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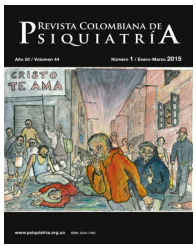

Letter to the Editor

Review of the COVID-19 Pandemic-related Perceived Stress Scale (PSS–10–C)

Revisión de la Escala de Estrés Percibido (EEP-10-C) relacionado con la pandemia de COVID-19

To the Editor,

The COVID-19 Pandemic-Related Stress Scale (PSS-10-C) was presented amidst the worldwide coronavirus disease (COVID-19) outbreak.[1] The PSS-10-C is an adaptation of the famous Scale of Perceived Stress (PSS-10).[2] The instrument's relevance is evidenced by several citations of using the PSS-C-10 in the world context.[3–5] The PSS-10-C presented a one-dimensional structure, without a confirmatory analysis factorial, and high internal consistency; however, the need to make adjustments in PSS-10-C was noted.[1]

Since perspective focused on the writing of the items, a review of the PSS-10-C suggested that the Spanish item 6 ('I have felt *unable* to face the things I have to do to control *the* possible infection') could partly explain that the factorial solution was not wholly satisfactory in explaining less than 50% of the variance.[6] Furthermore, item 6 was scored directly and was preceded and followed by two items scored inversely.[1] Often, these details can have a significant impact on the performance of the measurement scales.[7]

A sample of 1136 students from all majors of a Colombian university participated. Participants include ages between 18 and 29 years (mean, 22 ± 3], currently called emerging adults.[8] 66% of the sample was female, and 79% of residents in low-income areas were included. Students completed online an adjusted version of the PSS-10-C that only has a modification (in italics) in Spanish item 6 to which the wording was adjusted ('I have felt *able* to face the things that I have to do to control *a* possible infection'), and the meaning of the qualification was changed from direct to reverse. Items 1, 2, 3, 9, and 10 were scored directly from 0 to 4, and items 4, 5, 6, 7, and 8 were reversed from 4 to 0.[1] Exploratory factor analysis (EFA) and confirmatory (EFA) were performed (CFA). Besides, Cronbach's alpha was calculated as an indicator of internal consistency.[9] The analysis was performed using IBM-SPSS version 23.[10] This study was approved by an institutional research ethics committee (Act 002 of an ordinary meeting, March 26th, 2020).

In the EFA, the coefficient was KMO = .86, and Bartlett's test showed $\chi^2 = 3.985.3$, df = 54 and $P < .001$. Two factors were retained, factor 1 ('distress') (items 1, 2, 3, 9, and 10), which showed an Eigenvalue of 4.24 that explained 42.4% of the variance and factor 2 ('coping') (items 4, 5, 6, 7 and 8) that presented Eigenvalue of 1.42 responsible for 14.2% of the variance. The correlation between the factors was .55. The CFA showed the goodness-of-fit indexes the two-dimensional model of the PSS-10-C ($\chi^2 = 295.6$; df = 34; $P < .001$; $\chi^2/df = 8.7$; RMSEA = .08; 90%CI, 0.07-0.09; CFI = .93; TLI = .91; SRMR = .05). The global PSS-10-C showed Cronbach's α=.85, factor 1 = .83, and factor 2 = .77.

A slight modification in the writing and way of rating an item can produce a significant change in an instrument's psychometric performance, such as disqualifying adjectives, negative sentences, or other strategies that can change the rating sense of items.[7] The two-dimensional solution for the PSS-10-C is not novel; it has been previously reported for the PSS-10.[11–13] The 2 factors retained more than 50% of the variance, as is usually recommended,[6] and indicators of goodness-of-fit are good.[14,15] Also, this version of the PSS-C-10, with the adjustment of item 6, showed high internal consistency (.85), as the previous version (.86).[1]

In conclusion, the PSS-10-C is a valid and reliable tool among emerging adult students from a Colombian university. These indicators need to be corroborated in future research.

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