS-21 is a 21-
item, 4-point Likert-type scale (3 = *applied to me very much. or most of the time*; 0 = *did
not apply to me at all*) consisting of sentences describing negative emotional states
experienced during the last week. It contains three subscales (Depression, Anxiety, and
Stress) and has shown good internal consistency and convergent and discriminant validity.
The DASS-21 has good psychometric properties in Colombian samples (Ruiz, García-
Martín, Suárez-Falcón, & Odriozola-González, 2017). In the current study, alphas values
were .90 for Depression, .88 for Anxiety, and .87 for Stress.

Depression, Anxiety, and Stress Scale – Children (DASS-C; Szabó, submitted)
The DASS-C is an adaptation of the DASS-21 for children. It is a 24-item, 4-point Likert-
type scale (3 = *applies most of the time*, 0 = *does not apply*) consisting of sentences
describing negative emotional states (e.g., "I felt tense and uptight"). It contains three
subscales (Depression, Anxiety, and Stress) and has shown good internal consistency and
convergent and discriminant validity. The back-translation method was followed as
described in Muñiz, Elosua, and Hambleton (2013) to translate the DASS-C. Alpha values
in this study were acceptable (.78, .79, and .69, respectively).

Penn State Worry Questionnaire – Children (PSWQ-C; Chorpita, Tracey,
Brown, Collica, & Barlow, 1997). This self-report questionnaire consists of 14 items that
are responded on a 5-point Likert-type scale (5 = *always*, 1 = *never*), which measures worry
in children and adolescents (e.g., "I worry all the time"). The PSWQ-C has excellent
psychometric properties (alpha from .89 and .91) (Pestle, Chorpita, & Schiffman, 2008).
The back-translation method was followed as described in Muñiz et al. (2013) to translate
the PSWQ-C. In this study, we deleted the reverse scored items because they have been

shown to be hard to understand for Spanish speakers (e.g., Ruiz, Monroy-Cifuentes, & Suárez-Falcón, 2018; Sandín, Chorot, Valiente, & Lostao, 2009). The PSWQ-C had an alpha value of .89 in this study.

Perseverative Thinking Questionnaire (PTQ-C; Bijttebier, Raes, Vasey, Bastin, & Ehring, 2015). The PTQ-C consists of 15 items with a 5-point Likert-type scale (4 = *almost always*, 0 = *never*) that measure repetitive negative thinking in children and adolescents (e.g., "The same thoughts keep going through my mind again and again¨). To translate the PTQ-C, the back-translation method was followed as described in Muñiz et al. (2013). Additionally, one of the developers of the PTQ-C approved the definitive Spanish version of the instrument. In this study, the PTQ-C showed excellent internal consistency (alpha of .93).

2.3.   Procedure

The procedure of this study was approved by the institutional Ethics Committee. Participants were recruited from public and private schools from Bogotá (Colombia) and surrounding areas. The researchers presented the study to the school principals of nine education institutions based on personal contacts and/or previous collaborations with the universities involved in this research. All school principals contacted agreed to participate in the study and the research was presented the teachers.

Teachers gave a document presenting the research and an informed consent to the parents or legal guardians of potential participants approximately one week before the application of the instruments (approximately 80% signed the informed consent). Only children and adolescents with a signed informed consent were invited to participate in the study. All participants signed the informed assent and agreed to collaborate with the research.

The data collection was group-based and was conducted in a regular class in the schools by a trained psychologist. Participants under 13 were given the DASS-C instead of the DASS-21 because previous evidence showed that measures of emotional symptoms in children do not show an equivalent factor structure (Szabó & Lovibond, 2006). The DASS-C was designed to solve this discordance. The administration of the questionnaire package took approximately 15-20 minutes. Participants were allowed to cease participating at any given time.

As compensation for participating in the study, reports of the participants' results were sent to the parents or legal guardians who indicated in the informed consent that they would like to receive feedback of their children's results. Additionally, the psychological counseling services of the schools were sent a general report describing the results obtained.

2.4.   Data analysis

Prior to conducting the analyses, data were examined searching for missing values, which were imputed using the matching response pattern of LISREL$^{©}$ (version 8.71; Jöreskog & Sörbom, 1999). In this imputation method, the value to be substituted for the missing value of a single case is obtained from another case (or cases) that has a similar response pattern over the remaining items of the AFQ-Y. One hundred and forty-eight values were missing, which represents only 0.80% of the data.

Firstly, we explored the internal consistency of the AFQ-Y and the AFQ-Y-8 by computing alpha coefficients on SPSS 20$^{©}$, providing 95% confidence intervals (CI). Corrected item-total correlations were obtained to identify items that should be removed because of low discrimination item index (i.e., values below .20).

Secondly, a robust diagonally weighted least squares (Robust DWLS) estimation method, using polychoric correlations, was adopted to conduct the CFAs through LISREL©. This estimation method is especially suited for ordinal data such as the Likert-type items of the AFQ-Y. For the AFQ-Y-17, we computed the goodness-of-fit indexes for the one- and two-factor models. The two factors of the latter model were Cognitive Fusion (Items 1, 2, 3, 4, 5, 10, 13, and 16) and Experiential Avoidance (Items 6, 7, 8, 9, 11, 12, 14, 15, and 17). For the AFQ-Y-8, we only computed the indexes for the one-factor model because all studies have found that this brief version shows a one-factor structure. The Satorra-Bentler chi-square test and the following goodness-of-fit indexes were computed: (a) the root mean square error of approximation (RMSEA), (b) the comparative fit index (CFI), and (c) the non-normed fit index (NNFI), (d) the expected cross-validation index (ECVI), and (e) the standardized root mean square residual (SRMR). According to Hu and Bentler (1999), RMSEA values of .08 represent a good fit, and values below .05 represent a very good fit to the data. For the SRMR, values below .08 represent a reasonable fit, and values below .05 indicate a good fit. With respect to the CFI and NNFI, values above .90 indicate well-fitting models, and values above .95 represent a very good fit to the data. Lower ECVI values indicate better fit to the model.

Thirdly, additional CFAs were performed to test for metric and scalar invariance across gender and age group, following Jöreskog (2005), and Millsap and Yun-Tein (2004). In other words, we analyzed whether the item factor loadings and item intercepts are invariant across boys and girls and age (8-12 years and 13-18 years). In so doing, the relative fits of three increasingly restrictive models were compared: the multiple-group baseline model, the metric invariance model, and the scalar invariance model. The multiple-group baseline model allows the unstandardized factor loadings to vary across

gender and age (configural invariance). The metric invariance model, which was nested within the multiple-group baseline model, places equality constraints (i.e., invariance) on those loadings across groups (weak invariance). Lastly, the scalar invariance model, which was nested within the metric invariance model, is tested by constraining the factor loadings and item intercepts to be the same across groups (strong invariance). Equality constraints were not placed on estimates of the factor variances because these are known to vary across groups even when the indicators are measuring the same construct in a similar manner (Kline, 2005). For the model comparison, the RMSEA and CFI indexes between nested models were compared. The more constrained model was selected (i.e., second model versus first model, and third model versus second model) if the following criteria were met: (a) the change in CFI (ΔCFI) was lower than .01 (Chen, 2007; Cheung & Rensvold, 2002), and (b) the change in RMSEA (ΔRMSEA) was lower than .015 (Chen, 2007).

Fourthly, descriptive data were calculated with SPSS 20. A two-way analysis of variance (ANOVA) was computed to analyze differences in the AFQ-Y scores across gender and age. In accordance with Muris et al. (2017), we expected that girls would obtain higher scores on the AFQ-Y than boys. No hypothesis was considered regarding the scores on the AFQ-Y according to age group because, to our knowledge, previous studies have not explored this issue. Lastly, Pearson correlations between the AFQ-Y and other scales were calculated to assess convergent construct validity.

3. Results

3.1. Psychometric quality of the items

Table 1 shows the items of the AFQ-Y, their translation into Spanish, the descriptive data and corrected item-total correlations found. All items showed good

discrimination, with corrected item-total correlations ranging from .39 (Item 11) to .60 (Item 3). Alpha coefficient was .88 (95% CI [.87, .89]). The items of the AFQ-Y-8 also showed good discrimination (corrected item-total correlations from .48 for Item 1 to .58 for Item 2) and an alpha coefficient of .82 (95% CI [.80, .83]).

INSERT TABLE 1 ABOUT HERE

3.2.   Validity evidence based on internal structure

3.2.1.   Dimensionality

Table 2 shows that the overall fit of the one-factor model of the AFQ-Y was very good: $S\text{-}B\chi^2(119) = 397.709$, $p < .05$; RMSEA = .046, 90% CI [.041, .052], CFI = .99, NNFI = .99, ECVI = .428, 90% CI [.376, .487], SRMR = .042. The fit of the two-factor model of the AFQ-Y was also very good: $S\text{-}B\chi^2(118) = 334.553$, $p < .05$; RMSEA = .041, 90% CI [.036, .046], CFI = .99, NNFI = .99, ECVI = .371, 90% CI [.325, .425], SRMR = .039. We selected the one-factor model because the differences in CFI and RMSEA between both models were lower than .01, and the correlation between Cognitive Fusion and Experiential Avoidance was very strong ($r = .92$). Accordingly, the one-factor structure appears to be the more parsimonious solution in this study.

INSERT TABLE 2 ABOUT HERE

The fit of the one-factor model of the AFQ-Y-8 was also very good: $S\text{-}B\chi^2(20) = 61.870$, $p < .05$; RMSEA = .044, 90% CI [.032, .057], CFI = .99, NNFI = .99, SRMR = .033. Figure 1 depicts the results of the standardized solutions of the one-factor model for both versions of the questionnaire.

INSERT FIGURE 1 ABOUT HERE

3.2.2.   Measurement invariance

Table 3 shows the results of the metric and scalar invariance analyses for the AFQ-Y. Measurement invariance was supported at both the metric and scalar levels across gender and age (8-12 and 13-18 years old) because changes in RMSEA and CFI were lower than .01. Likewise, the analyses also supported the metric and scalar invariance for the AFQ-Y-8 across gender and age (see Table 4).

INSERT TABLE 3 ABOUT HERE

INSERT TABLE 4 ABOUT HERE

3.3.   Criterion validity

Descriptive data on the AFQ-Y are presented in Table 5. The two-way ANOVA revealed statistically significant effects for gender (girls obtained higher scores than boys) ($F = 24.41$, $p < .001$, $\eta^2 = .028$), but not for age group ($F = 0.145$, $p = .70$, $\eta^2 < .001$) on the AFQ-Y scores. The two variables did not show a significant interaction effect ($F = 3.31$, $p = .07$, $\eta^2 = .004$).

INSERT TABLE 5 ABOUT HERE

3.4.   Concurrent and convergent validity

The correlations obtained by the AFQ-Y with other relevant constructs were theoretically coherent (see Table 6). The AFQ-Y showed very strong positive correlations with generalized pliance as measured by the GPQ-C. The AFQ-Y also showed strong correlations with emotional symptoms as measured by the subscales of the DASS-C and the DASS-21 for adolescents. Lastly, the AFQ-Y showed strong positive correlations with measures of pathological worry and repetitive negative thinking. The AFQ-Y-8 showed basically the same correlations as the AFQ-Y.

INSERT TABLE 6 ABOUT HERE

4. Discussion

Psychological inflexibility is a common factor involved in children and adolescents' psychological disorders (Coyne et al., 2011; Kashdan & Rottenberg, 2010; Ruiz, 2010). Accordingly, based on the AAQ, the AFQ-Y was designed to measure the degree of psychological inflexibility in children and adolescents. The aim of this study was to analyze the psychometric properties and factor structure of the AFQ-Y and its brief version (i.e., the AFQ-Y-8) in Colombian participants. In doing so, we slightly modified the vocabulary of the items of the Spanish version of the AFQ-Y used in Spain (Valdivia-Salas et al., 2017).

The AFQ-Y showed good internal consistency, with alpha values of .88 and .82 for the AFQ-Y and AFQ-Y-8, respectively. The correlations of both versions of the AFQ-Y with the other measures were in the expected direction. Specifically, the correlations between the AFQ-Y and emotional symptoms were between .57 and .63, which are very similar to those found in previous studies in children, adolescents, and adults (Ruiz, 2010). The AFQ-Y also showed strong correlations ($r = .65$) with generalized pliance, which it is consistent with previous studies (Ruiz et al., in press; Salazar et al., 2018). Individuals displaying generalized pliance seem to be more likely to engage in experiential avoidance, as social rules support considering aversive private experiences as events that should be avoided or escaped (Luciano, Valdivia-Salas, & Ruiz, 2012; Ruiz et al., in press; Törneke, Luciano, & Valdivia-Salas, 2008). Lastly, the AFQ-Y showed very strong correlations with repetitive negative thinking measures ($r = .70$ and .75). These correlations are higher than the ones usually seen in adults (e.g., Ruiz, 2014), which might mean that these constructs are more related in children and adolescents. Overall, the latter findings are in line with the

idea that psychological inflexibility is a common factor in the development and maintenance of psychological disorders in children and adolescents (Coyne et al., 2011).

Regarding factor structure, confirmatory factor analyses provided strong evidence of the one-factor (RMSEA = .046, CFI = .99, NNFI = .99, SRMR = .042), and two-factor (RMSEA = .041, CFI = .99, NNFI = .99, SRMR = .039) structures of the AFQ-Y. We selected the one-factor model because the differences in RMSEA and CFI between the two models were small and the correlation between the Cognitive Fusion and Experiential avoidance factors was extremely strong ($r = .92$). Thus, the one-factor model seems to be the more parsimonious model of the AFQ-Y. The results of the current study coincide with other studies suggesting that the AFQ-Y has a one-factor solution such as those of Greco et al. (2008), Simon and Verboon (2016), and Schweiger et al. (2017). However, these results differ from other studies in which the one-factor model did not obtain a good fit (Livheim et al., 2016; Renshaw, 2018; Valdivia-Salas et al., 2017). This divergence might be due to several reasons, such as cross-cultural and/or language differences, sample sizes, and the estimation method used in CFA. Further studies could analyze the goodness-of-fit of the one- and two-factor models adopting several estimation methods and also analyze measurement invariance across different cultures and languages.

With respect to the AFQ-Y-8, the current study adds strong evidence of the adequacy of the one-factor model (RMSEA = .044, CFI = .99, NNFI = .99, SRMR = .033). The consistent evidence regarding the factor structure of the AFQ-Y-8 has led some authors (e.g., Livheim et al., 2016; Simon & Verboon, 2016) to recommend using this short version. However, according to our data, the long version of the AFQ-Y performed well in Colombia; therefore, Colombian researchers and practitioners can choose either of the two versions. The main difference between the two versions is that the AFQ-Y showed higher

internal consistency than the AFQ-Y-8, which might compensate for the effort of applying the longer version to children and adolescents. The strong evidence of the one-factor structure of the AFQ-Y and AFQ-Y-8 implies that the two scales should have only one global score.

Both versions of the AFQ-Y showed scalar (or strong) measurement invariance across gender, thereby replicating the data of Simon and Verboon (2016). This study also replicates the finding of Muris et al. (2017) concerning girls' higher scores compared to boys. However, it is important to note that the study by Muris et al. did not present data on measurement invariance across gender. Therefore, this is the first study showing gender differences in scores on the AFQ-Y after confirming scalar measurement invariance. These differences are consistent with previous research showing small but statistically significant gender differences in the AFQ-Y or in measures of related constructs such as thought suppression (Greco et al., 2008; Muris et al., 2017; Wegner & Zanakos, 1994).

The results also supported the scalar measurement invariance of both versions of the AFQ-Y across age group (children and adolescents). To our knowledge, there was no evidence of the factorial equivalence of the AFQ-Y in children and adolescents. In this sense, this is one the most relevant findings of the current study because it permits comparing the developmental trajectories of psychological inflexibility. Specifically, the results of this study did not show significant differences in mean scores on the AFQ-Y between children and adolescents. In other words, this study adds preliminary evidence showing that the degree of psychological inflexibility does not tend to increase or decrease across these age groups.

Some limitations of the current study are worth mentioning. Firstly, the AFQ-Y was only correlated with other self-report measures, which may have inflated the correlations

that were found. Secondly, some of the instruments used to explore the convergent validity of the AFQ-Y lacked formal validation in Colombian samples (PSWQ-C, PTQ-C, and DASS-C). However, their internal consistencies were adequate and similar to the ones obtained in the validation studies. Thirdly, we did not include a sample of clinical participants to explore the psychometric properties of the AFQ-Y among them. To our knowledge, there is no evidence about the factorial equivalence of the AFQ-Y in clinical and nonclinical participants, which makes it difficult to compare their scores. Previous studies of factorial equivalence with adults using the AAQ-II have not been conclusive (Ruiz et al., 2016). Further studies should analyze this issue with children and adolescents using the AFQ-Y.

In conclusion, the current study showed that the Spanish adaptation of the AFQ-Y for Colombian participants yielded a one-factor structure and had good psychometric properties. The development of a measure of psychological inflexibility in children and adolescents can be useful in many ways for Colombian researchers and practitioners. Firstly, researchers can use the AFQ-Y to analyze the role of psychological inflexibility in children's development and psychopathology. Secondly, the AFQ-Y can be used to analyze the effect of psychological interventions to reduce psychological inflexibility in children and to test this reduction as a potential mediator of the intervention effect. The AFQ-Y can also be used for practitioners to identify children's inflexible pattern and monitor its evolution during therapy.

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Table 1

Item Description of the AFQ-Y, English Translation, and Corrected Item-Total

Correlations. Items of the AFQ-Y-8 are in Bold

Items	Corrected item-total correlation
1. Mi vida no estará bien hasta que consiga sentirme feliz [My life won't be good until I feel happy]	.51
2. Mis pensamientos y sentimientos me dificultan la vida [My thoughts and feelings mess up my life]	.59
3. Si estoy triste o tengo miedo es porque hay algo en mí que no funciona [If I feel sad or afraid, then something must be wrong with me]	.60
4. Las cosas malas que pienso sobre mí deben de ser ciertas [The bad things I think about myself must be true]	.54
5. No hago cosas nuevas sí creo que puedo equivocarme [I don't try out new things if I'm afraid of messing up]	.48
6. Para estar bien tengo que quitarme mis miedos y preocupaciones [I must get rid of my worries and fears so I can have a good life]	.43
7. Hago todo lo que puedo para no parecer tonto delante de otros [I do all I can to make sure I don't look dumb in front of other people]	.53
8. Intento por todos los medios borrar de mi mente los recuerdos dolorosos [I try hard to erase hurtful memories from my mind]	.51
9. No soporto el dolor [I can't stand to feel pain or hurt in my body]	.51
10. Si se me acelera el corazón es porque hay algo en mí que no funciona [If my heart beats fast, there must be something wrong with me]	.56
11. Rechazo los pensamientos y sentimientos que no me gustan [I push away thoughts and feelings that I don't like]	.39
12. Dejo de hacer las cosas que son importantes para mí cuando me siento mal [I stop doing things that are important to me whenever I feel bad]	.56
13. Me va peor en clase cuando tengo pensamientos tristes [I do worse in school when I have thoughts that make me feel sad]	.58
14. Digo cosas para parecer "chévere" delante de otros [I say things to make me sound cool]	.45
15. Ojalá tuviera una varita mágica con la que hacer desaparecer mi tristeza [I wish I could wave a magic wand to make all my sadness go away]	.57

16. Tengo miedo de mis sentimientos [I am afraid of my feelings]	.57
17. No puedo ser buen amigo si yo me siento mal [I can't be a good friend when I feel upset]	.51

Table 2

Goodness-of-fit Indexes of the One-factor and Two-factor Model of the AFQ-Y (17-Item

Version)

Goodness-of-fit indicators	One-factor model	Two-factor model
RMSEA [90% CI]	.046 [.041, .052]	.041 [.036, .046]
CFI	.987	.990
NNFI	.985	.988
SRMR	.042	.039
ECVI [90% CI]	.428 [.376, .487]	.371 [.325, .425]
S-Bχ^2 (*df*)	397.709 (119)	334.553 (118)

Note. CFI = Comparative Fix Index; ECVI = Expected Cross-Validation Index; NNFI = Non-Normed Fit Index; RMSEA = Root Mean Square Error of Approximation; S-Bχ^2 = Satorra-Bentler Chi-square Test; SRMR = Standardized Root Mean Square Residual.

Table 3

Metric and Scalar Invariance across Gender and Age of the One-Factor Model of the AFQ-Y (17-Item Version)

Model	RMSEA	ΔRMSEA	CFI	ΔCFI
Measurement invariance across gender				
MG Baseline model	.0470		.988	
Metric invariance	.0472	-.0002	.987	-.001
Scalar invariance	.0477	-.0005	.986	-.001
Measurement invariance across age				
MG Baseline model	.0532		.983	
Metric invariance	.0577	-.0045	.979	-.0040
Scalar invariance	.0581	-.0004	.977	-.0020

Note. CFI = Comparative Fix Index; RMSEA = Root Mean Square Error of Approximation. There were 484 boys and 642 girls: 841 participants with ages ranging from 8-12 years and 286 with ages ranging from 13-18 years.

Table 4

Metric and Scalar Invariance across Gender and Age of the AFQ-Y-8

Model	RMSEA	ΔRMSEA	CFI	ΔCFI
Measurement invariance across gender				
MG Baseline model	.0486		.992	
Metric invariance model	.0476	.0010	.991	-.0010
Scalar invariance model	.0463	.0013	.990	-.0010
Measurement invariance across age				
MG Baseline model	.0539		.990	
Metric invariance model	.0574	-.0035	.987	-.0030
Scalar invariance model	.0555	.0019	.986	-.0010

Note. CFI = Comparative Fix Index; RMSEA = Root Mean Square Error of Approximation. There were 484 boys and 642 girls: 841 participants with ages ranging from 8-12 years and 286 with ages ranging from 13-18 years.

Table 5

Descriptive Data of the AFQ-Y and the AFQ-Y-8

Gender	Age	N	AFQ-Y M	AFQ-Y SD	AFQ-Y-8 M	AFQ-Y-8 SD
Boys	8-12 years	340	23.74	15.46	9.87	7.97
	13-18 years	144	21.33	13.60	8.97	6.55
Girls	8-12 years	501	27.14	15.41	10.98	7.94
	13-18 years	141	28.71	14.64	12.88	7.43
Global		1126	25.79	15.19	10.63	7.71

Note. AFQ-Y = Avoidance and Fusion Questionnaire – Youth; AFQ-Y-8 = Avoidance and Fusion Questionnaire – Youth – 8.

Table 6

Pearson Correlations between the GPQ-C and other relevant Self-Report Measures

Measures	*r* with AFQ-Y	*r* with AFQ-Y-8
AFQ-Y-8	.93***	--
GPQ-C	.65***	.59***
PSWQ-C	.70***	.71***
PTQ-C	.75***	.74***
DASS-C – Depression[a]	.58***	.62***
DASS-21 – Depression[b]	.63***	.63***
DASS-C – Anxiety[a]	.59***	.61***
DASS-21 – Anxiety[b]	.60***	.60***
DASS-C – Stress[a]	.58***	.57***
DASS-21 – Stress[b]	.60***	.60***

Notes. [a]Participants aged between 8 and 12 years ($N = 840$), [b]Participants aged between 13 and 18 years ($N = 287$). AFQ-Y = Avoidance and Fusion Questionnaire – Youth; DASS-C = Depression, Anxiety, and Stress Scale - Children; DASS-21 = Depression, Anxiety, and Stress Scale – 21; GPQ-C = Generalized Pliance Questionnaire – Children; PSWQ-C = Penn State Worry Questionnaire – Children; PTQ-C = Perseverative Thinking Questionnaire – Children.
***$p < .001$.

Figure 1. Standardized solution of the one-factor model of the AFQ-Y and the AFQ-Y-8
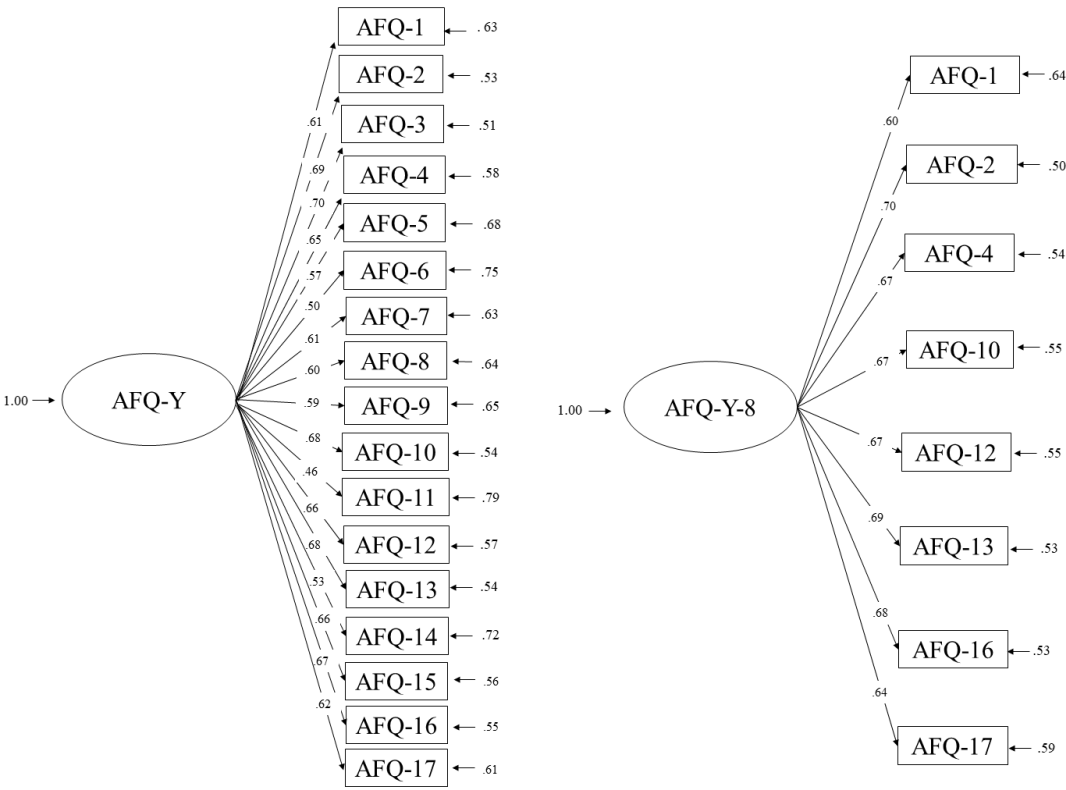
Appendix A. Spanish version of the AFQ-Y for Colombian children and adolescents.

Utilizando la escala de abajo, indica hasta qué punto te identificas con cada una de las siguientes frases.

0	1	2	3	4			
Nunca	**Raramente**	**A veces**	**Frecuentemente**	**Casi siempre**			

	0	1	2	3	4
1. Mi vida no estará bien hasta que consiga sentirme feliz	0	1	2	3	4
2. Mis pensamientos y sentimientos me dificultan la vida.	0	1	2	3	4
3. Si estoy triste o tengo miedo es porque hay algo en mí que no funciona.	0	1	2	3	4
4. Las cosas malas que pienso sobre mí deben de ser ciertas.	0	1	2	3	4
5. No hago cosas nuevas si creo que puedo equivocarme.	0	1	2	3	4
6. Para estar bien tengo que quitarme mis miedos y preocupaciones.	0	1	2	3	4
7. Hago todo lo que puedo para no parecer tonto delante de otros.	0	1	2	3	4
8. Intento por todos los medios borrar de mi mente los recuerdos dolorosos.	0	1	2	3	4
9. No soporto el dolor.	0	1	2	3	4
10. Si se me acelera el corazón es porque hay algo en mí que no funciona.	0	1	2	3	4
11. Rechazo los pensamientos y sentimientos que no me gustan.	0	1	2	3	4
12. Dejo de hacer las cosas que son importantes para mí cuando me siento mal.	0	1	2	3	4
13. Me va peor en clase cuando tengo pensamientos tristes.	0	1	2	3	4
14. Digo cosas para parecer "chévere" delante de otros.	0	1	2	3	4
15. Ojalá tuviera una varita mágica con la que hacer desaparecer mi tristeza.	0	1	2	3	4
16. Tengo miedo de mis sentimientos.	0	1	2	3	4
17. No puedo ser buen amigo si yo me siento mal.	0	1	2	3	4

Appendix B. Spanish version of the AFQ-Y-8 for Colombian children and adolescents.

Utilizando la escala de abajo, indica hasta qué punto te identificas con cada una de las siguientes frases.

0	1	2	3	4				
Nunca	**Raramente**	**A veces**	**Frecuentemente**	**Casi siempre**				
1. Mi vida no estará bien hasta que consiga sentirme feliz				0	1	2	3	4
2. Mis pensamientos y sentimientos me dificultan la vida.				0	1	2	3	4
3. Las cosas malas que pienso sobre mí deben de ser ciertas.				0	1	2	3	4
4. Si se me acelera el corazón es porque hay algo en mí que no funciona.				0	1	2	3	4
5. Dejo de hacer las cosas que son importantes para mí cuando me siento mal.				0	1	2	3	4
6. Me va peor en clase cuando tengo pensamientos tristes.				0	1	2	3	4
7. Tengo miedo de mis sentimientos.				0	1	2	3	4
8. No puedo ser buen amigo si yo me siento mal.				0	1	2	3	4