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Adaptation of the Learned Helplessness Scale in Brazil*

Cleno Couto** & Ronaldo Pilati

Universidade de Brasília, Brasília, DF, Brasil

ABSTRACT – The present study aimed to adapt the Learned Helplessness Scale (LHS) to Brazilian Portuguese and assess its psychometric properties and nomological network in a Brazilian sample. Participants completed an online survey that consisted of the LHS, Rosenberg's Self-Esteem Scale, and the Perceived Stress Scale. 429 people participated, aged 18-79, mostly women, from multiple regions of Brazil and socioeconomic status. Exploratory and Confirmatory Factor Analysis suggested a unidimensional solution with 18 items as appropriate. Correlations between the LHS and the other instruments also provided evidence of the expected nomological relationships. And we assessed the differences in LHS scores by sociodemographic data. These findings are favorable to the use of this instrument in Brazilian samples.

KEYWORDS: control, attribution of causality, factor analysis

Adaptação da Escala de Desamparo Aprendido no Brasil

RESUMO – Este estudo teve como objetivo adaptar a Escala de Desamparo Aprendido (LHS) para português e avaliar suas propriedades psicométricas e rede nomológica em uma amostra brasileira. Os participantes preencheram um formulário online que consistia na LHS, na Escala de Auto-Estima de Rosenberg e na Escala de Estresse Percebido. 429 pessoas participaram, com idades entre 18 e 79 anos, a maioria mulheres, de múltiplas regiões do Brasil e níveis socioeconômicos. As Análises Fatoriais Exploratória e Confirmatória sugeriram uma solução unidimensional com 18 itens como apropriada. As correlações entre a LHS e os outros instrumentos forneceram evidências da validade nomológica esperada. E diferenças nas pontuações da LHS por dados sociodemográficos foram avaliadas. Tais achados foram favoráveis ao uso deste instrumento no Brasil.

PALAVRAS-CHAVE: controle, atribuição de causalidade, análise fatorial

The concept of learned helplessness (LH) is traditional to psychological studies, dating back to Seligman and Maier's (1967) seminal experiments on the effects of uncontrollable aversive events (i.e., shocks) in dogs. In Portuguese language journals and sites, LH has been cited 247 times according to the Scientific Electronic Library Online (SciELO) Brazil and approximately 1,130 times according to Google Scholar (according to a search done in June of 2021). These results may not even correspond to the totality of Brazilian studies on this subject since publications in English by Brazilian authors were not considered. Although it is a highly known theory, up to this date, we have not found any attempts to create or adapt an instrument to measure LH in Brazil. This study aims to adapt the Learned Helplessness Scale (LHS; Quinless & Nelson, 1988) to Brazilian Portuguese.

Such instrument nonexistence in the Brazilian context may be a consequence of two problems with the loss of academic interest in this phenomenon globally. The first concerns the uncontrollable aversive events being insufficient to affect humans' behavior, cognition, and affection, as initially predicted (Miller & Norman, 1979). This was a consequence of the theory's disregard for the role of human cognition and our ability to form, adapt and use schemas to predict and influence future behavior (Miller & Norman, 1979).

Regarding this first problem, the original theory has gone through many revisions, and Abramson et al. (1978) proposed that uncontrollability would lead to LH when a person attributed this to (a) internal factors ("It's me!"), vs. external; (b) global situations ("It'll affect everything I do!"), vs. specific; and (c) stable situations through time

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** E-mail: ccmn@proton.me
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("It'll last forever!"), vs. unstable (Abramson et al., 1978; McKean, 1994). Miller and Norman (1979) also proposed a fourth attribution about the importance of the situation, in which important situations lead to greater LH. However, Abramson et al. (1978) and Quinless and Nelson (1988) considered this attribution represented by the other three.

The second problem concerns LH consequences, which are: behavioral, such as passivity, giving up, and procrastination; cognitive, such as decreased problem-solving ability, frustration, and lowered self-esteem; and affective, such as fear, dysphoria, and depression (Maier & Seligman, 1976; McKean, 1994). As some of its consequences trace back to depression symptoms and previous studies presented a high correlation between LH and depression (see McKean, 1994; Quinless & Nelson, 1988), the theory became known as a depression theory. Although, as pointed out by Costello (1978), it is not a good one, so interest seems to have drifted away from LH to more complex depression theories.

Despite its downfalls in depression research, Fontaine and Faria (1989) argued that LH is a relevant construct, mostly related to the contributions of attribution theory (Abramson et al., 1978). The addition of individual attributional patterns highlighted the dependence of the locus of control and its relevance in generating LH despite a consistent aversive situation, such as within a prison setting (Santos et al., 2007). Faria (1999) also suggests that the development and stability of attributional patterns come from individual and socializing experiences, making them culturally related. Therefore, they should differ based on the individual's context.

In that manner, further research found evidence that LH contributes to greater drug use and substance abuse (Sterling et al., 1996). It was prominent in women, the elderly, and people with low socioeconomic status within a Portuguese sample (Santos & Faria, 2008). It led Native Americans to seek social mobility through identification with majority groups (Schiefer & Krahé, 2014). And it mediated the relationship between social concerns (as an environmental concern) and consistent behaviors (such as donating to environmental causes) (Landry et al., 2018). Those findings point to LH still being relevant in our context, and it seems the research possibilities were not well developed yet. Especially with the COVID-19 pandemic, which affected all aspects of human life. For example, Zheng et al. (2020) found that perceived control (theoretically opposite from LH) led to greater coping with the pandemic effects in a Chinese sample. Also, Šrol et al. (2021) found that perceptions of risk associated with COVID-19, such as cognitive perception of risk and distrust of formal institutions to handle the pandemic, are associated with a stronger feeling of lack of control, and both are also associated with higher endorsement of conspiracy theories. Therefore, we consider there are further possibilities to explore the possible predictive role of LH in different domains of human behavior.

Quinless and Nelson (1988) proposed a measure for LH, which accounted for the advances by Abramson et al. (1978) regarding causal attribution effects and kept the uncontrollability dimension. The LHS was supposed to reflect four theoretical factors, although, its dimensionality was never consensual among different studies (see Santos et al., 2007). In Quinless and Nelson's (1988) study, the analysis presented a solution with five factors, one for each dimension of causal attribution and the last two with only two items each. The authors decided to retain those four items because they were related to the concept of LH, although its factors were not interpretable.

Despite that, several authors suggest treating the scale as essentially unidimensional (McKean, 1994; Quinless & Nelson, 1988; Sterling et al., 1996). And in more recent psychometric assessments in a Portuguese context, two studies came to the same conclusion of a unidimensional scale with high reliability (Santos et al., 2002; Santos et al., 2007).

As for its nomological network, aside from the previously commented relations, such as high correlation with depression scales and predictive relations, the LHS is moderate to strongly correlated with self-esteem (Quinless & Nelson, 1988) and perceived stress (Sullivan et al., 2012). Also, the Semantic Scale Network (Rosenbusch et al., 2020) indicated that the LHS maintains somewhat semantical unique items, with the most similar scales related to work (r = .57) and self-worth (r = .51), with the latter also related to self-esteem.

The present study aims to adapt the LHS to Brazilian Portuguese and evaluate its psychometric properties and nomological network in a Brazilian sample. We expect to find a unidimensional solution directly correlated with self-esteem and inversely correlated with perceived stress.

METHOD

This study's pre-registration, data, materials, and syntax are available in the Open Science Framework, https://osf.io/pt45x/.

Translation Procedures of the LHS

We followed the International Test Commission (ITC, 2017) and Borsa et al. (2012) guidelines. Therefore, the scale was initially translated by two independent translators (a specialist in psychometrics and a person of the general public) into Brazilian Portuguese, then these versions were synthesized. The synthesis consisted of combining the redaction of the translated items towards the most adequate contextual and conceptual adaptation. Three psychologists and three people from the general public then evaluated this version in terms of the generalization, clarity, redaction, and understanding of the items (Borsa et al., 2012). After minor changes that did not require a new evaluation, the

scale followed for a back-translation performed by a third independent translator. Finally, the back-translated version was sent for appraisal by a psychometrics specialist that deemed it adequate, since the scale authors did not respond in due time.

Participants

Considering the guidelines by Hair et al. (2005), the ratio of variables by observations should be 1:10, and the minimum sample size must be composed of at least 200 participants. However, for the proposed analyses this should be doubled, which increases this study's planned sample size to a total of 400 participants.

Anyone over 18 years old was allowed to participate, although we removed participants that did not complete the survey (n = 869) or failed the attention check items (n = 35). Non-probabilistic (through the researcher's social networks and Facebook Ads) sampling techniques were used, and the analyses consisted of 429 participants, which met the minimum sample size criterion.

Of those, 34.03% were from Federal District, 20.75% were from Sao Paulo, 8.62% were from Rio de Janeiro, and the rest was distributed in other Brazilian states; 80.65% identified as woman and 18.65% as man; aged 18-79 (M = 44.1; SD = 16.4; Mdn = 46); 43.59% were undergraduates, 21.91% were graduates, and 18.41% were high school students, the rest being distributed between postgraduates and middle school. The participants' monthly income was normally distributed and ranged from less than a minimum wage per month (BRL 1,100.00) to more than nine minimum wages per month (> BRL 9,900.00), with a peak of three to five minimum wages per month (BRL 3,300.00 – 5,500.00).

Instruments

The Brazilian version of the Learned Helplessness Scale (Quinless & Nelson, 1988). The LHS can be used to measure states of learned helplessness and consists of 20 items, answered on a four-point scale (1 = *Strongly disagree*; 4 = *Strongly agree*). Original validation study of this scale suggested a structure with five factors (α = .83-.94; Quinless & Nelson, 1988), although its usage and further validation studies suggest an essentially unidimensional structure (α = .90-.97; Santos et al., 2002; Santos et al., 2007). The LHS score is obtained by summing the item scores, ranging from 20 to 80, with scores above 41 indicating learned helplessness (McKean, 1994).

Rosenberg's Self-Esteem Scale (SES; Rosenberg, 1979), adapted for Brazil by Hutz and Zanon (2011) showed good reliability (α = .90). The SES is a unidimensional measurement that assesses global self-esteem through 10 items responded on a four-point scale (1 = *Strongly disagree*; 4 = *Strongly agree*). A Confirmatory Factor Analysis (CFA) considering the full sample presented an adequate goodness-of-fit index (*RMSEA* [90% BC CI] = .081 [.071, .092]; *CFI* = .984; *TLI* = .989) with factor loadings ranging from .64 to .91. Reliability indices were good, α = .95, ω = .97, and CR (Composite Reliability) = .98.

Perceived Stress Scale (PSS-10; Cohen et al., 1983), adapted for Brazil by Luft et al. (2007). The PSS measures the perception of individual stress in a global form, independent of stressor agents. The 10-item version is unidimensional, showed good reliability (α = .83), and can be responded in a five-point scale (0 = *Never*; 4 = *Always*). The CFA with full sample showed adequate goodness-of-fit indices (*RMSEA* [90% BC CI] = .029 [.013, .043]; *CFI* = .996; *TLI* = .998) with factor loadings ranging from .73 to .82. Reliability indices were good, α = .94, ω = .93 and *CR* = .93.

Procedures and Data Analysis

Participants were invited to access an online form available on the EFS platform (https://ww3.unipark.de/www/main.php) through a web link or QR Code. Divulgation was made with an image and text developed by the first author, containing a call to action. The form consisted of: (i) research presentation, information about data treatment, confidentiality, and researchers' identification and contact information, a free and informed consent checkbox was required to proceed; (ii) the SES, a first attention check item, and the PSS-10; (iii) the LHS and a second attention check item; and (iv) sociodemographic data, such as age, gender, education, and monthly income. Participants took approximately eight minutes on average to complete the form.

Attention check items appeared similar to other items in the form. Both items have a statement that read: "This is an attention check item, mark [option] and proceed with the form." The first attention check asked the participant to mark *agree*, the second attention check, the correct answer was *disagree*.

In the data analysis stage, the sample was randomly split into two approximate halves to evaluate the LHS factor structure with an Exploratory Factor Analysis (EFA; n = 214) and assess its adequacy with a CFA (n = 215). Given the ordinal nature of the scale, a polychoric matrix was used with 500 bootstrap samplings in both analyses. Also, confidence intervals (CI) are reported. Each sample was assessed for its adequacy with the Kaiser-Meyer-Olkin (KMO) test which is acceptable if greater than .70 (Damásio, 2012).

The EFA was implemented through the FACTOR software, version 10.10.03, and the factor retention criterion was the Parallel Analysis with Optimal Implementation technique (PA; Timmerman & Lorenzo-Seva, 2011) and the Hull Method (HM; Lorenzo-Seva et al., 2011) was used to confirm the solution. The Robust Diagonally Weighted Least Squares (RDWLS; Asparouhov & Muthen, 2010)

extraction method was used since it is adequate for ordinal variables with normality deviation, and items with loadings under |.30| were excluded.

The H index and the Closeness to Unidimensionality Assessment were also analyzed. The first evaluates how much a set of items represents a common factor, with high H values (> .80) suggesting a well-defined latent variable that is more likely to remain stable in different studies (Ferrando & Lorenzo-Seva, 2018). The second verifies whether the scale can be understood as unidimensional and includes three indices: the Unidimensional Congruence (UniCo), which must be greater than .95; the Explained Common Variance (ECV), which must be greater than .85; and the Mean of Item Residual Absolute Loadings (MIREAL), which must be lower than .30 (Ferrando & Lorenzo-Seva, 2018).

Since FACTOR runs a Semi-Confirmatory Factor Analysis (SCFA) along with the EFA, the goodness-of-fit indices derived from that analysis were evaluated as well. For that, we used the Root Mean Square Error of Approximation (RMSEA) which should be less than .08, the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI) which should be above .90, or preferably .95 (Brown, 2006).

The CFA was implemented using the lavaan package, version 0.6-8, (Rosseel, 2012) for R. Although stated differently in the pre-registration, this analysis was conducted with the RDWLS estimation method as it is more appropriate for ordinal measures and complements the EFA. The same fit indices of the SCFA were assessed.

With the confirmed factor structure for the LHS, we assessed the evidence of nomological validity through the polychoric correlation between the LHS, the SES, and the PSS-10 factor score estimates using the psych package, version 2.1.3, (Revelle, n.d.) for R. Also, we assessed exploratory differences in LHS scores by sociodemographic data through t-tests and robust ANOVAs with the WRS2 package, version 1.1, (Mair & Wilcox, 2020) for R. Considering the robust ANOVAs computed by this package, the procedures consider: (a) for the test statistics, the trimmed means and allows heteroscedasticity; (b) for the explanatory effect size measure (ξ), it does not require equal variances and can be generalized to multiple groups settings, its interpretation consider .10 corresponding to a small effect size, .30 to a medium effect size, and .50 to a large effect size; and, (c) for the posthoc tests, it is computed on trimmed means and use the linear contrast expression, represented by Ψ (Mair & Wilcox, 2020).

RESULTS

The polychoric correlation matrix was considered appropriate for the EFA with a *KMO* of .86, 95% BC CI (Bias Corrected CI) [.825, .826]. The PA technique suggested a unidimensional solution, considering the 95 percentile of random variance, and a solution with two factors considering the mean of random variance, therefore we used the HM which confirmed the unidimensional solution.

The first analysis was conducted with 20 items which presented an explained variance of 47.44% and good reliability indices, although two items had poor loadings. Item 4 ("I don't place myself in situations in which I cannot predict the outcome"; loading of .01) and 19 ("I feel that my success reflects my ability, not chance"; loading of -.23) had loadings smaller than the cutoff value (< .30). Thus, they were excluded from the scale, and a new analysis was run. Table 1 presents the item loadings, explained variance, eigenvalue, and reliability coefficients for the analysis with 18 items.

Additionally, the Closeness to Unidimensionality Assessment pointed to the appropriateness of the 18-item solution (*UniCo* = .97, 95% BC CI [.96, .99]; *ECV* = .87 [.84, .91]; *MIREAL* = .23 [.18, .27]) and the H-index for construct replicability suggested that this dimension should be stable across future studies (*H-latent* = .96, 95% BC CI [.94, .96]; *H-observed* = .94 [.91, .95]).

Considering the 18 items solution, the second half of the sample was assessed for its adequacy. The polychoric correlation matrix was deemed appropriate, *KMO* = .84, 95% BC CI [.83, .86], and the CFA was conducted. Goodness-of-fit indices for both the SCFA and the CFA were fair, with slightly better results for the first, as it is a less restrictive analysis (see Table 2). Also, all reliability estimates for the CFA solution were good, α = .94, ω = .96 and *CR* = .97.

Then, we assessed the convergent and divergent validity using the total sample (N = 429) between the factor score estimates composed of a polychoric correlation. As expected, the LHS was strongly and positively correlated with the SES, r = .86 [.83, .89], and the LHS was negatively correlated with the PSS-10, r = -.72 [-.77, -.67].

For the difference in the LHS scores by sociodemographic data, we also considered the total sample for the analysis and computed the scores by summing the item scores, as proposed by McKean (1994).

Considering gender, the t-test was computed for people who identified as woman and man, non-binaries and other categories were discarded due to the small group size (n = 3). On average people who identified as man presented slightly higher levels of LH (M = 50.88, SD = 8.28) than people who identified as woman (M = 49.40, SD = 8.04), although those results were non-significant, t (NA) = -1.006, p = .31, 95% BCI [-2.97, 1.07].

As for the state the participants were from, the categories were computed by region to assure larger groups and representation, only the Central-West (n = 181) and Southeast (n = 158) regions of Brazil had relevant group sizes, and other respondents were filtered out of the dataset (n = 90). For these groups, results were non-significant, t (NA) = .48, p = .62, 95% BC CI [-1.35, 2.25], as the mean difference between groups was close to zero (.45).

Table 1
Exploratory Factor Analysis of the LHS with 18 items.

Variable	Factor loading
1. Não importa o quanto de energia eu coloco em uma tarefa, eu sinto que não controlo os resultados. [1. No matter how much energy I put into a task, I feel I have no control over the outcome.]	.72
2. Eu sinto que a minha habilidade de resolver problemas é a razão do meu sucesso. [2. I feel that my ability to solve problems is the cause of my success.]	-.79
3. Eu consigo encontrar soluções para problemas difíceis. [3. I can find solutions to difficult problems.]	-.76
5. Se eu completo uma tarefa com sucesso, é provavelmente por causa da minha habilidade. [5. If I complete a task successfully, it is probably because of my ability.]	-.69
6. Eu tenho a habilidade para resolver a maioria dos problemas da vida. [6. I have the ability to solve most of life's problems.]	-.68
7. Quando não tenho sucesso em uma tarefa, não tento outras parecidas porque sinto que também falharia nelas. [7. When I do not succeed at a task, I do not attempt any similar tasks because I feel that I would fail them also.]	.75
8. Quando algo não acontece do jeito que eu planejei, eu sei que foi pela minha falta de habilidade. [8. When something doesn't turn out the way I planned, I know it is because I didn't have the ability to start with.]	.57
9. Outras pessoas têm mais controle sobre seu sucesso e/ou fracasso do que eu. [9. Other people have more control over their success and/or failure than I do.]	.74
10. Eu tento novas tarefas, ainda que eu tenha falhado em tarefas similares no passado. [10. I try new tasks if I have failed similar ones in the past.]	-.68
11. Quando eu tenho um baixo desempenho é porque eu não tenho a habilidade para desempenhar melhor. [11. When I perform poorly, it is because I don't have the ability to perform better.]	.54
12. Eu aceito tarefas, mesmo que eu não tenha certeza se terei sucesso nelas. [12. I accept tasks even if I am not sure that I will success at them.]	-.30
13. Eu sinto que tenho pouco controle sobre os resultados do meu trabalho. [13. I feel that I have little control over the outcomes of my work.]	.75
14. Eu sou bem sucedido na maioria das tarefas que tento. [14. I am successful at most tasks I try.]	-.83
15. Eu sinto que qualquer pessoa pode ser melhore do que eu na maioria das tarefas. [15. I feel that anyone else could be better than me at most tasks.]	.77
16. Eu sou capaz de alcançar meus objetivos na vida. [16. I am able to reach my goals in life.]	-.76
17. Quando eu não tenho sucesso em uma tarefa, eu culpo a minha própria estupidez por ter falhado. [17. When I don't succeed at a task, I find myself blaming my own stupidity for my failure.]	.68
18. Não importa o quanto eu tente, as coisas nunca parecem funcionar do jeito que eu quero que elas funcionem. [18. No matter how hard I try, things never seem to work out the way I want them to.]	.81
20. Meu comportamento parece influenciar o sucesso de um grupo que participo. [20. My behavior seems to influence the success of a work group.]	-.55
Eigenvalue	9.01
Alpha Reliability	.94
Omega Reliability	.94
Explained Variance	50.04%

Table 2
Goodness-of-fit Indices of the 18-item Version of the LHS.

	N	χ^2 (*df*)	Goodness of fit indices		
			***RMSEA* [90% BC CI]**	***CFI***	***TLI***
SCFA	214	214.482 (135)*	.053 [.042, .055]	.989	.987
CFA	215	424.482 (189)*	.076 [.067, .086]	.951	.960

Note. χ^2 = Robust Mean and Variance-Adjusted Chi Square; *df* = Degrees of Freedom; BC = Bias Corrected. * $p < .001$.

Another LHS score difference assessed was between education levels, considering the following categories: high school graduates (n = 79), college graduates (n = 187), and postgraduates (n = 158). People who were only elementary school graduates were filtered out from the dataset as they did not have a sufficiently large group size (n = 7). The results showed a significant difference for LHS scores by education levels with a medium effect size, F (2, 123.85) = 16.25, p < .001, ξ = .36, 95% BC CI [.20, .50]. Therefore we proceeded to the posthoc analysis which indicated that: (a) college graduates had higher LHS scores (M = 47.98, SD = 7.56) than high school graduates (M = 47.08, SD = 9.31), although non-significant, Ψ = .54, p = .64, 95% BC CI [-2.27, 3.34]; (b) postgraduates (M = 52.82, SD = 7.07) had higher LHS scores than college graduates with a significant difference, Ψ = -4.25, p < .001, 95% BC CI [-6.23, -2.27]; and, (c) postgraduates had higher LHS scores than high school graduates with a significant difference, Ψ = -4.79, p < .001, 95% BC CI [-7.58, -2.00].

Differences in LHS scores were also found between socioeconomic status, F (2, 149.14) = 17.89, p < .001, ξ = .39, 95% BC CI [.25, .53], considering the following categories: low socioeconomic status (n = 206), which considers a monthly income up to three minimum wages per month (< BRL 3,300.00); average socioeconomic status (n = 120), which considers a monthly income from three to seven minimum wages per month (BRL 3,300.00 – 7,700.00); and, high socioeconomic status (n = 103), which considers a monthly income above seven minimum wages per month (> BRL 7,700.00). The post-hoc analysis indicated that: (a) people with an average socioeconomic status (M = 51.16, SD = 7.81) had higher LHS scores than people with lower socioeconomic status (M = 47.07, SD = 7.97) with a significant difference, Ψ = -4.31, p < .001, 95% BC CI [-6.47, -2.16]; (b) also, people with higher socioeconomic status (M = 52.82, SD = 7.41) had higher LHS scores than people with lower socioeconomic status with a significant difference, Ψ = -5.28, p < .001, 95% BC CI [-7.66, -2.89]; but, (c) people with average socioeconomic status had no statistically significant difference from people with higher socioeconomic status, Ψ = -.97, p = .34, 95% BC CI [-3.40, 1.47].

Finally, differences in LHS scores were found for age, F (2, 119.62) = 14.77, p < .001, ξ = .40, 95% BC CI [.24, .55]. Post-hoc comparisons showed that older people had significantly higher LHS scores than younger people, considering: people from 18 to 30 years old (M = 46.43, SD = 8.35), people from 30 to 60 years old (M = 50.35, SD = 7.86), and people from 60 to 80 years old (M = 52.81, SD = 6.98).

DISCUSSION

This study aimed to adapt the LHS to Brazilian Portuguese and assess its psychometric properties in a Brazilian sample. The multiple procedures assessed in the EFA (i.e., PA, HM, and Closeness to Unidimensionality Assessment) indicated that the unidimensional solution is adequate for a Brazilian sample. This finding reproduces other studies that suggest the usage of the LHS as a general LH measure (McKean, 1994; Santos et al., 2002; Santos et al., 2007; Sterling et al., 1996).

In the original 20-item version of the scale, items 4 and 19 presented factor loadings under the cutoff value (.01 and -.23), so we removed them. Item 4 already displayed poor factor loading in the Portuguese sample (.06 in Santos et al., 2007) and could be caused by double negatives in the affirmative, which demand more cognition from the participants and tend to generate inconsistent answers[1]. As for item 19, the verb change from "reflects" to "depends" in the Portuguese version could have changed the sentence relation between "success" and "ability" from consequence to dependence. In that manner, participants who scored higher or lower in this item could both indicate greater LH.

The goodness-of-fit indices from the SCFA and the CFA indicated the adequacy of the scale with 18 items following Brown's (2006) cutoff values. The H-index suggested that the latent variable is well-defined and will probably be stable across multiple studies and samples (Ferrando & Lorenzo-Seva, 2018). The scale also showed good reliability through all the assessed indices (i.e., Cronbach's alpha, McDonald's omega, and CR). Evidence of nomological validity was found, as predicted and showed in previous studies, with LHS being strong and positively correlated with SES (Quinless & Nelson, 1988) and strong and negatively correlated with PSS-10 (Sullivan et al., 2012).

Nonetheless, the factor score of the original 20-items scale was suggested to be the sum of each item's score, which should range from 20 to 80, with scores higher than 41 indicating LH (McKean, 1994; Quinless & Nelson, 1988). Following the same logic and considering that two items were removed from the Brazilian version of the LHS, the factor score should range from 18 to 72, with scores higher than 37 indicating LH. Despite the sum of item scores being adequate for its simplicity, preservation of raw data variation, and retention of scale metrics (DiStefano et al., 2009), its use in classifying or diagnosing individuals as helpless, or not, with only a mean plus one cutoff is not adequate. A better solution for those cases would be to use a standardization sample with at least three categories (e.g., low, medium, and high), but that exceeds the scope of this study.

Furthermore, we did an exploratory assessment of the differences in LHS scores by sociodemographic data. We found no significant differences between people who identified as man and woman. This is consistent with

1 We thank one of the anonymous reviewers of the draft manuscript for this suggestion.

numerous findings (see McKean, 1994; Santos et al., 2007; Sterling et al., 1996), although Miller and Norman (1979) have suggested that gender could produce a differential influence on LH, and Santos et al. (2003) have found differences by gender in a Portuguese sample. Also, we found no significant differences for the Central-West and Southeast regions of Brazil. This could be explained by both being highly represented by great cities in this sample which has great people exchange.

The other differences assessed were significant. Considering education level, people with higher levels of education also presented higher levels of LH. In a way, it is expected that people with higher education levels would feel more in control of their life by having more job options and status. Yet, this could lead to frustration and self-culpability when things don't go their way. Also, people with higher socioeconomic status seem to present higher levels of LH, which is consistent with the findings of Santos et al. (2007) within a prison inmates' sample, but contrary to Santos and Faria (2008) in a broad Portuguese sample. In concordance with the first authors, this could mean that people with higher socioeconomic status (and probably also higher education levels) are lesser prone to adapt to new situations and could more easily blame themselves. Those results demand further investigation.

Similar to the findings of Santos et al. (2003), it was also found significant differences in LH levels by age, in which case older people were more affected by it. As argued by Santos et al. (2003), this could be a consequence of the dependence our society imposes on the elderly. But other situational cues could create this pattern. One is quite particular to Brazilians. The recently approved reform in Social Security (approved on November 13th, 2019) has brought a fear of being unable to guarantee a quality of life after retirement. And more generally, when people age, they tend to have more responsibilities and obligations which cannot always be controlled and could lead to experiencing greater LH than the young.

One of the limitations of this study was its sample, which was non-representative of the Brazilian population. Similar to the pattern found by Quinless and Nelson's (1988) study, this sample was primarily composed of people who identified as women (80.65%). Nonetheless, other characteristics were quite distributed, as shown in the state of residence, age, education, and, most of all, monthly income. On its strengths, this study used adaptation process guidelines and robust data analysis procedures and conformed to Open Science principles. All procedures from data analysis were computed using polychoric correlations (Muthen & Kaplan, 1985) and corrections for non-normality (Asparahouv & Muthen, 2010), which comprises the ordinal level of measurement of the scales.

Finally, this study contributed to the accumulation of evidence on the validity of the Brazilian version of LHS and its adequacy for use in further studies. As discussed previously, the possibilities of LH's predictive role have not been fully assessed yet. It is expected that with an instrument adequate for use, further research can be developed to aggregate evidence of validity to LHS and present LH's relevance in societal issues (e.g., Landry et al., 2018; Santos et al., 2007; Schiefer & Krahé, 2014).

REFERENCES

Abramson, L., Seligman, M., & Teasdale, J. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49-74. https://doi.org/10.1037/0021-843X.87.1.49

Asparouhov, T., & Muthen, B. (2010). *Simple second order chi-square correction* [Unpublished manuscript]. https://www.statmodel.com/download/WLSMV_new_chi21.pdf

Borsa, J. C., Damásio, B. F., & Bandeira, D. R. (2012). Cross-cultural adaptation and validation of psychological instruments: Some considerations. *Paidéia, 22*(53), 423-432. https://doi.org/10.1590/1982-43272253201314

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. Guilford Press.

Cohen, S., Karmack, T., & Mermelsteinm, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385-396. https://doi.org/10.2307/2136404

Costello, C. G. (1978). A critical review of Seligman's laboratory experiments on learned helplessness and depression in humans. *Journal of Abnormal Psychology, 87*(1), 21-31. https://doi.org/10.1037/0021-843X.87.1.21

Damásio, B. F. (2012). Uses of exploratory factorial analysis in Psychology. *Avaliação Psicológica, 11*(2), 213-228. http://pepsic.bvsalud.org/pdf/avp/v11n2/v11n2a07.pdf

DiStefano, C., Zhu, M., & Mîndrilã, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research, and Evaluation, 14*(20), 1-11. https://doi.org/10.7275/da8t-4g52

Faria, L. (1999). Contextos sociais de desenvolvimento das atribuições causais: O papel do nível socio-económico e da raça [Social contexts of development of causal attributions: The role of socioeconomic status and race]. *Análise Psicológica, 17*(2), 265-273. https://scielo.pt/pdf/aps/v17n2/v17n2a03.pdf

Ferrando, P. J., & Lorenzo-Seva, U. (2018). Assessing the quality and appropriateness of factor solutions and factor score estimates in exploratory item factor analysis. *Educational and Psychological Measurement, 78*, 762-780. https://doi.org/10.1177/0013164417719308

Fontaine, A. M., & Faria, L. (1989). Teorias pessoais do sucesso [Personal theories of success]. *Cadernos de Consulta Psicológica, 5*, 5-18. https://sigarra.up.pt/fpceup/pt/pub_geral.pub_view?pi_pub_base_id=82319

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2005). *Análise multivariada de dados* [Multivariate data analysis]. Bookman.

Hutz, C. S., & Zanon, C. (2011). Revision of the adaptation, validation, and normatization of the Rosenberg Self-Esteem Scale. *Avaliação Psicológica, 10*(1), 41-49. http://pepsic.bvsalud.org/pdf/avp/v10n1/v10n1a05.pdf

International Test Commission. (2017). *The ITC Guidelines for Translating and Adapting Tests* (2nd ed.). https://www.intestcom.org/

Landry, N., Gifford, R., Milfont, T. L., Weeks, A., & Arnocky, S. (2018). Learned helplessness moderates the relationship

between environmental concern and behavior. *Journal of Environmental Psychology, 55*, 18-22. https://doi.org/10.1016/j.jenvp.2017.12.003

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*, 340-364. https://doi.org/10.1080/00273171.2011.564527

Luft, C. D. B., Sanches, S. O., Mazo, G. Z., & Andrade, A. (2007). Brazilian version of the Perceived Stress Scale: Translation and validation for the elderly. *Revista de Saúde Pública, 41*(4), 606-615. https://doi.org/10.1590/S0034-89102007000400015

Maier, S. F., & Seligman, M. E. P. (1976). Learned helplessness: Theory and evidence. *Journal of Experimental Psychology: General, 105*(1), 3-46. https://doi.org/10.1037/0096-3445.105.1.3

Mair, P., & Wilcox, R. (2020). Robust statistical methods in R using the WRS2 package. *Behavior Research Methods, 52*, 464–488. https://doi.org/10.3758/s13428-019-01246-w

McKean, K. J. (1994). Using multiple risk factors to assess the behavioral, cognitive, and affective effects of learned helplessness. *The Journal of Psychology: Interdisciplinary and Applied, 128*(2), 177-183. https://doi.org/10.1080/00223980.1994.9712721

Miller, I. W., & Norman, W. H. (1979). Learned helplessness in humans: A review and attribution-theory model. *Psychological Bulletin, 86*(1), 93-118. https://doi.org/10.1037/0033-2909.86.1.93

Muthen, B., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal Likert variables. *British Journal of Mathematical and Statistical Psychology, 38*, 171-189. https:/doi.org/10.1111/j.2044-8317.1985.tb00832.x

Quinless, F. W., & Nelson, M. A. M. (1988). Development of a measure of learned helplessness. *Nursing Research, 37*(1), 11-15. https://doi.org/10.1097/00006199-198801000-00003

Revelle, W. (n.d.). *An introduction to psychometric theory with applications in R.* Springer. http://personality-project.org/r/book/

Rosenberg, M. (1979). *Conceiving the self*. Basic Books.

Rosenbusch, H., Wanders, F., & Pit, I. L. (2020). The Semantic Scale Network: An online tool to detect semantic overlap of psychological scales and prevent scale redundancies. *Psychological Methods, 25*(3), 380-392. https://doi.org/10.1037/met0000244

Rosseel, Y. (2012). Lavaan: An R package for Structural Equation Modeling. *Journal of Statistical Software, 48*(2), 1-36. http://www.jstatsoft.org/v48/i02/

Santos, N. L., & Faria, L. (2008, October 2-4). *Validação da Escala de Abandono Aprendido (EAA) em diferentes contextos de vida* [Learned Helplessness Scale (LHS) validation in different life contexts, Poster presentation]. XIII Conferência Internacional Avaliação Psicológica: Formas e Contextos, Braga. https://hdl.handle.net/10216/101666

Santos, N. L., Lima, A. P., & Faria, L. (2007). Escala de Abandono Aprendido (EAA) revisitada: Estudo no contexto prisional do norte de Portugal [Learned Helplessness Scale (LHS) revisited: Study in a prison setting of the north of Portugal]. *Revista da Faculdade de Ciências Humanas e Sociais, 4*, 172-184. http://hdl.handle.net/10284/444

Santos, N. L., Ribeiro, H., & Faria, L. (2002). Adaptação de uma "Escala de Abandono Aprendido" (Learned Helplessness Scale) ao contexto português [Learned Helplessness Scale adaptation to the Portugal context]. *Revista de Psiquiatria, III* (3-4), 25-44. https://sigarra.up.pt/fdup/en/PUB_GERAL.PUB_VIEW?pi_pub_base_id=82658

Santos, N. L., Ribeiro, H., & Faria, L. (2003). "Abandono aprendido" e risco psicossocial: Estudo diferencial numa amostra da cidade do Porto ["Learned helplessness" and psychosocial risk: Differential study in a sample from the city of Porto]. *Mente Social*, *6*(1-2), 75-87. https://hdl.handle.net/10216/93918

Schiefer, D., & Krahé, B. (2014). Ethnic identity and orientation to white American culture are linked to well-being among American Indians: But in different ways. *Social Psychology, 45*(1), 1-14. https://doi.org/10.1027/1864-9335/a000155

Seligman, M. E. P., & Maier, S. F. (1967). Failure to escape traumatic shock. *Journal of Experimental Psychology, 74*(1), 1-9. https://doi.org/10.1037/h0024514

Šrol, J., Mikušková, E. B., Čavojová, V. (2021). When we are worried, what are we thinking? Anxiety, lack of control, and conspiracy beliefs amidst the COVID-19 pandemic. *Applied Cognitive Psychology*, 1-10. https://doi.org/10.1002/acp.3798

Sterling, R. C., Gottheil, E., Weinstein, S. P., Lundy, A., & Serota, R. D. (1996). Learned helplessness and cocaine dependence: An investigation. *Journal of Addictive Diseases, 15*(2), 13-24. https://doi.org/10.1300/J069v15n02_02

Sullivan, D. R., Liu, X., Corwin, D. S., Verceles, A. C., McCurdy, M. T., Pate, D. A., Davis, J. M., & Netzer, G. (2012). Learned helplessness among families and surrogate decision-makers of patients admitted to medical, surgical, and trauma ICUs. *Chest, 142*(6), 1440-1446. https://doi.org/10.1378/chest.12-0112/

Timmerman, M. E., & Lorenzo-Seva, U. (2011). Dimensionality assessment of ordered polytomous items with Parallel Analysis. *Psychological Methods, 16*, 209-220. https://doi.org/10.1037/a0023353

Zheng, L., Miao, M., & Gan, Y. (2020). Perceived control buffers the effects of the COVID-19 pandemic on general health and life satisfaction: The mediating role of psychological distance. *Applied Psychology: Health & Well-Being, 12*, 1095-1114. https://doi.org/10.1111/aphw.12232