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Psychological Evaluation

Stress Mindset Measure: A Study of Acquiescence Control and Factor Invariance Between the Regions of Brazil

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Abstract: Stress mindset is defined as the belief that stress can lead to enriching or debilitating consequences in different spheres of life. The present research aimed to estimate new validity evidences based on the internal structure, using acquiescence control methods for the Stress Mindset Scale. A sample of 2,121 participants (77.7% female) responded to the Stress Mindset, Life satisfaction, Positive and Negative affects Scales. Confirmatory factor analysis with random intercept suggested adequacy of the one-dimensional structure (CFI = 0.993; TLI = 0.990; RMSEA = 0.039), and a good level of reliability ω= 0.85. The multigroup factor analysis showed invariance of the model as a function of the origin of the respondents considering the different geographic regions of the country. The results demonstrate the adequacy of the Brazilian version of the instrument and the importance of controlling acquiescence in estimating the internal structure.

Keywords: stress, test validity, psychometrics, positive psychology

Escala de Mentalidade Sobre o Estresse: Estudo de Controle de Aquiescência e Invariância Fatorial entre Regiões Brasileiras

Resumo: A Mentalidade sobre estresse é definida como a crença de que o estresse pode levar a consequências enriquecedoras ou debilitantes a diferentes esferas da vida. O presente estudo teve por objetivo estimar novas evidências de validade com base na estrutura interna, empregando-se métodos de controle de aquiescência para a Escala de mentalidade sobre o Estresse. Uma amostra de 2.121 participantes (77,7% feminino) respondeu à escala de mentalidade sobre estresse, satisfação com a vida, afetos positivos e negativos. A análise fatorial confirmatória com intercepto randômico sugeriu adequação da estrutura unidimensional (CFI = 0,993; TLI = 0,990; RMSEA = 0,039), e bom nível precisão ω= 0,85. A análise fatorial multigrupo demonstrou invariância do modelo em função da origem dos respondentes considerando as diferentes regiões geográficas do país. Os resultados demonstram adequação da versão brasileira do instrumento e a importância do controle da aquiescência na estimativa da estrutura interna.

Palavras-chave: stress, validade do teste, psicometria, psicologia positiva

Escala de Mentalidad de Estrés: Un Estudio de Control de la Aquiescencia y la Invariancia Factorial entre las Regiones Brasileñas

Resumen: La mentalidad de estrés se define como la creencia de que el estrés puede tener consecuencias enriquecedoras o debilitantes en diferentes esferas de la vida. Presente investigación tuvo como objetivo estimar nuevas evidencias de validez a partir de la estructura interna, utilizando métodos de control de aquiescencia para la Escala de Mentalidad sobre Estrés. Muestra de 2.121 participantes (77,7% mujeres) respondió a la escala de mentalidad sobre estrés, satisfacción con la vida, afecto positivo y negativo. Análisis factorial confirmatorio con intercepto aleatorio sugirió adecuación de la estructura unidimensional (CFI = 0,993; TLI = 0,990; RMSEA = 0,039), y buen nivel de precisión (ω = 0,85). Análisis factorial multigrupo mostró invariancia del modelo en función de la procedencia de los encuestados considerando las diferentes regiones geográficas del país. Resultados demuestran adecuación de la versión brasileña del instrumento y importancia de controlar aquiescencia en la estimación de la estructura interna.

Palabras clave: estrés, validación de test, psicometría, psicología positiva

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According to Crum, Salovey and Achor (2013), stress can be defined as the experience of facing adversities, and that can lead the individual to a cognitive anticipation of the experience of the stressful event in order to deal with it. The authors also describe that from an evolutionary perspective, the stress response can improve logical and

mental functioning, allowing the recognition and anticipation of threatening situations, ultimately contributing to the individual's survival. In this sense, authors (C.L. Park & Helgeson, 2006; Tedeschi & Calhoun, 2004) have documented possibilities of personal growth from experiencing stressful events. This phenomenon means that stressful experiences can improve mental development, enable new perspectives, awareness, more affective relationships and appreciation of life.

Despite this, the stressful event is not always perceived with positive potential, being associated with the belief that the individual has about the stressors experienced. The concept of stress mindset was initially proposed in the study by Crum et al. (2013), and can be defined as a person's beliefs regarding the consequences, positive or negative, of stress in relation to their development in different spheres of life. When the person evaluates stressful events as positive, they tend to understand that the experience of the stressor, although related to an adversity, can be seen as a challenge and, in this sense, it brings possibilities for personal growth. In this way, a positive stress mindset would be related to improved health, well-being, learning, intelligence, productivity and lower perception of stress and more adaptive coping strategies (Crum, Akinola, Martin, & Fath, 2017). However, when their beliefs about experiencing the stressful event are negative, that is, when their belief about experiencing an adversity is that it is necessarily harm or something bad, the person expects that their performance or health and well-being will be negatively affected (Crum et al., 2013, 2017).

Crum et al. (2013) developed a measure with the objective of evaluating the stress mindset, as well as verifying the effectiveness of interventions to promote the change of this construct. The *Stress Mindset Measure* (SMM) consists of eight items and is intended to measure beliefs about the nature of stress in the context of specific stressors. The authors sought to estimate the psychometric properties, with the results suggesting the unifactoriality of the SMM, with factor loadings of the items ranging between 0.56 and 0.78 and suitable fit indices [CMIN (14) = 38.07, $p < 0.01$; CFI (0.97); RMSEA (0.06) and AIC (98.07)]. For the investigation of reliability, Cronbach's alpha coefficient was used, which varied between 0.80 and 0.86, when comparing different sample strata. The instrument was also used in studies carried out with other cultures, such as Australian and British (Keech, Orbell, Hagger, O'Callaghan, & Hamilton, 2021).

In Brazil, the SMM was adapted by Peixoto, Rocha, Franco and Bueno (2019), who estimated the first evidence of validity based on the internal structure and external variable (perception of stress), as well as evaluated the accuracy of the instrument. The sample consisted of university students (n = 408) from the northeast region of Brazil, of both sexes (68.2% women), aged between 17 and 61 years. The results indicated a unifactorial structure through different factor retention methods (Hull method and parallel analysis) and exploratory factor analysis, which presented factor loadings ranging from 0.62 to 0.75 for positive items and 0.58 to 0 .77 for negative items. Regarding the reliability of the instrument, Cronbach's alpha and McDonald's omega indexes were used, both indicating a value equal to 0.86 for the structure.

As evidence based on the relationship with external variables, they observed a positive correlation between stress mindset and psychological symptoms related to the alert phase, as well as negative correlation with physical symptoms associated with the phases of resistance and exhaustion. Negative correlations were also observed, such as psychological symptoms in relation to the phases of resistance and exhaustion (Peixoto et al., 2019). Such results are in agreement with the theoretical proposal of the stress mindset, as negative beliefs are associated with negative strategies and outcomes, for example, resistance and exhaustion. On the other hand, positive perceptions contribute to people adopting a posture of approaching and coping with stressors, consequently, obtaining more positive results (Crum et al., 2013, 2017; Crum, Akinola, Turnwald, Kaptchuk, & Hall, 2018).

From the literature, it is possible to observe that the stress mindset is related to positive behaviors and feelings, for example, resilience, well-being, coping, and quality of life (Crum et al., 2013). However, it has been shown to be negatively associated with maladaptive variables (exhaustion), mood disorder and anxiety (Crum et al., 2013, 2017; Peixoto et al., 2019). Despite these findings, it is still necessary to expand the range of stress mindset assessment with other variables, in order to understand the variables that may facilitate or influence this process. Thus, by providing additional evidence of validity, SMM can help professionals to develop stress management strategies, controlling their negative effects and focusing on aspects that can promote adaptive responses (Crum et al., 2013, 2017).

It is worth mentioning that the SMM is a brief measure, easy and quick to apply, with evidence of validity and reliability that ensure its use in different countries. However, it still has some limitations in its Brazilian version, such as the need to extend the evidence to populations with different educational levels and representatives from different regions of the country. Additionally, the SMM is an instrument answered using a Likert scale, and may be susceptible to the effects of response styles (Crum et al., 2013).

When a survey participant responds to items using a Likert scale of responses, the response given to the item may reflect more the participant's response style than its actual magnitude in the latent factor itself. When uncontrolled, response bias generates consequences, such as, for example, compromising the interpretation of the instrument's internal structure (Valentini & Hauck Filho, 2020). Acquiescence – the tendency to endorse the items of an instrument – is considered one of these biases, typical of self-report instruments, and may reduce or increase the correlations between variables. In addition, acquiescence is the response style that most influences the factor structure of the instrument, which may distort or lead to systematic variances (Hauck Filho, Valentini, & Primi, 2021).

Therefore, the present study aimed to estimate new validity evidence based on the internal structure, using methods of acquiescence control for the Stress Mindset Measure. The research also investigated the equivalence between participants from different geographic regions of Brazil, using methods to evaluate the invariance of the measurement model, as well as investigating the relationship of mindset with other external variables, positive and negative affects, life satisfaction, anxiety, depression, stress and psychological distress.

The theoretical hypotheses are: (a) the one-dimensional factor structure will adjust to the data from the new sample (Crum et al., 2013; Keech et al., 2021; Peixoto et al., 2019), (b) the acquiescence control, through random intercept modeling, will provide an increase in the model's fit indexes when compared to the model without bias control (Maydeu-Olivares & Steenkamp, 2018), (c) indicators of invariance of the measurement model will be observed in relation to the different geographic regions of the country, and, finally, (d) based on some studies (Crum et al., 2013, 2017; Peixoto et al., 2019), stress mindset indicators will positively correlate with positive affects and life satisfaction, as they are variables that influence adaptively in the individual's life. Regarding to negative affects, stress, anxiety, depression and psychological distress, negative associations are expected, as they can be interpreted as negative influences on stress responses. Thus, giving new evidence of the convergent and divergent type to the instrument (Crum et al., 2017).

Method

Participants

The sample was selected for convenience, through online collection, providing the link to the survey prepared in *Google Forms* on social networks and email contacts of the authors. The inclusion criteria were: being over 18 years of age and accepting the Free and Informed Consent Form. The exclusion criterion was not completing the entire instrument.

A total of 2,121 people participated in the study, of both sexes (77.7% female), aged between 14 and 86 years (M = 34.9, SD 13.6). Regarding marital status, 50.9% self-declared to be single, 30.4% married, 7.9% separated/divorced, 8.4% in a stable union/living with a partner, 1% widowed and 1.4% chose to answer 'others'. As for the geographic region of the participants, 27.6% lived in the Southeast region, 29.9% in the Northeast region, 27% in the Midwest region, 12.4% in the North region and 7.7% in the South region. Most participants consider themselves white (61.8%), with family income between 5 and 10 minimum wages (25.4%).

Instruments

Stress Mindset Measure (SMM) – It is a self-report instrument, developed by Crum et al. (2013), in order to assess stress mindset, consisting of eight items (four negative and four positive) that are answered using a five-point Likert scale, ranging from "0 – I strongly disagree" to "4 – I strongly agree". The instrument was adapted for the Brazilian sample by Peixoto et al. (2019), which confirmed the unifactorial structure of the original instrument and demonstrated satisfactory levels of reliability (α = 0.86 ω = 0.86). To make the sum of the final score of the instrument, the negative items need to be inverted and then all the items must be added.

Positive and Negative Affect Schedule (PANAS) – The scale was designed to assess positive and negative affects. The instrument contains 20 items (e.g., "proud", "virtuous", "anguished"), divided into two factors: positive affect (α = 0.83) and negative affect (α = 0.77). Each factor is composed of 10 items that represent adjectives in relation to the individuals' mood and emotions. Each adjective is rated using a five-point Likert scale, ranging from "not at all" to "extremely". From the study on the psychometric properties, the adequacy of the bifactorial structure was observed, from factor loadings greater than 0.30 (Nunes, Lemos, Ribas Júnior, Behar, & Santos, 2019).

Satisfaction With Life Scale – The scale aims to assess how satisfied people are with their lives. It consists of five items that are evaluated using a seven-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree", an example item is "My living conditions are excellent". In the study by Zanon, Bardagi, Layous and Hutz (2014), the authors adapted and investigated the psychometric properties in the Brazilian sample, with the results confirming a unifactorial structure and suggesting factorial equivalence between male and female samples and a good level of reliability (α = 0. 86).

Depression, Anxiety and Stress Scale (DASS-21) – The scale consists of 21 items (e.g., "I had difficulty calming down", "I felt I was quite nervous"), divided into three factors: stress (1, 6, 8, 11, 12, 14 and 18), anxiety (2, 4, 7, 9, 15, 19, 20) and depression (3, 5, 10, 13, 16, 17 and 21). To answer the instrument, participants use a four-point Likert scale, ranging from 0 "not applied at all" to 3 "applied a lot or most of the time". The study of the properties of DASS-21 in the Brazilian context suggests the adequacy of the Bifactor structure composed of three specific factors (stress, depression and anxiety) and a general factor corresponds to psychological distress. All factors showing good reliability indicators, with alpha coefficients equal to 0.90 for the stress subscale, 0.92 for depression and 0.85 for anxiety and 0.94 for the general factor (Vignola & Tucci, 2014).

Procedures

Data collection. Data collection occurred through contact with the researchers' social networks. Participants were informed about the study procedures and objectives, before receiving the link to the *Google Forms* form. It was estimated that it took about 15 minutes for participants to answer the instruments.

Data analysis. Considering that the objective of the study was to estimate new evidence of validity of the internal structure, confirmatory factor analysis (CFA) was performed, using the weighted least squares means and variance adjusted (WLSMV) estimation method. The following adjustment indicators were used to assess the model fit: chi-square ratio in relation to degrees of freedom (χ^2/df), Comparative-Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Such indicators must be within the following levels: $\chi^2/df \leq 2.0$, CFI and TLI ≥ 0.90, RMSEA ≤ 0.08 (Brown, 2015). During the analyzes to verify the influence of the response biases, the acquiescence control was used through the random intercept model, allowing to estimate the most improved parameters of the internal structure of the SMM (Zanon, Lessa, & Dellazzana-Zanon, 2018).

As suggested by Maydeu-Olivares and Steenkamp (2018), confirmatory factor analysis with random intercept can be understood as a model that seeks to shape individual differences not considered in common factor models. Thus, the random intercept model is an extension of the common confirmatory factor model. However, in this proposal, the assumption that the intercepts of the items are the same for all respondents is relaxed, allowing this statistic to vary from respondent to respondent. It is then proposed to model a general factor uncorrelated to the content factors in which all factor loadings of this factor are set to 1. Thus, the factor scores estimated for this factor represent a response bias score, and the factor loadings of the items in this factor reflect how likely respondents were to endorse the item, regardless of the content represented by it (Maydeu-Olivares & Steenkamp, 2018). Current experiments have shown greater potential for balanced scales (with an equivalent number of semantic items with positive and negative) to control the acquiescence of psychological assessment instruments (as in the case of the SMM) and, therefore, to identify items more prone to influence of this response bias, as well as the control of its effects evaluation of the internal structure of the measurement instruments (Primi, Santos, De Fruyt, & John, 2019).

The invariance of the items' parameters was evaluated using the Multigroup Confirmatory Factor Analysis (MGCFA) method, and models were tested in which the number of items and factors (configural), factor loadings (metric) and intercepts (scalar) were fixed for groups considering the sample of participants from different geographic regions of Brazil (Midwest, Northeast, North, Southeast and South). Therefore, the variability of the RMSEA, CFI (ΔCFI > 0.01), McDonald's (ΔMcDonald's > 0.02) and Gamma-hat (ΔGamma-hat > 0.001) indexes were considered (Cheung & Rensvold, 2002).

To verify the internal consistency of the scale, Cronbach's alpha and McDonald's omega coefficients were used, considering values equal to or above 0.7 as good levels of reliability (Cunha, Almeida Neto, & Stackfleth, 2016). Regarding evidence of validity based on other variables, Pearson's *r* correlation was used in order to investigate the relationship between the factor scores estimated by the one-dimensional model of the SMM instrument and the external variables (positive and negative affects, life satisfaction, depression, anxiety, stress and distress). Levels of $p < 0.05$ were considered as indicators of statistical significance.

Statistical analyzes were conducted by two of the authors of the manuscript, one of whom performed the analysis and repeated it in order to confirm the findings. Even so, the other authors served as judges in the evaluation of the chosen statistical method and data obtained.

Ethical Considerations

The research was approved by the Ethics Committee of Universidade São Francisco (Opinion No. 4.056.966 - CAAE No. 31959220.6.0000.5514). The participant was assured the right to secrecy about the data collected and the possibility of withdrawing from participation at any time. Therefore, the research followed the ethical precepts in research with human beings according to Resolution No. 510/2016 of the National Health Council, which determines specific ethical guidelines for the human and social sciences.

Results

The first analyzes corresponded to the evaluation of the internal structure of the SMM through the CFA. The results allowed the comparison of the fit indices of the one-factor model without control for response biases and with control through the estimation of the RI factor. The first model presented indexes classified as adequate: $\chi^2 = 156.052$; $df = 20$; CFI = 0.984 and TLI = 0.977; RMSEA = 0.057 (IC90% 0.049 – 0.065), the model with estimation of the random intercept, in turn, presented indexes classified as good: $\chi^2 = 74.627$; $df = 18$; CFI = 0.993 and TLI = 0.990; RMSEA = 0.039 (IC90% 0.030 – 0.048). Such results suggest that there is an influence of acquiescence in the SMM model and that the adjustment indices showed a slight improvement when compared to the values presented by the model without control. The factor loadings of the models are shown in Table 1.

These analyzes confirm the hypothesis 'a' and 'b' that the one-dimensional factor structure will adjust to the data from the new sample. The acquiescence control, through Random Intercept modeling, will provide an increase in the model's fit indices when compared to the model without bias control.

As shown in Table 1, the factor loadings demonstrate high values in the model without control and with acquiescence control. In the first model, loads varied between 0.509 and -0.744, while in the second model they varied between 0.485 and -0.720. Additionally, there is a significant factor loading, equal to 0.22 for the RI factor, which suggests that approximately 4.8% of the explained variance of the items can be attributed to the method factor. This means that, therefore, they should not be ignored. Furthermore, the internal consistency of the scale was

verified through Cronbach's alpha and McDonald's omega coefficients, which indicated good levels of reliability for the SMM (α = 0.845; ω = 0.847).

Once the validity evidences based on the internal structure were verified, invariance indicators of the measurement model were estimated in relation to the different geographic regions of Brazil (central-west, northeast, north, southeast and south). The results are shown in Table 2, in which the fit indices are presented from the least restricted to the most restricted model: configural, metric and scalar.

Table 1
Factor loadings

Stress mindset Items	F1	F2	IR
1. The effects of stress are negative and should be avoided (Os efeitos do estresse são negativos e devem ser evitados)	0.509	0.485	0.220
2. Experiencing stress facilitates my learning and growth (Vivenciar o estresse facilita meu aprendizado e meu crescimento)	-0.650	-0.652	0.220
3. Experiencing stress depletes my health and vitality (Vivenciar o estresse esgota minha saúde e vitalidade)	0.644	0.660	0.220
4. Experiencing stress enhances my performance and productivity (Vivenciar o estresse melhora meu desempenho e produtividade)	-0.666	-0.673	0.220
5. Experiencing stress inhibits my learning and growth (Vivenciar o estresse restringe meu aprendizado e meu crescimento)	0.612	0.623	0.220
6. Experiencing stress improves my health and vitality (Vivenciar o estresse melhora minha saúde e vitalidade)	-0.589	-0.596	0.220
7. Experiencing stress debilitates my performance and productivity (Vivenciar o estresse prejudica meu desempenho e produtividade)	0.671	0.687	0.220
8. The effects of stress are positive and should be utilized (Os efeitos do estresse são positivos e podem ser úteis)	-0.744	-0.720	0.220
Var.			0.021

Note. F1 = one-factor model without control for response biases; F2 = one-factor model with control for response biases; RI = RI factor.

Table 2
Multigroup Invariance Model for different regions of Brazil

Model	$\chi^2(df)$	χ^2/df	RMSEA	CFI	Mc	GH
Configural	100.179(90)	1.11	0.016	0.999	0.997	0.998
Metric	154.106(118)	1.30	0.027	0.996	0.991	0.996
Scalar	179.959(152)	1.18	0.025	0.996	0.993	0.996

Note. χ^2 = Chi-square; df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; Mc= McDonald; GH= Gamma hat.

The results indicated the equivalence of the one-dimensional model to evaluate the sample groups located in different geographic regions, since the adjustment index values were not compromised in relation to the previous model (ΔCFI < 0.01 and ΔMcDonald's < 0.02), except for ΔGamma-hat, which showed a difference greater than 0.001 between the configural and metric models. These data confirm hypothesis 'c' that indicators of invariance of the measurement model will be observed in relation to the different geographic regions of the country.

Finally, validity evidence was sought based on other variables, namely: subjective well-being (positive and negative affects), life satisfaction, stress, anxiety, depression and distress (hypothesis 'd'). The Pearson *r* correlation indices are shown in Table 3.

As observed in Table 3, the results suggest a negative and moderate correlation between stress mindset and distress (r = -0.403, $p < 0.001$), as well as a positive and low magnitude association of SMM with positive affects ($r = 0.201$, $p < 0.001$) and life satisfaction ($r = 0.236$, $p < 0.001$).

Additionally, the results showed a negative relationship of stress, anxiety, depression and negative affects with SMM, also confirming the 'd' hypothesis.

Table 3
Correlations between SMM and external variables

	Mean	Standard Deviation	Stress mindset
Stress mindset	9.48	6.27	-
Positive affects	29.32	7.85	0.201
Negative affects	28.10	9.04	-0.316
Life satisfaction	21.92	6.75	0.236
Stress	8.04	4.88	-0.271
Anxiety	5.40	5.32	-0.260
Depression	6.57	5.51	-0.292
Distress	20.04	14.18	-0.403

Note. All correlations were significant with $p < 0.001$.

Discussion

The present study aimed to seek new evidence of the Brazilian version of the SMM, adapted by Peixoto et al. (2019), estimating the internal structure and influence of response biases, as well as evaluating the measure invariance, for groups from different geographic regions of Brazil, and the relationships with other variables. For that, different statistical procedures were used, such as CFA, CFA with random intercept, Pearson's *r* correlation to estimate association with external variables (positive and negative affects, life satisfaction, stress, anxiety, depression and psychological distress), beyond the MGCFA. In general, the results suggest adequacy of the one-dimensional structure. However, substantially better fit indices are obtained when the control for response biases is included in the measurement model.

Based on the CFA, the results of this study are in agreement with the findings of Crum et al. (2013) and Peixoto et al. (2019), who claim a unifactorial internal structure, with good factor loadings greater than 0.571 in the model without control and 0.576 in the model with acquiescence control. Nevertheless, in the results of the present research, a significant influence of response bias is observed, promoting slight changes in the values of factor loadings. Thus, it can be observed that for some items (1 and 8) there was a decrease in the factor loading of the model with random intercept in relation to the one without control, but mainly the improvement in the fit indices of the model with acquiescence control is highlighted, which suggests that this bias should not be ignored in the estimation of factor scores (Valentini & Hauck Filho, 2020) of individuals who respond to SMM. In addition, the analyzes to verify the internal consistency suggested the reliability of the scale, since the coefficients presented values above 0.70.

The invariance analysis demonstrated that the SMM showed no difference in the measurement model at the configural, metric and scalar levels according to the subgroups from the different geographic regions of the country. In this sense, it is understood that the instrument presents stability in what corresponds to the factor structure, weight of the factor loadings and intercept of the items, when controlling the factor score level between the groups (Counsell, Cribbie, & Flora, 2020). These suggest the potential of the SMM to employ studies that aim to compare groups according to geographic location, without any possible differences found between the groups being attributed to the instrument, and not to real differences in the latent variable (Cheung & Rensvold, 2002). Thus, the results also suggest the potential of the instrument to share an interpretative norm between the different groups, and the evidence presented by Peixoto et al. (2019) when the invariance of the instrument to assess female and male participants.

Another important issue for the research is the estimation of evidence of validity based on other variables (positive affects, negative affects, life satisfaction, stress, depression, anxiety and distress). For this, Pearson's *r* correlations were performed between the factor score estimated by the model without acquiescence control and by the random intercept model and the scores of the other variables. According to Crum et al. (2018), stress mindset has a significant impact on the individual's life, due to a positive influence on health, performance and productivity. Crum et al. (2013) also state that a person with stress mindset tends to face the stressful event as a challenge, that is, in a positive way and as an alternative for learning and development. Additionally, a person with a positive stress mindset has lower levels of distress, as well as reduced symptoms of depression and anxiety, predicting higher levels associated with life satisfaction, energy, and performance (D. Park et al., 2018). Therefore, the correlations found in this study are in accordance with the theoretical proposal, since stress mindset is positively correlated with positive affects and life satisfaction, and negatively associated with depression, stress, anxiety, negative affects and distress.

Although this is a new perspective that seeks to assess possible positive effects of the belief in experiencing stress on the health of individuals, studies indicate that children exposed to stressful events tend to have higher levels of cognitive flexibility (Silva et al., 2017). Even though these data must be considered with carefulness, it can be said that they point to a possible positive effect of experiencing adverse situations in people's lives. According to Crum et al. (2013), the evaluation of stress as something positive is more associated with specific events (such as: college entrance exams, decision making, a competition), while the evaluation of stress as negative is more related to chronic events, such as the current pandemic, caused by COVID-19 (Nwachukwu et al., 2020; Shevlin et al., 2020).

Different authors (Enumo, Weide, Vicentini, Araujo, & Machado, 2020; Maia & Dias, 2020) carried out studies on stress, directly or indirectly, during the period of isolation, seeking to understand the implication of this phenomenon in the current circumstance and possible confrontations.

In general, the pandemic is being a very influential stressor event in the lives of individuals, because of social distancing, uncertainty about the duration of the quarantine, the financial situation, among others that are stimulating negative impacts, such as feelings of fear, insecurity, helplessness and boredom. However, the way the individual faces these situations also influences feelings. People who seek adaptive strategies during this period have higher levels of well-being and life satisfaction. From this perspective, the present research has a limitation regarding the data collection carried out at the beginning of the quarantine. In this sense, it would be appropriate to carry out a new study comparing stress mindset and the variables considered, taking into account the past isolation period and the possible influences of responses caused by such feelings experienced during these months.

It is important to remember that stress mindset and distress demonstrate a greater empirical approximation of the evaluated constructs, which agrees with the theory that supports both. The first, stress mindset, seeks to assess the perception that the individual has about a problem (stress) that he is facing or thinks about facing and how threatening it seems to him (Crum et al., 2013, 2017; Horiuchi, Tsuda, Aoki, Yoneda, & Sawaguchi, 2018). The second construct (distress) assesses the effects of experiencing a problem (stress) on the psychological health of this individual and how much psychological distress this event generated (Drapeau, Marchand, & Beaulieu-Prévost, 2011). Therefore, it can be hypothesized that both measures measure the stress process in two stages: in the evaluation of the stressful event (stress mindset) and in the results of the experience of the stressful event (psychological distress). In addition, the stress mindset construct is an easy-to-apply construct and can be enhanced through psychoeducational interventions that could have significant effects on the person's life (Crum et al., 2013; H. Park & Hahm, 2019).

It is noteworthy that well-developed instruments that present validity evidence for their intended purposes have the potential to offer effective benefits for both evaluators and those evaluated. Proper use of such tests may result in better decisions for individuals than would otherwise be the case. On the other hand, inappropriate use can cause irreparable harm to those evaluated and other actors affected by testing-based decisions (Andrade & Valentini, 2018).

Based on the results presented, it was possible to verify that the structure of the one-dimensional SMM was adequate for the Brazilian population (hypothesis a). In addition, the study indicated the influence of response biases, since CFA with random intercept obtained better fit rates (hypothesis b). The model also demonstrated the invariance of the scale for samples from different regions of the country (hypothesis c), as well as relationships with external variables in accordance with theoretical expectations (hypothesis d). It is observed, then, that the research objectives were satisfactorily achieved and that the hypotheses that supported the research were confirmed.

However, some limitations were found, such as the fact of having a non-probabilistic sample accessed electronically and, therefore, without any control of the instrument application environment. Thus, it is suggested to carry out studies that have samples accessed in person, enabling the evaluation of the equivalence between paper versions with the online version of the measure. It is also recommended to carry out studies that seek to assess validity evidence of the SMM, with regard to interventions and consequential validity. It is worth mentioning that studies on the stress mindset are still recent. In this sense, investments should be made to assess not only the psychometric quality of the measurement instrument, but also the theoretical association of the stress mindset construct with other constructs. These studies could shed light on the discussions about the stress and coping process that are so important in the scientific health literature.

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