

The Basic Empathy Scale: Evidence of Internal Structure in the Brazilian Context

Gleudson Diego Lopes Loureto¹
 Layrthton Carlos de Oliveira Santos¹
 Marcos Vítor Costa Castelhana¹
 Délis Sousa Benevides¹
 Hugo Horácio de Lucena¹
 Vinícius Silveira Leite¹

¹Centro Universitário de Patos, Patos, Paraíba, Brasil

Abstract

This study aimed to investigate evidence for the internal structure of the 20 item Basic Empathy Scale (BES-20), and verify the parameters of each of its items. The participants totaled 300 subjects from the community sample who answered both the BES-20 and demographic questions. The results indicated a two-factor measure involving: affective empathy ($\alpha = .84$ and $\omega = .84$) and cognitive empathy ($\alpha = .84$ and $\omega = .84$). Analyses using Item Response Theory demonstrated that the items of the BES-20 properly discriminated between participants, requiring low levels of latent trait for agreement/checking-off responses in each category. In addition, we developed a 10 item (short-form) version (BES-10) which when compared to the full version yielded equivalent psychometric parameters and information scores. Overall, both the BES-20 and BES-10 were confirmed as qualified for psychometric use in future studies to measure empathy in Brazil.

Keywords: empathy; adaptation; validity; item response theory

Escala de Empatia Básica: Evidências de Estrutura Interna no Contexto Brasileiro

Resumo

Este estudo objetivou conhecer as evidências da estrutura interna da Escala de Empatia Básica (BES-20) e os parâmetros de seus itens. Contou-se com a participação de 300 sujeitos da população geral que responderam a BES, além de perguntas demográficas. Os resultados indicaram uma solução composta por dois fatores para a medida com os fatores de empatia afetiva ($\alpha = 0,84$ e $\omega = 0,84$) e empatia cognitiva ($\alpha = 0,84$ e $\omega = 0,84$). Análises via Teoria de Resposta ao Item demonstraram que os itens da BES-20 discriminam adequadamente os participantes e exigem baixa quantidade de traço latente para o endosso de suas categorias de resposta. Além disso, forneceu-se uma medida reduzida composta por 10 itens (BES-10) com parâmetros psicométricos e taxas de informação comparável à versão com 20 itens. Conclui-se que ambas as versões da BES reúnem evidências que corroboram sua qualidade psicométrica, podendo ser utilizadas em estudos futuros que objetivem mensurar a empatia no Brasil.

Palavras-chave: empatia; adaptação; validade; teoria de resposta ao item.

Escala Básica de Empatía: Evidencias de Estructura Interna en el Contexto Brasileño

Resumen

Este estudio tuvo como objetivo conocer las evidencias de la estructura interna de la Escala Básica de Empatía (EBE-20) y los parámetros de sus ítems. Participaron 300 personas de la población general que respondieron la EBE-20 y preguntas demográficas. Los resultados indicaron una solución de dos factores: empatía afectiva ($\alpha = .84$ y $\omega = .84$) y empatía cognitiva ($\alpha = .84$ y $\omega = .84$). Los análisis a través de la Teoría de Respuesta al Ítem demostraron que los ítems de la EBE-20 discriminan adecuadamente los participantes, y requieren una cantidad baja de rasgos latentes para la aprobación de sus categorías de respuesta. Además, se proporcionó una medida reducida que consta de 10 ítems (EBE-10) con parámetros psicométricos y tasas de información comparables a la versión con 20 ítems. Se concluye que ambas versiones de la EBE recogen evidencias que corroboran su calidad psicométrica y pueden ser utilizadas en futuros estudios que tengan como objetivo medir la empatía en Brasil.

Palabras clave: empatía; adaptación; validez; teoría de respuesta al ítem.

Introduction

In a global sense, empathy involves the reaction experienced when observing the experience of another (Mitsopoulou & Giovazolias, 2015) and constitutes a personal competence which contributes to initiating and maintaining desirable interpersonal relationships (Zych et al., 2020). Empathy allows an individual to

perceive the emotions of others, whether emotionally or cognitively, along with considering their perspective. It is distinguishing between one's own emotions and those of others (Eisenberg, 2000; Riess, 2017). Empathy enables a relationship of congruence between the observer and the target subject (Eisenberg, Shea, Carlo, & Knight, 1991). The contemporary conceptualization of this construct as a psychological phenomenon

brings a multidimensional perspective that encompasses both its affective and cognitive dimensions (Ang & Goh, 2010).

Affective empathy refers to the ability to experience the same emotions as others (i.e., emotional congruence; Bryant, 1982). A direct consequence of this ability is seen in the motivation of people to express altruistic behavior towards others, to maximize their positive emotions (e.g., happiness) or reduce their negative emotions (e.g., fear; Davis, 1996). Cognitive empathy, in turn, refers to the ability to recognize and understand the emotions of others (Hogan, 1969), the ability to adopt someone else's perspective and, by extension, infer their thoughts and feelings (Preston & De Waal, 2002). In practical terms, cognitive empathy allows a given individual to be able to predict the behavior of another person, facilitating dialogue, and social understanding (Smith, 2006).

Empathetic affective and cognitive processes can be understood as mechanisms that sometimes promote or sometimes inhibit behavior (Decety, Bartal, Uzefovsky, & Knafo-Noam, 2016). In practical terms, studies have shown that the empathy construct has implications for understanding situations in daily life, such as antisocial and pro-social behaviors. The literature has documented that low levels of empathy (in non-virtual contexts) are specifically associated with perpetration of bullying in the school environment (Zych et al., 2019a), with reductions in both ethnic and religious confrontation, and with racial prejudice (Cikara, 2015). On the internet, antisocial acts such as cyber-bullying (Zych et al., 2019b) and "internet trolling" behavior (i.e., cyber-trolls) generate conflict on the internet by provoke others (Sest & March, 2017). However, both affective and cognitive empathy present demonstrated pro-social behavior motivating functions (See Eisenberg, Eggum, & Di Giunta, 2010), for example, volunteering or donating to charities, or inhibiting aggressive behavior (Rodriguez, Mesurado, & Moreno, 2019).

In addition to predicting behavior, empathy is related to the more stable individual characteristics, or personality. With regard to studies modeled on the five great personality factors (i.e., the Big Five), although still inconclusive, studies show that the traits of agreeableness and conscientiousness are the most consistent predictors of affective and cognitive empathy (Melchers et al., 2016), presenting medium-sized effects. Yet all of the socially aversive personality traits (i.e., narcissism, psychopathy, and Machiavellianism) are negatively associated with affective empathy ($r = -.21; -.52, \text{ and } -.40,$

respectively), indicating deficits in the ability to feel the same emotions as others. On the other hand, the data shows that such traits do not present significant losses in cognitive empathy, with only narcissism being positively and significantly related to this factor, and presenting a low magnitude correlation (Wai & Tiliopoulos, 2012).

Similarly, various studies have raised sociodemographic correlates for empathy. As for sex, the commonly accepted stereotypes suggest that women have a greater capacity to understand the thoughts and feelings of others than men (Klein & Hodges, 2001). In fact, empirical studies corroborate that women have higher levels of empathy than men (e.g., Schieffman & Van Gundy, 2000), this is a consistent finding in research (Jolliffe & Farrington, 2006). Certain studies have sought to prove factorial invariance in relation to the participants' sex with instruments ensuring the interpretability of the data (e.g., the Basic Empathy Scale - BES; Anastácio et al., 2016; Pechorro et al., 2018). In relation to other variables, it is evident that as age advances, empathy increases (Oh et al., 2020), and that being married contributes to higher levels of empathy, as well as having children (Park et al., 2016; Wang et al., 2017). Finally, having siblings is also associated with higher levels of empathy (Park et al., 2016).

Although in recent research and psychological practice the empathy construct has received more attention (Romera et al., 2019). Instruments to measure the variable were already available in the late 1960s; specifically, the *Hogan Empathy Scale* (HES) (Hogan, 1969), the *Questionnaire Measure of Emotional Empathy* (QMEE; Mehrabian & Epstein, 1972) and the *Interpersonal Reactivity Index* (IRI; Davis, 1983). However, these measures present certain limitations. Initially, concerning the QMEE and IRI measures, Jolliffe and Farrington (2006) pointed out that both instruments treat empathy and sympathy constructs as synonymous variables, yet empathy implies an emotional reaction quite similar to the target person's emotion, while sympathy may not necessarily generate the same emotion (Eisenberg & Strayer, 1987). Additionally, none of the three scales, according to Jolliffe and Farrington (2006), measure cognitive empathy. For example, though IRI possesses a "perspective-making" factor which is similar to the cognitive empathy variable, it does not imply a specific ability to understand the other's emotions, but only the ability to assume their perspective.

As a result of the above scenario, Jolliffe and Farrington (2006) proposed the *Basic Empathy Scale* (BES), designed to measure empathy as a process involving

both understanding and sharing someone else's emotional state or context (Cohen & Strayer, 1996). It allows consideration of affective congruence (i.e., affective empathy) and understanding the other's emotions (i.e., cognitive empathy). Thus, BES, with its structure involving two latent factors, appears to overcome the limitations of the other instruments, since HES measures only cognitive empathy, QMEE measures only affective empathy, and IRI, although it measures both dimensions, is, as already mentioned, imprecise in its operationalization of the cognitive facet.

Jolliffe and Farrington (2006) constructed the initial version of the BES instrument (consisting of 40 items). In their first study, the authors used a sample of 363 English adolescents with a mean age of 14.8 years. Using principal component analysis (PCA), the authors reported a structure with two factors, affective and cognitive empathy, which respectively explained 19.5% and 7.6% of the total variance. Subsequently, the authors eliminated items with individual factorial loads of less than .40 (i.e., empirical criteria), and in the final version, the BES-20 was developed using 11 items for the affective dimension (Cronbach's $\alpha = .85$) and 9 items for the cognitive (Cronbach's $\alpha = .79$). From a new sample of 357 adolescents, the authors then performed confirmatory factor analysis on the total database ($N = 720$), and in summary, they observed adequate fit indices for the two-factor solution (e.g., goodness of fit index $GFI > .85$, and an adjusted goodness of fit index $AGFI > .80$), which was superior to the alternative, single-factor model.

Recently, various studies have validated the BES in different contexts. For example, the BES-20 brings psychometric evidence as attested to in samples from adolescents in: Italy (Albiero et al., 2009), France (D'Ambrosio et al., 2009), Turkey (Topçu & Erdur-Baker, 2012), China (Geng, Xia & Qin, 2012), Singapore (Ang & Goh, 2010), Portugal (Pechorro et al., 2015) and Poland (Zych et al., 2020). Likewise, the instrument has presented evidence of validity (i.e., consistent with the expected two factor structure) and satisfactory reliability in samples using adults in Spain (Salas-Wright et al., 2012), and in France (Carré et al., 2013). In Latin America, the measure has been validated only in Peru (Merino-Soto & Grimaldo-Muchotrigo, 2015). In Brazil, the IRI (Sampaio et al., 2011), the Infant-Youth Empathy Scale (Kirst-Conceição & Martinelli, 2014), and the *Bryant* Empathy Scale for children and adolescents (Koller et al., 2001) are the only instruments possessing validation studies.

In summary, given that the BES-20 is one of the most used measures of empathy in the world (Zych et al., 2020), as well as the fact that it presents satisfactory psychometric properties in differing contexts, the present study had the general objective of adapting the BES-20 to the Brazilian context. As a specific objective, we sought to provide a brief version of the instrument, with operational advantages such as shorter administration time, greater participant engagement, and greater response accuracy (Krueger et al., 2013), yet that also presents the ability to execute large-scale studies that measure various psychological constructs (Ziegler et al., 2014). For this compact version, based on the internal structure and precision of the measure: two evidence hubs for validity were considered: (1) evaluation of the factorial structure and internal consistency of the measure, and (2) investigation of its discrimination and difficulty parameters, and its information curve. This, to select the psychometrically most appropriate measure items (i.e., the least redundant), to maintain the measuring power for the construct (Rammstedt & Beierlein, 2014).

Method

Translation and adaptation of the BES to the Brazilian context

The procedures for translation and adaptation of BES were conducted according to the guidelines of the International Test Commission (ITC, 2010), and standardized for Portuguese by Borsa, Damásio, and Bandeira (2012). Thus, considering the original language of the BES, two independent translators proceeded to translate the measurement items from English into Portuguese. In addition to the translation itself, experts were asked to recode all inverse items (i.e., those which measure in the opposite direction of the construct), this, because of their likely negative impacts on the psychometric properties of the measure (Suárez-Alvarez et al., 2018). This has already been observed in adaptation processes in other cultural contexts (e.g., Poland; Zych et al., 2020) in which some of the inverted items were not properly understood by the participants (Heynen et al., 2016). Back translation (Portuguese to English) was then performed by a new independent translator. After these procedures, the original and back-translated versions of the instrument were compared by psychologists - evaluators, which concluded that the scales were semantically analogous. In addition, semantic validation of the measure was performed in the target

population, with eight adults participating. As a result of this last phase, the final version of this scale was reached (Table 1).

Participants

Participants were 300 individuals from the Brazilian population with ages varying between 18 and 58 years ($M_{\text{age}} = 22.91$, $SD = 5.86$), being 186 university students, and 114 participants from the general population. In addition, the majority declared themselves as being female (65.3%), single (77.7%), middle class (49.0%), heterosexual (72.7%), and Catholic (54.7%).

Instruments

Participants answered an online questionnaire that, in addition to sociodemographic questions (age, sex, sexual orientation, marital status, and religion), contained the Basic Empathy Scale (BES-20). Originally developed by Jolliffe and Farrington (2006). This scale consists of a 20-item self-report measure designed to assess empathy from a two-factor structure: affective empathy (11 items; e.g., “I am easily influenced by the feelings of my friends.”), and cognitive empathy (9 items; e.g., “I often notice when people are happy.”). The set of items was answered on a five-point ordinal response scale (ranging from 1 = strongly disagree to 5 = strongly agree).

Procedures

Data collection was performed online. People were contacted through social networks (e.g., Facebook, Instagram), and asked to respond voluntarily to self-administered instruments. In addition, the prerogatives provided for in resolutions 510/16 of the National Health Council regarding the regulation of research with human beings were respected, with each participant declaring his consent by signing a Free and Informed Consent Form. This research was approved by the Ethics Committee for Research with Human Beings at the Federal University of Paraíba (Opinion no. 3,939,602), and on average, it took the participants 10 minutes to complete their responses to the study.

Data analysis

Evidence of validity based on the internal structure and accuracy of the BES-20 was investigated via Exploratory Factor Analysis (EFA), using the Unweighted Least Squares (ULS) estimator, and the polychoric correlation matrix as input, given the measure's nature in being composed of ordered categories (Holgado-Tello et al., 2010). To determine the number

of factors to be extracted, the *Hull* method was applied in order to find an ideal estimate that best represented the relationship between the fit of the model and the number of parameters. This procedure was verified using the *Comparative Fit Index* indicator ($CFI \geq .90$; Lorenzo-Seva et al., 2011). For internal consistency, *Cronbach's* alpha, and *McDonald's* omega indexes were used. The analyses were performed using the *Factor* program version 10.8.01 (2018) (Lorenzo-Seva & Ferrando, 2013).

For Item Response Theory (IRT) analysis, R language was used with software version 3.3.2 (R Development Core Team, 2015), considering a Graded Response Model (Samejima, 1969), since the response scale was polytomous. The statistical package *mirt* (Chalmers, 2012) was used to estimate the discrimination and difficulty parameters, and the item information score as well.

Results

Evidence of Validity: internal structure and BES accuracy

The data were analyzed using the *Factor* program, with exploratory factor analysis (EFA). Initially, the data matrix was favorable (*Kaiser-Meyer-Olkin* = .83; *Bartlett's* Sphericity Test = 2803.4 [190]; $p < .001$). As for EFA, using the *Hull* method (i.e., factor retention method) the results indicated a structure with two factors. It is noteworthy that interpretation of the data matrix used the oblique rotation method, (weighted *oblimin*; Lorenzo-Seva, 2000), since it was assumed that the two factors are correlated. In short, for the BES a factor structure was observed formed by two factors: affective empathy and cognitive empathy, which respectively explained 30% (*eigenvalue* = 8.34) and 15% (*eigenvalue* = 3.02) of the total variance (See Table 1).

As noted in Table 1, the Affective Empathy factor brought together 10 items, all of which presented adequate saturation levels ($>.30$), ranging from .39 (Item 4) to .71 (Item 17). This factor also presented satisfactory reliability indexes ($\alpha = .84$ and $\omega = .84$). Similarly, the second factor, Cognitive empathy, was formed by 10 items with adequate saturation levels ($>.30$), ranging from .31 (Item 9) to .82 (Item 20). As in the previous case, the reliability indexes were adequate ($\alpha = .84$ and $\omega = .84$). It is noteworthy that unlike the original study, it was observed that Item 1, “I am sensitive to the feelings of my friends” (in theory originating from the affective empathy factor), saturated the cognitive dimension factor. It was therefore disregarded in subsequent analyses

Table 1.
Factorial structure of the Basic Empathy Scale (BES)

Items	Content Description / Portuguese	Factor I	Factor II	h ²
17.	Sou facilmente influenciado pelos sentimentos dos meus amigos.	.71	.18	.54
2.	Depois de falar com um(a) amigo(a) que está triste geralmente também fico triste.	.70	.11	.51
7.	Fico triste quando vejo outras pessoas chorando.	.70	.13	.50
5.	Sou facilmente influenciado pelos sentimentos de outras pessoas.	.68	.04	.46
11.	Fico triste quando vejo coisas tristes na televisão ou em filmes.	.64	.12	.43
15.	Quando meus amigos estão nervosos, eu também fico nervoso(a).	.60	.11	.38
8.	Sou sensível aos sentimentos das outras pessoas.	.60	.30	.45
18.	A infelicidade dos meus amigos me faz ficar infeliz também.	.50	.24	.31
13.	Quando vejo as pessoas com raiva discutindo(brigando), me sinto perturbado emocionalmente.	.41	.05	.17
4.	Fico assustado quando assisto filmes de terror.	.39	-.01	.15
20.	Tenho facilidade em perceber quando os meus amigos estão felizes.	.08	.82	.68
16.	Tenho facilidade em perceber quando um(a) amigo(a) não está bem.	.07	.72	.53
12.	Geralmente costumo perceber como as pessoas se sentem mesmo antes de elas me dizerem.	.09	.69	.49
14.	Costumo perceber quando as pessoas estão felizes.	.05	.67	.46
10.	Geralmente consigo compreender quando meus amigos estão nervosos.	.14	.65	.45
6.	Tenho facilidade em perceber quando os meus amigos estão nervosos.	.12	.56	.33
3.	Consigo perceber a felicidade dos meus amigos quando acontecem coisas boas.	.08	.52	.27
19.	Geralmente estou ciente dos sentimentos dos meus amigos.	.18	.50	.29
1.	Sou sensível aos sentimentos dos meus amigos. ***	.36	.41	.30
9.	Quando as pessoas se sentem deprimidas geralmente entendo como elas se sentem.	.29	.31	.19
Number of items		10	10	
Eigenvalue		8.34	3.02	
Explained variance		30%	15%	
Cronbach α		.84	.84	
McDonald Ω		.84	.84	

Notes. Factor I = Affective empathy; Factor II = Cognitive empathy; h² = communalities; *** = item excluded from both the reliability calculation and subsequent analyses.

for presenting cross factorial loads (i.e., empirical exclusion criterion; Hair, Jr. et al., 2014).

BES Item Parameters: discrimination, difficulty, and information curves

As for analytical procedures via IRT (See Table 2), it was observed that the items of the Affective Empathy factor, when taken together, were highly discriminative (Mean = 1.73, SD = .53), the least discriminating items

were item 4 ($a = .78$), and item 13 ($a = .95$) whose discrimination was moderate. The most discriminating item was item 2 ($a = 2.39$), with very high discrimination. The other items presented high discrimination ($a > 1.35$). As for the item response thresholds in relation to the difficulty parameter ($b1 - b4$), items were found that required low amounts of latent trait - on average (Mean = $-.89$; SD = $.48$), ranging from -1.74 (item 8) to $-.20$ (item 15), as shown in Table 2.

When taken together, the Cognitive Empathy Factor items presented very high discrimination (Mean = 2.30, SD = .53), with item 9 ($a = .93$) being the least discriminative, being moderate together with item 13 ($a = 1.31$). The most discriminating item was item 20 ($a = 4.42$), with very high discrimination. The other items also presented very high discrimination ($a > 1.70$). As for the response thresholds of the items in relation to the difficulty parameter ($b_1 - b_4$), the existence of items was observed that required, on average, a low amount of latent trait ($M = -1.79$; $SD = .56$), ranging from -2.82 (item 9) to -1.66 (item 6). In summary, all presented low levels of difficulty, as did the affective empathy items (See Table 2).

Finally, for research purposes seeking to provide a more concise measure yet without losing psychometric quality, it was decided to test the information parameters using the 10 BES items distributed equally between factors (i.e., BES-10). Specifically, the decision to select the items was based on the item discrimination index (*parameter a*), and the information score provided by the two item sets. Thus, for the affective empathy factor, the items with the highest levels of discrimination and the greatest capacity for measuring theta information (θ) in the range of -3 to +3 were selected, that is, items: 7, 17, 2, 8 and 5, respectively (Figure 1A). Based on the mentioned criteria, for the cognitive empathy factor, items 20, 16, 10, 12 and 6 were respectively selected, (Figure

1C). The information scores for both BES factors are shown in Figure 1.

As can be seen in Figure 1, the information tests reveal the accuracy of the measurements. Specifically, both versions of BES, the original structure (Figures 1A and 1C) and the reduced version (Figures 1B and 1D) are capable of capturing the largest amount of information, approximately, in the range of -4.01 to 3.20, being greatly informative measures. In other words, BES is best suited to measure empathy in people presenting a theta (θ) in the mentioned range. Further, in addition to the original version of the BES, it was demonstrated as possible to have a short version of the instrument, the BES-10, with appropriate individual parameters. As shown in Table 3, the 10-item version maintains, in addition to the information score, “very high” discrimination scores for the affective (Mean = 2.09, SD = .27; $\alpha = .82$, and $\omega = .83$) and cognitive empathy facets (Mean = 2.90, SD = 1.03; $\alpha = .83$, and $\omega = .85$).

Discussion

The present study aimed to provide evidence for validity based on the internal structure of the Basic Empathy Scale (BES; Jolliffe & Farrington, 2006), as well as investigating the parameters of its items using a Brazilian adult sample. Despite the importance of the empathy construct in the performance of interpersonal

Table 2. Parameters of BES items (Gradual Response Model)

Affective empathy							Cognitive empathy						
It.	<i>a</i>	<i>b</i> ₁	<i>b</i> ₂	<i>b</i> ₃	<i>b</i> ₄	Inf.	It.	<i>a</i>	<i>b</i> ₁	<i>b</i> ₂	<i>b</i> ₃	<i>b</i> ₄	Inf.
2	2.03	-2.29	-1.49	-0.41	0.64	8.69	3	1.78	-3.86	-3.22	-2.68	-0.97	3.20
4	0.78	-2.48	-1.50	-0.53	0.59	2.40	6	2.15	-2.70	-2.43	-1.47	-0.04	5.01
5	1.93	-1.63	-0.85	0.14	1.18	4.07	9	0.93	-5.59	-3.92	-1.67	-0.13	3.31
7	2.35	-2.68	-1.66	-0.74	0.11	10.6	10	2.51	-2.74	-2.60	-1.33	-0.05	6.90
8	1.85	-3.89	-2.19	-1.06	0.15	5.30	12	2.01	-3.30	-1.87	-0.94	0.50	6.00
11	1.85	-2.30	-1.64	-0.73	0.29	4.63	14	2.42	-2.92	-1.71	-0.31	0.01	3.21
13	0.95	-3.50	-1.98	-0.53	1.01	1.20	16	3.19	-2.42	-2.09	-1.44	-0.03	7.92
15	1.71	-2.07	-0.86	0.56	1.56	4.00	19	1.31	-3.72	-2.45	-0.85	0.85	2.49
17	2.39	-1.54	-0.85	0.05	0.88	7.40	20	4.42	-2.79	-2.24	-1.40	-0.23	10.4
18	1.50	-2.56	-1.57	-0.33	0.83	2.84	-	-	-	-	-	-	-

Notes. It. = Item number; a = discrimination parameter; b1-4 = difficulty parameter; Inf. = Theta information (θ) for items in the range from -3 to +3.

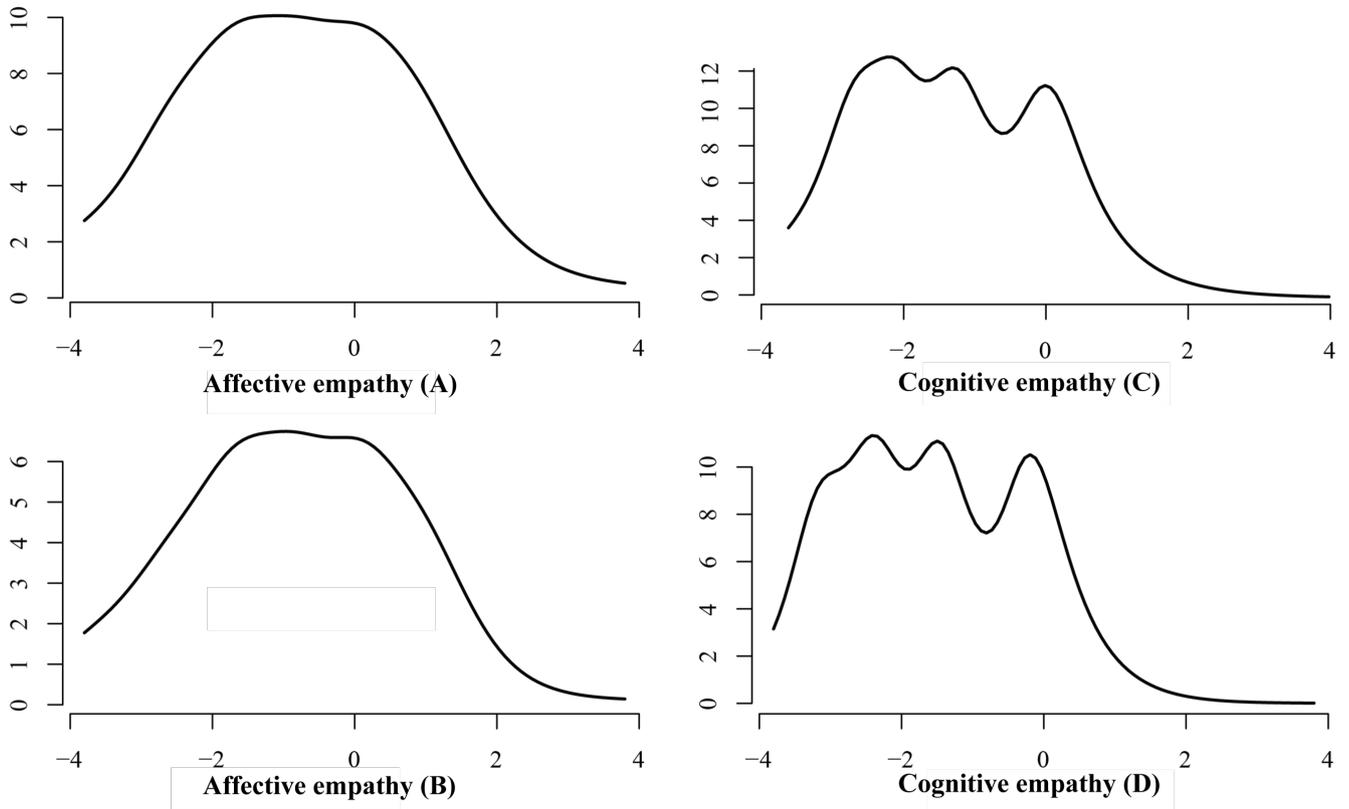


Figure 1. Test information curves: affective empathy, versions with 10 and 5 items, and cognitive empathy, versions with 9 and 5 items.

Table 3.
Parameters of the BES-10 items (Gradual Response Model)

Affective empathy							Cognitive empathy						
It.	<i>a</i>	<i>b</i> ₁	<i>b</i> ₂	<i>b</i> ₃	<i>b</i> ₄	Inf.	It.	<i>a</i>	<i>b</i> ₁	<i>b</i> ₂	<i>b</i> ₃	<i>b</i> ₄	Inf.
17	2.36	-1.57	-0.87	0.06	0.90	8.20	20	4.60	-3.02	-2.25	-1.38	-0.21	14.5
7	2.34	-2.68	-1.70	-0.74	0.13	8.74	16	3.06	-2.48	-2.11	-1.44	-0.01	8.13
5	2.11	-1.59	-0.82	0.14	1.15	6.81	10	2.63	-2.77	-2.62	-1.30	-0.04	9.00
8	1.98	-3.73	-2.16	-1.04	0.15	7.31	6	2.30	-2.65	-2.38	-1.42	-0.03	6.70
2	1.70	-2.50	-1.63	-0.45	0.71	5.20	12	1.92	-3.43	-1.90	-0.85	0.51	4.72

Notes. It. = Item number; *a* = discrimination parameter; *b*₁₋₄ = difficulty parameter; Inf. = Theta information (θ) for items in the range from -3 to +3.

and social functions, and providing the emotional bases for promoting pro-social behavior (Riess, 2017), empirical studies are still poorly systematized in the Brazilian context, such that certain gaps still need to be explored (e.g., studies in different stages of the human life cycle and contexts; Azevedo et al., 2018). In this sense, our efforts initially focused on adapting and validating an

up to date empathy measure widely used in several countries around the world.

Initially, in view of the complexity of the procedures for adapting psychological measures to other contexts (Cassepp-Borges et al., 2010), we considered the important steps in the process. Translating the instrument from the source language (i.e., English) into

the target language (i.e., Portuguese), synthesis of the initially translated versions, evaluation of the synthesized version by expert judges, and finally, evaluation of the measure using a target audience sample (Sireci et al., 2006) were all performed. Before the empirical testing (with data collection and analysis), we aimed to provide an improved measure by investigating the qualifications of the instrument through consideration of its basic characteristics (e.g., factorial structure, item semantics, instructions, etc.).

As for the dimensionality of the BES-20, the analytical procedures demonstrated its structure in two factors, formed by the affective and cognitive dimensions of empathy. The structure converged theoretically and empirically with studies conducted for this purpose, both in the original study (Jolliffe & Farrington, 2006) as well as in other countries around the world (e.g., Albiero et al., 2009; D'Ambrosio, et al., 2009; Geng et al., 2012, etc.). We note that the *Hull* method was applied to investigate the BES factorial solution (Lorenzo-Seva et al., 2011).

As to internal consistency, from the polychoric correlation matrix, both of the empathy factors presented adequate *McDonald's* omega levels. In addition to *Cronbach's* alpha internal consistency indicator, we opted for *McDonald's* omega because it presents greater reliability for instruments, and avoids underestimating internal consistency (Sijtsma, 2009). In *Cronbach's* alpha, this occurs due to the basic assumption of tau-equivalence, which calculates reliability assuming that all items have equal factor loads (Raykov, 1997). *McDonald's* omega estimator suggests an alternative index for psychological instrument reliability (Dunn, Baguley, Brunson, 2014), to allow greater precision in analysis of psychological measures.

Using the IRT procedures, adequate discrimination indexes were initially observed for the BES-20, such that most of the items (in accordance with the classification proposed by Baker, 2001), presented discrimination magnitudes ranging from moderate to very high. Altogether, the items of the affective and cognitive empathy factors presented very high discriminations (Baker, 2001). Such evidence assure quality in measuring and differentiating people with similar magnitudes in the latent empathy trait.

As for the difficulty parameter, in view of Pasquali's guidelines (2007), taken together, all items of the BES-20 presented low levels of difficulty, that is, the items required low latent trait levels to be agreed to and selected. Such results have theoretical support,

since empathy is both a socially desirable attribute, and opposes individual characteristics considered undesirable (e.g., lack of remorse with people, insensitivity, etc.; Wai & Tiliopoulos, 2012).

Finally, as explained, a reduced version of the measurement composed of 10 items, the BES-10, was tested and also presented adequate psychometric indices. Specifically, the test information curves were analyzed for both versions of the instrument; the procedure graphically represents the items' contribution to the information total (Castro et al., 2010) and allows selecting items that share more information, and which are consequently more central to the construct. In other words, the short version of the measure maintained both adequate discrimination scores and the ability to capture information concerning the latent trait of empathy. Concise instruments bring certain advantages (e.g., reducing the impact of inattention), and allow (in research contexts) greater measure accuracy in terms of validity and precision indicators (Rammstedt & Beierlein, 2014), as well as for inferences from empirical data.

Final considerations and future directions

In summary, this study presents a Portuguese version of the BES, an instrument to measure affective and cognitive empathy (Jolliffe & Farrington, 2006). Preliminary psychometric evidence corroborated the plausibility of the scale (i.e., internal structure and reliability) and its individual items (i.e., discrimination, difficulty, and information scores). The present study also aims to bridge operational gaps involving use of the construct in Brazil, since empathy is considered a fundamental variable both for the regulation of social interactions, as well as for social cohesion in general (Durlak et al., 2011). Once the initial step of providing an instrument with preliminary psychometric properties has been completed (Borsa et al., 2012), the measure will allow advancement of future studies in Brazil. Specifically, future research will be able to examine relationships between empathy and theoretically relevant psychological constructs; monitoring changes in empathy that may result from intervention programs (Zych et al., 2020), as well as helping in the construction of instruments for diagnostic purposes, making its use in clinical settings (as well as in research) possible (Pechorro et al., 2015).

Despite the above findings, corroborating evidence commonly found in the literature, the present study is not without limitations. First, there is the

non-probabilistic character of the sample, or being composed only of young adults, which makes it impossible to generalize any current results to the general Brazilian population. Second, the empathy measure is a self-reporting instrument; it is not possible to control the effects of *social desirability* on the participants' response.

For future directions, new studies are suggested that take into account: other sample strata (e.g., children, adolescents, and adult populations of 30 years old or more), social desirability (e.g., relationships to social desirability measures, and/or construction of implicit measures of the construct), as well as further evidence of convergent and predictive validity in Brazil (e.g., pro-social and antisocial behaviors, personality, etc.). Finally, in view of the recent theoretical discussions around this construct, confirmatory models (e.g., structural equation modeling) would be useful to test both the two-factor factorial model now found in the present study, as well as the triadic conception of empathy, (a perspective involving functional and dysfunctional components of empathic processes and responses in both adults and adolescents, i.e., emotional contagion, emotional disconnection, and cognitive empathy) (Carré et al., 2013).

References

- Albiero, P., Matricardi, G., Speltri, D., & Tosso, D. (2009). The assessment of empathy in adolescence: A contribution to the Italian validation of the Basic Empathy Scale. *Journal of Adolescence*, *32*(2), 393-408. <https://doi.org/10.1016/j.adolescence.2008.01.001>
- Anastácio, S., Vagos, P., Nobre-Lima, L., Rijo, D., & Jolliffe, D. (2016). *The Portuguese version of the Basic Empathy Scale (BES): Dimensionality and measurement invariance in a community adolescent sample*. *European Journal of Developmental Psychology*, *13*(5), 1-10. <https://doi.org/10.1080/17405629.2016.1167681>
- Azevedo, S. M. L., Mota, M. M. P. E., & Mettrau, M. B. (2018). Empatia: perfil da produção científica e medidas mais utilizadas em pesquisa. *Estudos Interdisciplinares em Psicologia*, *9*(3), 03-23. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S2236-64072018000300002&lng=pt&tlng=pt
- Ang, R. P., & Goh, D. H. (2010). Cyberbullying among adolescents: The role of affective and cognitive empathy, and gender. *Child Psychiatry & Human Development*, *41*(4), 387-397. <https://doi.org/10.1007/s10578-010-0176-3>
- Baker, F. B. (2001). *The basics of item response theory* (2nd ed.). Washington, DC: Eric Clearinghouse on Assessment and Evaluation.
- Borsa, J. C., Damásio, B. F., & Bandeira, D. R. (2012). Adaptação e validação de instrumentos psicológicos entre culturas: algumas considerações. *Paidéia*, *22*(53), 423-432. <https://doi.org/10.1590/S0103-863X2012000300014>
- Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development*, *53*(2), 413-425. <https://doi.org/10.2307/1128984>
- Carré, A., Stefaniak, N., D'ambrosio, F., Bensalah, L., & Besche-Richard, C. (2013). The Basic Empathy Scale in Adults (BES-A): Factor structure of a revised form. *Psychological assessment*, *25*(3), 679-691. <https://doi.org/10.1037/a0032297>
- Cassepp-Borges, V., Balbinotti, M. A. A., & Teodoro, M. L. M. (2010). Tradução e validação de conteúdo: Uma proposta para a adaptação de instrumentos. In L. Pasquali, *Instrumentação psicológica: Fundamentos e práticas* (pp. 506-520). Artmed.
- Castro, S. M. D. J., Trentini, C. M., & Riboldi, J. (2010). Teoria da resposta ao item aplicada ao Inventário de Depressão Beck. *Revista Brasileira de Epidemiologia*, *13*(3), 487-501. <https://doi.org/10.1590/S1415-790X2010000300012>
- Chalmers, R. P. (2012). Mirt: A Multidimensional Item Response Theory Package for the R Environment. *Journal of Statistical Software*, *48*(6), 1-29. <https://doi.org/10.18637/jss.v048.i06>
- Cikara, M. (2015). Intergroup schadenfreude: motivating participation in collective violence. *Current Opinion in Behavioral Science*, *3*, 12-17. doi: 10.1016/j.cobeha.2014.12.007
- Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology*, *32*(6), 988-998. <https://doi.org/10.1037/0012-1649.32.6.988>
- D'Ambrosio, F., Olivier, M., Didon, D., & Besche, C. (2009). The Basic Empathy Scale: A French validation of a measure of empathy in youth. *Personality and Individual Differences*, *46*(2), 160-165. <https://doi.org/10.1016/j.paid.2008.09.020>

- Davis, M. (1996). *Empathy: A social psychological approach*. Boulder, CO: West View Press.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113-126. <https://doi.org/10.1037/0022-3514.44.1.113>
- Decety, J., Bartal, I. B. A., Uzefovsky, F., & Knaf-Noam, A. (2016). Empathy as a driver of prosocial behaviour: highly conserved neurobehavioural mechanisms across species. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *371*(1686), 1-11. <https://doi.org/10.1098/rstb.2015.0077>
- Dunn, T. J., Baguley, T., Brunson, V. (2014). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *British Journal of Psychology*, *105*(3), 399-412. <https://doi.org/10.1111/bjop.12046>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405-432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Eisenberg, N. (2000). Emotion, regulation and moral development. *Annual Review of Psychology*, *51*, 665-697. <https://doi.org/10.1146/annurev.psych.51.1.665>
- Eisenberg, N., & Strayer, J., (Eds.). (1987). Critical issues in the study of empathy. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 3-16). Cambridge University Press.
- Eisenberg, N., Eggum, N. D., & Di Giunta, L. (2010). Empathy-related responding: Associations with prosocial behavior, aggression, and intergroup relations. *Social Issues and Policy Review*, *4*(1), 143-180. <https://doi.org/10.1111/j.1751-2409.2010.01020.x>
- Eisenberg, N., Shea, C. L., Carlo, G., & Knight, G. P. (1991). Empathy-related responding and cognition: A "chicken and the egg" dilemma. In W. M. Kurtines (Ed.), *Handbook of moral behavior and development, Research* (Vol. 2, pp. 63-88). Hillsdale: Erlbaum.
- Geng, Y., Xia, D., & Qin, B. (2012). The Basic Empathy Scale: A Chinese validation of a measure of empathy in adolescents. *Child Psychiatry & Human Development*, *43*(4), 499-510. <https://doi.org/10.1007/s10578-011-0278-6>
- Hair, J. R. Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis* (7th ed.). Harlow: Pearson Education Limited.
- Heynen, E. E., Van der Helm, G. P., Stams, G. M., & Korebrits, A. M. (2016). Measuring empathy in a German youth prison: A validation of the German version of the basic empathy scale (BES) in a sample of incarcerated juvenile offenders. *Journal of Forensic Psychology Practice*, *16*(5), 336-346. <https://doi.org/10.1080/15228932.2016.1219217>
- Hogan, R. (1969). Development of an empathy scale. *Journal of Consulting and Clinical Psychology*, *33*(3), 307-317. <https://doi.org/10.1037/h0027580>
- Holgado-Tello, F. P., Chacón-MoscOSO, S., Barbero-García, I., & Vila-Abad, E. (2010). Polychoric versus Pearson correlations in exploratory and confirmatory factor analysis of ordinal variables. *Quality & Quantity*, *44*(1), 153-166. <https://doi.org/10.1007/s11135-008-9190-y>
- International Test Commission. (2010). *Guidelines for Translating and Adapting Tests*. <http://www.intest-com.org>
- Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the basic empathy scale. *Journal of Adolescence*, *29*(4), 589-611. <https://doi.org/10.1016/j.adolescence.2005.08.010>
- Kirst-Conceição, A. C., & Martinelli, S. C. (2014). Análises psicométricas iniciais de uma escala de empatia infantojuvenil (EEmpa-IJ). *Avaliação Psicológica*, *13*(3), 351-358. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1677-04712014000300007
- Klein, K. J., & Hodges, S. D. (2001). Gender differences, motivation, and empathic accuracy: When it pays to understand. *Personality and Social Psychology Bulletin*, *27*(6), 720-730. <https://doi.org/10.1177/0146167201276007>
- Koller, S. H., Camino, C., & Ribeiro, J. (2001). Adaptação e validação interna de duas escalas de empatia para uso no Brasil. *Estudos de Psicologia (Campinas)*, *18*(3), 43-53. <https://doi.org/10.1590/S0103-166X2001000300004>
- Krueger, P. M., Emons, W. H. M., & Sijtsma, K. (2013). On the shortcomings of shortened tests: A literature review. *International Journal of Testing*, *13*(3), *Psico-USF, Bragança Paulista, v. 27, n. 3, p. 581-593, jul./set. 2022*

- 223-248. <https://doi.org/10.1080/15305058.2012.703734>
- Lorenzo-Seva, U. (2000). The weighted oblimin rotation. *Psychometrika*, *65*(1), 301-318. <https://doi.org/10.1007/BF02296148>
- Lorenzo-Seva, U., & Ferrando, P. J. (2013). FACTOR 9.2: A Comprehensive Program for Fitting Exploratory and Semiconfirmatory Factor Analysis and IRT Models. *Applied Psychological Measurement*, *37*(6), 497-498. <https://doi.org/10.1177/0146621613487794>
- Lorenzo-Seva, U., Timmerman, M. E., & Kiers, H. A. L. (2011). The Hull Method for Selecting the Number of Common Factors. *Multivariate Behavioral Research*, *46*(2), 340-364. <https://doi.org/10.1080/00273171.2011.564527>
- Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality*, *40*(4), 525-543. <https://doi.org/10.1111/j.1467-6494.1972.tb00078.x>
- Melchers, M. C., Li, M., Haas, B. W., Reuter, M., Bischoff, L., & Montag, C. (2016). Similar personality patterns are associated with empathy in four different countries. *Frontiers in psychology*, *7*, 1-12. <https://doi.org/10.3389/fpsyg.2016.00290>
- Merino-Soto, C., & Grimaldo-Muchotrigo, M. (2015). Validación estructural de la Escala Básica de Empatía (Basic Empathy Scale) modificada en adolescentes: un estudio preliminar. *Revista Colombiana de Psicología*, *24*(2), 261-270. <https://doi.org/10.15446/rcp.v24n2.42514>
- Mitsopoulou, E., & Giovazolias, T. (2015). Personality traits, empathy and bullying behaviour: A meta-analytic approach. *Aggression and Violent Behavior*, *21*, 61-72. <http://doi.org/10.1016/j.avb.2015.01.007>
- Oh, J., Chopik, W. J., Konrath, S., & Grimm, K. J. (2020). Longitudinal changes in empathy across the life span in six samples of human development. *Social Psychological and Personality Science*, *11*(2), 244-253. <https://doi.org/10.1177/1948550619849429>
- Park, C., Lee, Y. J., Hong, M., Jung, C. H., Synn, Y., Kwack, Y. S., ... & Bahn, G. H. (2016). A multi-center study investigating empathy and burnout characteristics in medical residents with various specialties. *Journal of Korean medical science*, *31*(4), 590-597. <https://doi.org/10.3346/jkms.2016.31.4.590>
- Pasquali, L. (2007). *Teoria de resposta ao item: teoria, procedimentos e aplicações*. Brasília: LabPAM/Unb.
- Pechorro, P., Jesus, S., Kahn, R., Gonçalves, R., & Barroso, R. (2018). A Versão Breve da Escala de Empatia Básica numa Amostra Escolar de Jovens Portugueses: Validade, Fiabilidade e Invariância. *Revista Iberoamericana de Diagnóstico y Evaluación*, *49*(4), 157-169. <https://doi.org/10.21865/RIDEP49.4.13>
- Pechorro, P., Ray, J. V., Salas-Wright, C. P., Maroco, J., & Gonçalves, R. A. (2015). Adaptation of the Basic Empathy Scale among a Portuguese sample of incarcerated juvenile offenders. *Psychology, Crime & Law*, *21*(7), 699-714. <https://doi.org/10.1080/1068316X.2015.1028546>
- Preston, S., & De Waal, F. (2002). Empathy: Its ultimate and proximate bases. *Behavioral and Brain Sciences*, *25*(1), 1-72. <https://doi.org/10.1017/s0140525x02000018>
- R Development Core Team. (2015). R: A language and environment for statistical computing. <https://cran.r-project.org/doc/manuals/fullrefman.pdf>
- Rammstedt, B., & Beierlein, C. (2014). Can't we make it any shorter? *Journal of Individual Differences*, *35*, 212-220. <https://doi.org/10.1027/1614-0001/a000141>
- Raykov, T. (1997). Scale Reliability, Cronbach's Coefficient Alpha, and Violations of Essential Tau-Equivalence with Fixed Congeneric Components. *Multivariate Behavioral Research*, *32*(4), 329-353. https://doi.org/10.1207/s15327906mbr3204_2
- Riess, H. (2017). The science of empathy. *Journal of patient experience*, *4*(2), 74-77. <https://doi.org/10.1177/2374373517699267>
- Rizopoulos, D. (2006). ltm: An R package for latent variable modeling and item response theory analyses. *Journal of statistical software*, *17*(5), 1-25. <https://doi.org/10.18637/jss.v017.i05>
- Rodriguez, L. M., Mesurado, B., & Moreno J. E. (2019). Ethical Position, Empathy and Prosocial Behaviour Model: Its Contribution to Prevention and Psychotherapeutic Approaches of Antisocial Disorders. In: Gargiulo P, Mesones Arroyo H. (eds) *Psychiatry and Neuroscience Update* (pp. 273-286). Springer, Cham.

- Romera, E. M., Casas, J. A., Gómez-Ortiz, O., & Ortega-Ruiz, R. (2019). Moral domain as a risk and protective factor against bullying. An integrating perspective review on the complexity of morality. *Aggression and Violent Behavior, 45*, 75-82. <https://doi.org/10.1016/j.avb.2018.07.005>
- Salas-Wright, C., Olate, R., & Vaughn, M. (2012). Assessing empathy in Salvadoran high-risk and gang-involved adolescents and young adults: A Spanish validation of the Basic Empathy Scale. *International Journal of Offender Therapy and Comparative Criminology, 57*(11), 1393-1416. <https://doi.org/10.1177/0306624X12455170>
- Samejima, F. (1969). Estimation of latent ability using a response pattern of graded scores. *Psychometrika Monograph Supplement, 34*(4), 100-114. <http://doi.org/10.1002/j.2333-8504.1968.tb00153.x>
- Sampaio, L. R., Guimarães, P. R. B., Camino, C. P. C., Formiga, N. S., & Menezes, I. G. (2011). Estudos sobre a dimensionalidade da empatia: tradução e adaptação do Interpersonal Reactivity Index (IRI). *Psico, 42*(1), 67-76. <https://revistaseletronicas.pucrs.br/ojs/index.php/revistapsico/article/view/6456>
- Schieman, S., & Van Gundy, K. (2000). The personal and social links between age and self-reported empathy. *Social Psychology Quarterly, 63*(2), 152-174. <https://doi.org/10.2307/2695889>
- Sest, N., & March, E. (2017). Constructing the cyber-troll: Psychopathy, sadism, and empathy. *Personality and Individual Differences, 119*, 69-72. <https://doi.org/10.1016/j.paid.2017.06.038>
- Sijtsma, K. (2009). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. *Psychometrika, 74*(1), 107-120. <https://doi.org/10.1007/s11336-008-9101-0>
- Sireci, S. G., Yang, Y., Harter, J., & Ehrlich, E. J. (2006). Evaluating guidelines for test adaptations: A methodological analysis of translation quality. *Journal of Cross-Cultural Psychology, 37*(5), 557-567. <https://doi.org/10.1177/0022022106290478>
- Smith, A. (2006). Cognitive empathy and emotional empathy in human behaviour and evolution. *The Psychological Record, 56*, 3-21. <https://doi.org/10.1007/BF03395534>
- Suárez-Alvarez, J., Pedrosa, I., Lozano Fernández, L. M., García-Cueto, E., Cuesta, M., & Muñoz, J. (2018). Using reversed items in Likert scales: A questionable practice. *Psicothema, 30*(2), 149-158. <https://doi.org/10.7334/psicothema2018.33>
- Topçu, C., & Erdur-Baker, Ö. (2012). Affective and cognitive empathy as mediators of gender differences in cyber and traditional bullying. *School Psychology International, 33*(5), 550-561. <https://doi.org/10.1177/0143034312446882>
- Wai, M., & Tiliopoulos, N. (2012). The affective and cognitive empathic nature of the dark triad of personality. *Personality and Individual Differences, 52*(7), 794-799. <https://doi.org/10.1016/j.paid.2012.01.008>
- Wang, C., Wu, Q., Feng, M., Wan, Q., & Wu, X. (2017). International Nursing: Research on the Correlation Between Empathy and China's Big Five Personality Theory. *Nursing Administration Quarterly, 41*(2), 1-10. <https://doi.org/10.1097/NAQ.0000000000000219>
- Ziegler, M., Kemper, C. J., & Krueger, P. (2014). Short scales – Five misunderstandings and ways to overcome them [Editorial]. *Journal of Individual Differences, 35*(4), 185-189. <https://doi.org/10.1027/1614-0001/a000148>
- Zych, I., Farrington, D. P., & Ttofi, M. M. (2019a). Protective factors against bullying and cyberbullying: A systematic review of metaanalyses. *Aggression and Violent Behavior, 45*, 4-19. <https://doi.org/10.1016/j.avb.2018.06.008>
- Zych, I., Baldry, A. C., Llorent, V. J., & Farrington, D. P. (2019b). Are children involved in cyberbullying low on empathy? A systematic review and meta-analysis of research on empathy in different cyberbullying roles. *Aggression and Violent Behavior, 45*, 83-97. <https://doi.org/10.1016/j.avb.2018.03.004>
- Zych, I., Farrington, D. P., Nasaescu, E., Jolliffe, D., & Twardowska-Staszek, E. (2020). Psychometric properties of the Basic Empathy Scale in Polish children and adolescents. *Current Psychology, 1-10*. <https://doi.org/10.1007/s12144-020-00670-y>

Recebido em: 15/12/2020

Reformulado em: 07/03/2021

Aprovado em: 11/05/2021

About the authors:

Gleidson Diego Lopes Loureto is a psychologist, graduate in Psychology at Federal University of Roraima (2016), and Doctor in Social Psychology by Federal University of Paraiba, Brazil. He is teacher in the Centro Universitário-UNIFIP (Patos, Paraiba, Brazil). His line of research include the fields of Social Psychology, Psychological Assessment and Data Analysis.

ORCID: <https://orcid.org/0000-0002-0889-6097>

E-mail: diegoloureto.dl@gmail.com

Layrthton Carlos de Oliveira Santos is a psychologist, Doctor in Social Psychology by Federal University of Paraiba, Brazil. He is teacher in the Centro Universitário-UNIFIP (Patos, Paraiba, Brazil). His line of research include the fields of Social Psychology (e.g., attitudes, social representations and prejudice).

ORCID: <https://orcid.org/0000-0002-9061-4879>

E-mail: layrthton.oliveira@gmail.com

Marcos Vitor Costa Castelhana is currently an undergraduate student in Psychology at Centro Universitário-UNIFIP (Patos, Paraiba, Brazil). His line of research include Social Psychology and Psychometrics.

ORCID: <https://orcid.org/0000-0002-0168-661X>

E-mail: marcosvitorcastelhana@hotmail.com

Délis Sousa Benevides is currently an undergraduate student in Psychology at Centro Universitário-UNIFIP (Patos, Paraiba, Brazil). Her line of research include Social Psychology and Psychometrics.

ORCID: <https://orcid.org/0000-0001-9810-6855>

E-mail: delissousa@hotmail.com

Hugo Horácio de Lucena is currently an undergraduate student in Psychology at Centro Universitário-UNIFIP (Patos, Paraiba, Brazil). His line of research include Social Psychology and Psychometrics.

ORCID: <https://orcid.org/0000-0002-5793-0108>

E-mail: hugohoraciol@gmail.com

Vinícius Silveira Leite is currently an undergraduate student in Psychology at Centro Universitário-UNIFIP (Patos, Paraiba, Brazil). His line of research include Social Psychology and Psychometrics.

ORCID: <https://orcid.org/0000-0003-4487-399X>

E-mail: viniussl.psi@gmail.com

Contact:

Gleidson Diego Lopes Loureto
Centro Universitário de Patos (UNIFIP)
Rua Horácio Nóbrega, N° S/N, Belo Horizonte
Patos-PB, Brasil
CEP: 58704-000