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Psychometric Properties of the Generalized Pliance Questionnaire -Children

Daniela M Salazar, Francisco J Ruiz*, Cindy L Flórez

Fundación Universitaria Konrad Lorenz, Colombia

Juan C Suárez Falcón

Universidad Nacional de Educación a Distancia, Colombia

ABSTRACT

Empirical research on pliance, a functional class of rule-governed behavior, has been scarce in children. This study aims to develop a children version of the Generalized Pliance Questionnaire (GPQ), a self-report developed for adults that has shown excellent psychometric properties, a one-factor structure, and criterion validity. In so doing, we adapted the vocabulary of some the GPQ items and eliminated the items with content typical of adult life. Afterwards, the GPQ for children (i.e., GPQ-C) was administered to a sample of 797 Colombian children from 8 to 13 years. All items of the GPQ-C showed good discrimination indexes and the whole questionnaire showed adequate internal consistency. A cross-validation study was conducted to analyze the factor structure of the questionnaire. The analysis showed that a one-factor structure showed a good fit to the data. The GPQ-C showed measurement invariance across gender and age group. Girls obtained higher scores than boys on the GPQ-C. Also, the GPQ-C scores seemed to decrease with age. The GPQ-C strongly correlated with measures of psychological inflexibility, repetitive negative thinking, pathological worry, and emotional symptoms. In conclusion, the GPQ-C seems to be a valid and reliable measure of generalized pliance for children.

Key words: generalized pliance, rule-governed behavior, relational frame theory, acceptance and commitment therapy, children.

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Novelty and Significance

What is already known about the topic?

- The pattern of rule-governed behavior with social approval being the main source of reinforcement has been called generalized pliance.
- The Generalized Pliance Questionnaire (GPQ) has been recently developed to measure generalized pliance in adults.

What this paper adds?

- Adaptation of the GPQ to children (GPQ-C).
- The GPQ-C showed good psychometric properties and a one-factor structure.
- The GPQ-C showed positive correlations with measures of emotional symptoms, repetitive negative thinking, and psychological inflexibility.

The distinction between contingency-shaped behavior (CSB) and rule-governed behavior (RGB) has been recognized in behavior analysis for a long time (Skinner, 1966). CSB refers to behavior that is shaped by the direct consequences. For example, a little, 6-year-old girl avoids touching a candle because in the past, she had a painful experience when doing so. Contrarily, in RGB, the individual behaves under the control of a rule provided by another person or by herself, without needing to experience the direct consequences of the behavior. For instance, the girl could avoid touching the candle just because someone told her not to touch it.

* Correspondence: Francisco J Ruiz, Fundación Universitaria Konrad Lorenz, Carrera 9 bis, N° 62-43, Bogotá (Cundinamarca, Colombia). Email: franciscoj.ruizj@konradlorenz.edu.co.

RGB is an important verbal repertoire because the individual might learn more rapidly how to behave in different contexts (Hayes, 1989). Also, rules can specify abstract and probabilistic consequences that exert control over behavior (Törneke, Luciano, & Valdivia Salas, 2008). Hence, RGB is essential to the child's socioemotional development (Luciano, Gómez Becerra, & Valdivia Salas, 2002). However, RGB can also have a negative aspect because it tends to be more sensitive to socially mediated consequences than to immediate environmental contingencies. This phenomenon is well known in behavior analysis and it is called insensitivity to contingencies (e.g., Hayes, Brownstein, Zettle, Rosenfarb, & Korn, 1986; Matthews, Shimoff, Catania, & Sagvolden, 1977; Vaughan, 1989).

Relational frame theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001) provides an explanation of rule-understanding based on having fluency in different types of derived relational responding (or relational framing), such as coordination (i.e., "same as"), comparative (i.e., "more than," "less than"), hierarchical (i.e., "belongs to," "contains"), temporal (i.e., "before," "after"), causal (i.e., "if... then"), and deictic ("I-you," "here-there," "now-then") (Barnes-Holmes *et alii*, 2001; Luciano, Valdivia Salas, & Ruiz, 2012). The higher the fluency in relational framing, the more the child can understand new rules that have never been reinforced.

According to RFT, pliance is usually the first type of RGB that is developed because of its relational simplicity (Hayes, Gifford, & Hayes, 1998). Pliance is a functional class of rule-following that results from a history of multiple examples in which a speaker provides the listener with reinforcement contingent on the correspondence between the rule and the relevant behavior (Hayes, Zettle, & Rosenfarb, 1989; Zettle & Hayes, 1982). For instance, in the example mentioned above, the girl could avoid touching the candle because her mother told her that she would stop loving her if she touched it. This rule-following is a ply (i.e., an instance of pliance) because the girl follows the rule to avoid a socially mediated consequence (i.e., her mother taking away her love).

A second type of functional class of RGB, that is called tracking, usually develops after some practice with pliance (Hayes *et alii*, 1998; Luciano, Valdivia Salas, Cabello Luque, & Hernández, 2009). Tracking is RGB under the control of a history of multiple exemplars in which doing what is stated in the rule is followed by the natural consequences derived from the way the world is arranged (Barnes-Holmes *et alii*, 2001; Hayes *et alii*, 1989; Luciano *et alii*, 2012). In the previous example, the 6-year-old girl could avoid touching the lit candle because of deriving the rule "the candle is hot and if I touch it I will get burned like when I touched something hot before." In this example, the girl derived a new self-rule that describes the natural consequences (i.e., getting burned) of a behavior (i.e., touching something hot). The transition from pliance to tracking has been seen as an important aspect of the child's development because tracking promotes more flexibility in the child's behavior due to its sensitivity to environmental contingencies (Hayes *et alii*, 1998; Hayes, Gifford, & Ruckstuhl, 1996; Luciano *et alii*, 2002; Luciano *et alii*, 2009; Törneke *et alii*, 2008). However, the proper development of tracking needs a social community providing multiple exemplars by which the child is guided to discriminate the natural consequences of her behavior (e.g., guiding to discriminate them when following previous plys). Therefore, in the absence of these multiple exemplars, pliance will be the predominant type of RGB in the child's repertoire (Luciano *et alii*, 2009). As an aside, note that RFT specifies another type of rule-following called augmenting, which is due to relational networks that alter the reinforcing functions of events (Barnes-Holmes *et alii*, 2001). However,

because augmenting is rarely seen in its pure form but instead interacting with pliance or tracking (Luciano *et alii*, 2012; Törneke *et alii*, 2008; Zettle & Hayes, 1982), we are not mentioning it in this article for purposes of clarity and simplicity.

The predominance of pliance can prevent the individual from contacting the natural or direct consequences of her behavior (Catania, Matthews, & Shimoff, 1990; Hayes *et alii*, 1986; Monestès, Villatte, Stewart, & Loas, 2014). Take, for example, a young child who only cleans up his room because he will have television privileges after he does it. In this case, the child is not contacting the most immediate natural consequence of his behavior, which is having his room clean and having more space to play. This can make the child less likely to clean up the room if the mother is not around and consequently to have ineffective organization habits that may affect him later. Furthermore, this predominance of pliance can be the breeding ground for social approval to become the main source of reinforcement for the individual because, as the child develops higher fluency in relational framing, the reinforcing consequences of pliance become more abstract. For instance, being loved and approved by others might become the reinforcer at the top of a hierarchical relational network containing more concrete social reinforcers (Barnes-Holmes, Barnes-Holmes, McHugh, & Hayes, 2004). When this occurs, concrete social reinforcers that were not so important before can gain importance because they are linked to being loved and approved of (e.g., a smile or praise of a friend can become more reinforcing because they mean “being loved”). This pattern of behavior, in which social approval becomes the main source of reinforcement, has been called generalized pliance by Törneke *et alii* (2008) and Luciano *et alii* (2012).

Generalized pliance might increase insensitivity to contingencies because the more abstract the desired social consequences are, the harder it is for direct consequences to control behavior (Luciano *et alii*, 2012). For instance, imagine an 8-year old boy displaying generalized pliance. As social approval becomes the main source of reinforcement for the boy, his behavior may become excessively controlled by others' opinions of him. For instance, the boy might do something to please a schoolmate that can have negative consequences for him later (e.g., stealing the math test to help his friend who had not studied). Likewise, the boy could also solve the math problems by rigidly following the general procedure taught by the teacher without understanding what is being asked. In both examples, the boy is insensitive to the negative consequences of his behavior because his attention is only focused on the social contingencies he is receiving. Even worse, the boy might encounter situations in which the consequences provided by others become unpredictable and uncontrollable, which would lead to less contact with sources of positive reinforcement. Importantly, generalized pliance (or predominance of pliance) has been identified as a risk factor in the development of different psychopathologies (e.g., Luciano *et alii*, 2012; McAuliffe, Hughes, & Barnes-Holmes, 2014; Monestès *et alii*, 2014; Törneke *et alii*, 2008; Zettle, 2007) and is a relevant process in the model of mental health advocated by acceptance and commitment therapy (ACT; Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

Although the terms pliance and tracking are now more than 35 years old, a recent review by Kissi *et alii* (2017) has shown that few experimental research has been conducted to explore whether these concepts are referring to distinct functional classes of behavior. Experimental studies have found difficulties in designing instructions resembling pliance and tracking, probably because participants' personal history of RGB influences their performance more than the experimental rules. In other words, an experimentally-defined track can function as a ply if the participant had a learning history in which pliance

has been the predominant type of RGB; conversely, an experimentally-defined ply can function as a track if the participant had an extensive learning history with tracking. A recent exception to this has been the study by Kissi, Hughes, De Schryver, De Houwer, and Crombez (in press), in which an insensitivity effect was observed more clearly in the pliance condition compared to the tracking and no-instruction conditions. Similarly, although the distinction between pliance and tracking has been largely emphasized in ACT, there has been few attempts to measure these classes of RGB in psychopathology and clinical studies. This contrasts significantly with the attempts to measure other middle level terms advocated by ACT such as experiential avoidance (e.g., Bond *et alii*, 2011; Hayes *et alii*, 2004), cognitive fusion (Gillanders *et alii*, 2014) or values (Smout, Davies, Burns, & Christie, 2014).

One recent effort in the measurement of generalized pliance has been the design of the Generalized Pliance Questionnaire (GPQ; Ruiz, Suárez Falcón, Barbero Rubio, & Flórez, in press). The GPQ provides a measure of generalized pliance without emphasizing specific contexts or situations (e.g., friendships, work, couple relationships, etc.). It was developed through three studies with a total of 2127 participants. Initially, in Study 1, a pool of 77 items was created by five RFT researchers (three PhD students and two PhD graduates who have conducted multiple RFT studies). They were given the following definition of generalized pliance based on Törneke *et alii* (2008) and Luciano *et alii* (2012) to design the items: "Pliance is a functional class of rule-following in which the source of reinforcement is social. Generalized pliance occurs when the individual's repertoire is characterized by actions directed at obtaining social approval, which seems to be the main reinforcer in his/her life, and provokes a reduced sensitivity to other sources of stimuli control." Thirty-eight of the items were rated as high-quality by at least one of two experts in RFT and were administered to 130 undergraduates. This led to a preliminary version of the GPQ consisting of 18 items (i.e., GPQ-18).

In Study 2, the GPQ-18 was applied to 410 undergraduates. The results of the exploratory factor analysis (EFA) showed that the GPQ-18 can be considered as a unidimensional measure, and that all items showed good functioning. A shorter, 9-item version of the GPQ (i.e., GPQ-9) was also obtained. In Study 3, the GPQ-18 was applied to three samples, including large samples of undergraduates, general population, and a smaller clinical sample. Confirmatory factor analyses (CFA) showed that the one-factor model obtained a good fit for both the GPQ-18 and GPQ-9. Both versions of the GPQ showed excellent internal consistency and theoretically coherent correlations with a wide range of constructs. Regarding ACT processes, the GPQ showed strong positive correlations with experiential avoidance and cognitive fusion. Medium to strong positive correlations were found between the GPQ and emotional symptoms.

A further study has analyzed the criterion validity of the GPQ by analyzing its correlations with two well-known neuropsychological tests measuring insensitivity to contingencies (O'Connor, Byrne, Ruiz, & McHugh, 2017): the Iowa Gambling Task (csIGT; Dymond, Cella, Cooper, & Turnbull, 2010; Turnbull, Evans, Kemish, Park, & Bowman, 2006) and the Wisconsin Card Sorting Test (WCST; Berg, 1948; Grant & Berg, 1948). The results showed that the GPQ scores strongly correlated with both measures ($r = .56$ and $.44$ for the WCST and csIGT, respectively). Although self-report measure has well-known limitations, this finding indicates that the GPQ might be used for the selection of participants for experimental studies analyzing the insensitivity effect caused by pliance versus tracking (e.g., selecting participants with low or high scores on the GPQ). This rationale has been used frequently in the experimental analysis of

other ACT middle level terms such as experiential avoidance (e.g., López *et alii*, 2010; Ruiz, 2010; Zettle *et alii*, 2005).

An empirical research program investigating pliance in children has not yet been developed. To advance in this direction, this study aims to develop a children's version of the GPQ and examine its psychometric properties. After removing some items from the GPQ and adapting others to children, the GPQ was administered to a sample of 797 participants. A cross-validation study was conducted to assess the factor structure of the questionnaire. Measurement invariance across age group and gender was also explored. Convergent validity was tested by examining correlations with psychological inflexibility, emotional symptoms, and repetitive negative thinking. Lastly, as pliance is usually contextualized as children grow older, and tracking is developed through interactions with the social community, we explored differences in generalized pliance across age group. Also, as parenting usually differs between girls and boys across different cultures, we explored whether girls showed higher scores on generalized pliance than boys in view that in Latin America, parents usually give more importance to social interactions and following social rules in girls than in boys (Castillo, Sibaja, Carpintero, & Romero Acosta, 2015).

METHOD

Participants

The sample consisted of 797 participants (60.2% females) with ages ranging from 8 and 13 years ($M = 9.57$, $SD = 1.10$) and from third to eighth grade (equivalent to fourth to ninth grade in USA): 12% in 3rd grade, 44.9% in 4th, 19.4% in 5th, 16.9% in 6th, 3.5% in 7th, and 3.5% in 8th. All participants were Colombian and attended private (62.3%) or public schools (37.7%).

Instruments

Generalized Pliance Questionnaire -Children (GPQ-C). The GPQ-C consists of 8 items, which are rated on a 5-point scale (5= always true, 1= never true). The questionnaire is the result of reducing the original GPQ questionnaire for adults (Ruiz *et alii*, in press) and reducing the Likert-type scale from 7 to 5 points. Higher scores reflect more generalized pliance. Seven items of the GPQ were removed because of having content related to adult issues (i.e., Items 3, 6, 7, 10, 13, 15, and 16; e.g., "My main goal in life is to be recognized and respected by those around me," "If other people don't value my work, I feel as though it was not worth the effort"). Another three items were deleted to avoid overlapping content and contamination with emotional symptoms (Items 1, 17, and 18; note that a 9-item version of the GPQ for adults was also presented in Ruiz *et alii* (in press), hence we tried to obtain a scale of similar length for children). Some items were adapted by changing the wording from the original version to facilitate children's understanding: Item 4 was modified from "It is very important for me to feel accepted by other people" to "It is very important for me that others accept me;" Item 5 from "In order to be happy, I need people to value me" to "I need people to like me to feel happy;" Item 8 from "My decisions are very much influenced by others people's opinions" to "Other people's opinions very much influence my decisions;" Item 11 from "Hard work is only worth it if people recognize it," to "Working hard is only worth it if other people recognize it;" Item 12 from "It's essential that other people have a good impression of me," to "It is very important that others have a good impression of me;" and Item 14 from "I can't disappoint other people's expectations of me," to "I can't let people down" (see Appendix).

Avoidance and Fusion Questionnaire -Youth (AFQ-Y; Greco, Lambert, & Baer, 2008).

The AFQ-Y consists of 17 items, which are rated on a 5-point Likert-type scale (4= very true; 0= not at all true) and measures psychological inflexibility (e.g., “The bad things I think about myself must be true,” “I push away thoughts and feelings that I don’t like”). The AFQ-Y was originally developed and validated in USA (Greco *et alii*, 2008). The original study found an alpha of .90 and a one-factor structure. A Spanish version of the AFQ-Y was translated by Valdivia Salas, Martín Albo, Zaldívar, Lombas, and Jiménez (2017) for children in Spain. We used this Spanish version of the AFQ-Y, but adapted some of the items to the type of Spanish spoken by Colombian children. The AFQ-Y in this study showed good psychometric properties, with an alpha of .89 and a one-factor structure.

Depression, Anxiety, and Stress Scale -Children (DASS-Y). The DASS-Y 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. Alpha values in the current study were acceptable (.78, .79, and .69). This scale is an adaptation of the Depression Anxiety and Stress Scale (DASS; Lovibond & Lovibond, 1995), which is an instrument that is widely used in adults and has a good internal consistency (Ruiz, García Martín, Suárez Falcón, & Odriozola González, 2017).

Penn State Worry Questionnaire -Children (PSWQ-C; Chorpita, Tracey, Brown, Collica, & Barlow, 1997). This questionnaire consists of 14 items, which are rated on a 5-point Likert-type scale (5= always, 1= never) and is a measure of 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). In this study, we deleted the reverse scoring items because they have been difficult to understand for Spanish speakers (e.g., Ruiz, Monroy Cifuentes, & Suárez Falcón, 2018; Sandín, Chorot, Valiente, & Lostao, 2009). To translate the PSWQ-C, the back-translation method was followed as described in Muñiz, Elosua, and Hambleton (2013). The PSWQ-C demonstrated good psychometric properties (alpha of .88) and a one-factor structure.

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”). The alpha value found in the original study was .95. To translate the PTQ-C, the back-translation method was followed as described in Muñiz *et alii* (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 psychometric properties (alpha of .92) and a one-factor structure.

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 surroundings. Parents were given an informed consent form to allow children’s participation. Data collection was group-based and was conducted in a regular class in the schools by a trained psychologist. First, the children signed the assent forms and were then given the questionnaire package, which was completed anonymously. The administration of the questionnaire package took approximately 15-20 minutes. Participants were allowed to stop participating at any given time. The order of the questionnaires within the package was: DASS-Y, PSWQ-C, PTQ-C, AFQ-Y, and GPQ-C.

Data Analysis

Two random samples of approximately equal size were obtained through the SPSS 19® to conduct a cross-validation study to analyze the factor structure of the GPQ-C.

Missing values were handled by means of the Hot-Deck Multiple Imputation (Lorenzo Seva & Van Ginkel, 2016). In the first random sample, 35 values were missing (1.11% of the data), whereas in the second random sample, there were 38 missing values (1.18% of the data). The maximum number of missing values per participant was three, which only occurred with three participants. No participants were eliminated from the study.

In the first random sample, we conducted an exploratory factor analysis with the Factor 10.5 software (Lorenzo Seva & Ferrando, 2006). We selected the unweighted least squares (ULS) extraction method with Direct Oblimin rotation using polychoric correlations. The number of dimensions was determined by means of the optimal implementation of parallel analysis based on minimum rank factor analysis (PA; Timmerman & Lorenzo-Seva, 2011). An assessment of unidimensionality was conducted by computing Unidimensional Congruence (UniCo), Explained Common Variance (ECV), and Mean of Item Residual Absolute Loadings (MIREAL) indexes. Values larger than .95 and .85 in UniCo and ECV, respectively, suggest that data can be treated as essentially unidimensional; whereas for the MIREAL, a value lower than .30 suggests unidimensionality (Ferrando & Lorenzo Seva, 2017). To explore the internal consistency of the GPQ-C, coefficient alpha was computed with the first random sample, with the SPSS 19[®] providing 95% confidence intervals (*CI*). Corrected item-total correlations were obtained to analyze discrimination item indexes.

A robust diagonally weighted least squares (Robust DWLS) estimation method using polychoric correlations was adopted to conduct the Confirmatory Factor Analysis (CFA) using LISREL[®] (version 8.71, Jöreskog & Sörbom, 1999). We computed the Satorra-Bentler chi-square test and the following goodness-of-fit indexes for the one- and two-factor models: (a) the root mean square error of approximation (*RMSEA*), (b) the comparative fit index (*CFI*), (c) the non-normed fit index (*NNFI*), and (d) the standardized root mean square residual (*SRMR*). According to Hu and Bentler (1999), *RMSEA* values of 0.08 represent a good fit, and values below 0.05 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.

Additional CFAs were performed to test for metric and scalar invariances 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 (8-9 years and 10-13 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 allowed the eight unstandardized factor loadings to vary across gender, age, and type of school. The metric invariance model, which was nested within the multiple-group baseline model, placed equality constraints (i.e., invariance) on those loadings across groups. Lastly, the scalar invariance model, which was nested within the metric invariance model, is tested by constraining the factor loadings and items intercepts to be the same across groups. 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*, *CFI*, and *NNFI* 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 suggested by Cheung and Rensvold (2002) and Chen (2007) were met: (a) the difference in *RMSEA*

($\Delta RMSEA$) was lower than .01; (b) the differences in CFI (ΔCFI) and $NNFI$ ($\Delta NNFI$) were equal to or greater than -.01.

Descriptive data were calculated. A two-way analysis of variance (ANOVA) was computed to analyze differences in GPQ-C scores across gender and age. It was expected that GPQ-C scores would be lower for the group of 10-13 years than for the group of 8-9 years. Additionally, it was expected that girls would show higher scores on the GPQ-C than boys. The effect size for the ANOVA, eta-squared (η^2), was computed to analyze the magnitude of the differences across the independent variables. The values of η^2 can be interpreted according to the following guidelines: .01 small, .06 medium, and .14 large. Lastly, Pearson correlations between the GPQ-C and other scales were calculated to assess convergent construct validity.

RESULTS

Table 1 shows the items of the GPQ-C, their English translation, the descriptive data and corrected item-total correlations found. All items showed good discrimination, with corrected item-total correlations ranging from .41 (Item 8) to .59 (Item 7). Coefficient alpha was good (.81).

The first random sample consisted of 394 participants and was used to conduct the EFA. Bartlett's statistic was statistically significant (776.9(28), $p < .001$) and the result of the Kaiser-Meyer-Olkin (KMO) test was good (.87). The PA suggested extracting only one factor, which accounted for 48.9% of the variance (eigenvalue= 3.92). Table 1 also shows that factor loadings were high for all items: from .49 (Item 8) to .71 (Items 3 and 7). Values of UniCo (.98), ECV (.86), and MIREAL (.24) strongly supported the unidimensionality of the GPQ-C. In conclusion, the results of the conducted EFAs suggested that the GPQ-C can be treated as an essentially unidimensional measure.

As the EFA previously conducted indicated that the GPQ-C seems to be a unidimensional measure, the CFA was conducted with the second random sample ($N=403$) to analyze the fit of a one-factor model. The overall fit of the one-factor model in the GPQ-C was very good: $\chi^2_{S-B}(20) = 33.84$, $p < .05$; $RMSEA = .042$, 90% CI [.014, .065], $CFI = .98$, $NNFI = .99$, $SRMR = .040$. Figure 1 depicts the results of the standardized solution of the one-factor model for the GPQ-C.

Table 1. Item Description of the GPQ-C, English Translation, Corrected Item-Total Correlations and Factor Loadings from EFA with the First Random Sample.

Items	Corrected item-total correlation ($N=394$)	Factor loading EFA ($N=394$)
1. Me importa mucho lo que piensan mis amigos de mí [I care a lot about what my friends think of me]	.53	.62
2. Es muy importante que los demás me acepten [It's very important to feel accepted by other people]	.53	.67
3. Necesito que la gente me quiera para poder ser feliz [In order to be happy, I need people to like me]	.56	.71
4. Las opiniones de otras personas influyen mucho en mis decisiones [The opinions of others influence my decisions a lot]	.51	.64
5. Me preocupa mucho por dar una imagen perfecta de mí mismo [I worry a lot about giving a perfect image of myself]	.56	.66
6. Sólo merece la pena esforzarse si los demás te lo reconocen. [Making an effort is only worth it if others recognize it]	.53	.66
7. Es muy importante que los demás tengan una buena impresión de mí [It is very important for me that others have a good impression of me]	.59	.71
8. No soporto decepcionar a los demás [I cannot stand letting people down]	.41	.49

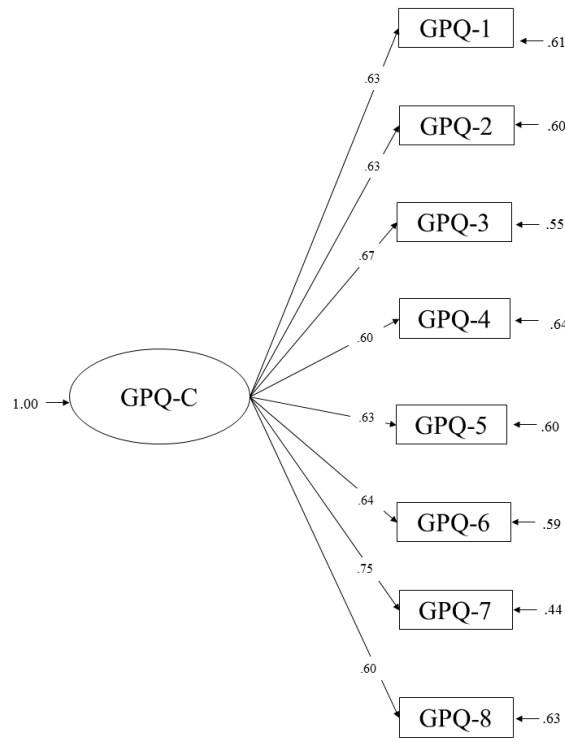


Figure 1. Standardized solution of the one-factor model of the GPQ-C.

Table 2. Metric and Scalar Invariance across Sex and Age.

Model		RMSEA	Δ RMSEA	CFI	Δ CFI	NNFI	Δ NNFI
Measurement invariance across sex	MG Baseline model	.0369		.996		.994	
	Metric invariance	.0370	-.0001	.995	.001	.994	.000
	Scalar invariance	.0350	.0002	.995	.000	.995	.001
Measurement invariance across age	MG Baseline model	.0481		.987		.981	
	Metric invariance	.0449	.0032	.986	-.001	.984	.003
	Scalar invariance	.0406	-.0043	.987	.001	.987	.003

Table 2 shows the results of the metric and scalar invariance analyses. Parameter invariance was supported at both the metric and scalar levels across gender and age (8-9 and 10-13 years old) because changes in *RMSEA*, *CFI*, and *NNFI* were lower than .01.

Descriptive data on the GPQ-C are presented in Table 3. The two-way ANOVA revealed small-size statistically significant effects for both gender (girls showed higher scores than boys) ($F= 9.85, p= .002, \eta^2= .014$) and age group (children between 8 and 9 years showed higher scores than those between 10 and 13 years; $F= 8.65, p= .003, \eta^2= .013$) on the GPQ-C scores. The two variables did not show a significant interaction effect ($F= 0.82, p= .37, \eta^2= .001$).

The correlations obtained by the GPQ-C with other relevant constructs were theoretically coherent (see Table 4). The GPQ-C showed very strong positive correlations with experiential avoidance and cognitive fusion as measured by the AFQ-Y, which is consistent with the suggestion made by Törneke *et alii* (2008) and Luciano *et alii*

Table 3. Descriptive Data of the GPQ-C.

Sex	Age	<i>M</i>	<i>SD</i>
Boys	8-9 years	20.22	8.07
	10-13 years	17.81	7.43
Girls	8-9 years	21.63	7.18
	10-13 years	20.35	7.84
Overall	Overall	20.30	7.83

Table 4. Pearson Correlations between the GPQ-C and Other Relevant Self-Report Measures.

Measures	<i>r</i> with GPQ-C
AFQ-Y	.72***
DASS – Depression	.42***
DASS – Anxiety	.46***
DASS – Stress	.44***
PSWQ-C	.58***
PTQ-C	.62***

Notes: AFQ-Y= Avoidance and Fusion Questionnaire-Youth; DASS= Depression, Anxiety, and Stress Scale; GPQ-C= Generalized Pliance Questionnaire-Youth; PSWQ-C= Penn State Worry Questionnaire-Children; PTQ-C= Perseverative Thinking Questionnaire Children; ***= $p < .001$.

(2012), and the data reported by Ruiz *et alii* (in press). The GPQ-C also showed strong correlations with emotional symptoms as measured by the subscales of the DASS-Y. Lastly, the GPQ-C showed strong positive correlations with measures of pathological worry and repetitive negative thinking.

DISCUSSION

Empirical research on functional classes of rule-governed behavior has been scarce in children. The GPQ-C was designed to measure the degree of pliance in Colombian children. In so doing, we adapted the vocabulary of some of the items of the adult version (i.e., GPQ) and eliminated the items with content typical of adult life. A cross-validation study was conducted to analyze the factor structure of the GPQ-C. The EFA computed showed strong evidence of a unidimensional measure. Subsequently, CFA supported the one-factor model for this version of the questionnaire. Likewise, measurement invariance was found across gender and age group. This means that these subgroups of children responded in a similar manner to the GPQ-C, which permits comparing their scores. The GPQ-C showed excellent internal consistency.

The GPQ-C showed the expected correlations with emotional symptoms, psychological inflexibility, repetitive negative thinking, and worry. The correlations found between the GPQ-C and emotional symptoms were similar to the ones reported by Ruiz *et alii* (in press) for the original GPQ study. With regard to worry and repetitive negative thinking, the correlations found were large, which indicates that children displaying higher levels of generalized pliance tend to engage more frequently in repetitive negative thinking. This seems logical because the higher need for social approval might trigger more worry and rumination about social issues, as they can be largely unpredictable. Lastly, the GPQ-C scores showed a very strong correlation with psychological inflexibility as measured by the AFQ-Y ($r = .72$). This correlation was higher than the ones found

in the development of the GPQ for adults (r values between .48 and .54). This might indicate that generalized pliance is more related to psychological inflexibility in children than in adults, which seems coherent with the hypothesis of the decrease of generalized pliance as age increases. Further research might analyze this relationship and explore whether generalized pliance is a more important clinical target in children than in adults.

The data was coherent with the hypothesis that generalized pliance scores decrease with age. This is in line with the idea that pliance is the first type of rule-following developed in children, and it is relatively easy for it to generalize to some extent in early childhood. Also, the results indicated that generalized pliance was more prevalent in girls than in boys. This seems coherent with the Colombian way of educating children because more emphasis is given to social interactions in girls (Castillo *et alii*, 2015).

Some limitations of the current study are worth mentioning. Firstly, there is few experimental evidence that the terms pliance and tracking refer to different types of functional classes of RGB. The reason for this state of evidence is not clear, but it could be argued that it is due to issues with the definitions of these terms. Specifically, in their review, Kissi *et alii* (2017) indicated that it might be useful to consider alternative conceptual development within RFT such as the multidimensional, multilevel framework for the analysis of the dynamics of relational framing (MDML; Barnes-Holmes, Barnes-Holmes, Luciano, & McEnteggart, 2017). In this sense, the terms pliance and tracking might be considered as middle-level terms that can orient research and the MDML as a framework that can provide higher level of functional precision. While we largely agree with Kissi *et alii*'s (2017) suggestion, we still think that developing self-report instruments of these functional classes of RGB can be useful in applied contexts in a similar way that self-report measures of ACT middle-level terms such as experiential avoidance and values are useful for clinical purposes although they do not have a high level of functional precision. In summary, the utility of the GPQ-C should be considered with caution and in the context discussed in this paragraph.

Secondly, the GPQ-C was only correlated with other self-report measures, which may have inflated the correlations that were found. Further studies should explore the criterion validity of the GPQ-C against a behavioral task that measures insensitivity to contingencies, such as the WCST as in the study conducted by O'Connor *et alii* (2017). In this sense, in a small study, Salazar, Ruiz, and García Martín (2018) have compared the scores on the GPQ-C and the WCST of a group of children with learning difficulties ($n = 18$) aged between 7 and 8 years and a random group of control participants without learning difficulties ($n = 18$). As predicted, children with learning difficulties showed a higher mean score on the GPQ-C and the perseverance indicator of the WCST, which it is a measure of insensitivity to contingencies and, in neuropsychological terms, cognitive flexibility. The scores of the GPQ-C showed a strong correlation with the perseverance indicator ($\rho = .49$). These results provide preliminary evidence of the criterion validity of the GPQ-C and its potential utility in clinical contexts.

Thirdly, the term generalized pliance has not been profusely used in the RFT literature. To our best knowledge, the first time the term generalized pliance appeared was in the article by Wulfert, Greenway, Farkas, Hayes, and Dougher (1994). The term was then used by Törneke *et alii* (2008) to denote a pattern of RGB in which the individual behaves under the control of abstract, verbally constructed and socially mediated consequences. This conceptualization of generalized pliance has been followed in other papers (e.g., Luciano *et alii*, 2012) and it was the definition that guided the design of the GPQ (Ruiz *et alii*, in press). Further theoretical analyses should establish

whether the term generalized pliance is the best descriptor of the RGB pattern described by Törneke *et alii* (2008) and the two versions of the GPQ.

Fourthly, the GPQ-C does not provide a measure of pliance contextualized to different settings (e.g., school, family, etc.). This type of measures can be of great interest when working in these contexts. Lastly, the psychometric properties found in this study are exclusive to the Colombian population. Further studies should analyze the psychometric properties and validity of the GPQ-C in other Spanish-speaking countries and other languages.

In conclusion, this study presented the adaptation of the GPQ for children (i.e., GPQ-C) and it showed good psychometric properties. The GPQ-C can promote research on functional classes of RGB in applied settings, but it should be used with caution in view of the scarce experimental evidence that the terms pliance and tracking refer to different types of functional classes of RGB.

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APPENDIX

Spanish version of the GPQ-C

Debajo encontrarás una lista de afirmaciones. Por favor, puntúa en qué grado cada afirmación ES VERDAD PARA TI haciendo un círculo en los números de al lado. Utiliza la siguiente escala para hacer tu elección.

1	2	3	4	5
Nunca es verdad	Pocas veces es verdad	A veces es verdad	Frecuentemente es verdad	Siempre es verdad
✚ Me importa mucho lo que piensan mis amigos de mí.			1 2 3 4 5	
✚ Es muy importante que los demás me acepten.			1 2 3 4 5	
✚ Necesito que la gente me quiera para poder ser feliz.			1 2 3 4 5	
✚ Las opiniones de otras personas influyen mucho en mis decisiones.			1 2 3 4 5	
✚ Me preocupo mucho por dar una imagen perfecta de mí mismo.			1 2 3 4 5	
✚ Sólo merece la pena esforzarse si los demás te lo reconocen.			1 2 3 4 5	
✚ Es muy importante que los demás tengan una buena impresión de mí.			1 2 3 4 5	
✚ No soporto decepcionar a los demás.			1 2 3 4 5	

English version of the GPQ-C

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5
Never true	Seldom true	Sometimes true	Frequently true	Always true
1. I care a lot about what my friends think of me			1 2 3 4 5	
2. It's very important to feel accepted by other people			1 2 3 4 5	
3. In order to be happy, I need people to like me			1 2 3 4 5	
4. The opinions of others influence my decisions a lot			1 2 3 4 5	
5. I worry a lot about giving a perfect image of myself			1 2 3 4 5	
6. Making an effort is only worth it if others recognize it			1 2 3 4 5	
7. It is very important for me that others have a good impression of me			1 2 3 4 5	
8. I cannot stand letting people down			1 2 3 4 5	