Brazilian Journal of Psychiatry
bjp
Revista Brasileira de Psiquiatria

Braz J Psychiatry. 2026;48:e20254516
doi:10. 47626/1516-4446-2025-4516
Brazilian Psychiatric Association

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ORIGINAL ARTICLE

The Brazilian Personal Social Capital Scale-10: a translated and adapted version of the Personal Social Capital Scale tested in a sample of residents of a flood-affected area

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Objective: In 2024, a catastrophic flood devastated Brazil's southernmost state, Rio Grande do Sul, highlighting the need for tools to assess social capital (SC). Yet, validated instruments for the Brazilian context are lacking. This study aimed to translate, cross-culturally adapt, and validate the eight-item version of the Personal Social Capital Scale for use in a Brazilian population after a climate event.
Methods: This validation study used a sample from a longitudinal project assessing the mental health of residents of a flood-affected area. Participants (n=1,057) responded to an online survey comprising the Brazilian PSCS-10 (brPSCS-10), the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5), and items on community resilience perception (CRP). The adaptation process involved expanding the scale to 10 items to enhance cultural relevance. Reliability was assessed using Cronbach's alpha, and a confirmatory factor analysis (CFA) tested the original two-factor structure.
Results: The brPSCS-10 demonstrated good internal consistency. The scoring model aligned with the original structure showed good fit on CFA. SC was higher among individuals with higher income and education levels, and was associated with lower PTSD symptoms and higher CRP.
Conclusions: The brPSCS-10 is a reliable instrument for measuring perceived SC in Brazilian Portuguese-speaking populations. Its brevity makes it suitable for large-scale surveys in post-disaster and public health research settings.

Keywords: Social capital; psychometrics; flood; natural disasters; mental health

Introduction

In 2024, Brazil's southernmost state, Rio Grande do Sul (RS), experienced one of the most severe climate disasters in its history. A series of massive floods affected 478 cities and impacted approximately 22% of the state's population.[1] These events can have devastating consequences for affected populations, including long-lasting psychological problems, economic hardship, and the disruption of vital social ties. A real-time data collection that assessed mental health during and after the event showed that 42.3% of participants exhibited moderate to severe depressive symptoms, and 45.2% showed moderate to severe anxiety symptoms.[2] Notably, half of the individuals in both groups reported no prior history of these conditions.[2] In this context, social capital (SC) serves as a crucial protective factor for mental health and contributes significantly to effective disaster response and recovery.[3,4]

SC is a polysemic concept with no universal consensus definition. Generally, it refers to the degree of connectivity and the quality and quantity of social relationships within a given community.[5] Other definitions of SC include "the strength of a social network, community, reciprocity, and trust in people and institutions"[6] and "the social networks, norms, and values that facilitate collective action for mutual benefit."[7] Even without a clear definition, researchers in general agree that SC can be measured by "a person's network connections, including size, trustworthiness, resource ownership and reciprocity"[8-12] and that it is an essential component of community resilience.

Over the years, several theoretical models have been proposed to conceptualize SC. Brain and Hicks[13] proposed the division of SC into two concepts: structural

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Submitted Aug 18 2025, accepted Jan 20 2026.

How to cite this article: Diefenthaeler SM, Marcon AC, Reginatto A, Hartmann ML, Cacilhas A, Prates-Baldez D, et al. The Brazilian Personal Social Capital Scale-10: a translated and adapted version of the Personal Social Capital Scale tested in a sample of residents of a flood-affected area. Braz J Psychiatry. 2026;48:e20254516. http://doi.org/10.47626/1516-4446-2025-4516

and cognitive. Structural SC refers to an individual's actions in society, while cognitive capital encompasses subjective perceptions such as trust, support, and reciprocity within the community. Later, Woolcock and Narayan[14] expanded on this by introducing two additional constructs: bonding SC, which refers to social cohesion within a specific group, and bridging SC, which denotes the connections that link members of different groups.[5] Additionally, the concept of linking SC has been incorporated into the model originally composed of bonding and bridging SC.[5] This dimension refers to the ties an individual establishes with people in positions of authority, such as representatives of public institutions. Its inclusion stems from the concern to recognize the existing heterogeneity in the significance these authority figures may hold for different individuals.[15]

Given the complexity and variability of these dimensions, numerous instruments have been developed to measure SC. Among those most recognized are the Name Generator,[16,17] Position Generator,[11,18-20] Resource Generator,[5,20-23] Adapted Social Capital Assessment Tool (A-SCAT),[5,24] and the Personal Social Capital Scale (PSCS).[9] However, these tools are often long and data-intensive, which limits their utility in large-scale studies.[8]

To address this issue, De Silva et al.[10] developed a shortened version of A-SCAT: the Shortened A-SCAT (SASCAT), composed of only 12 items. Despite being more practical, these tools have not been readily amenable to international application, with challenges arising particularly in the adaptation of culturally specific questions to different populations. In response, Wang et al.[8] proposed two abbreviated versions of the PSCS: the PSCS-16 and PSCS-8, with items equally divided between bonding and bridging domains. In a validation study with 259 participants in China, both scales demonstrated strong psychometric properties and high correlation with the original instrument. As a concise measure that retains the core bonding and bridging distinctions, the PSCS-8 is ideally suited for large-scale surveys. Its flexibility allows for necessary cultural adaptations, overcoming the shortcomings of previous tools and providing a scalable solution for SC assessment.

Under the circumstances of natural disasters, there is a consensus that a high level of SC represents a protective factor that enables communities to cope and adapt collectively to threats.[4] The literature indicates that SC is a valuable resource during periods of stress,[25] while low levels of SC are associated with poorer post-disaster recovery.[26] Furthermore, SC has been shown to mitigate the impacts of disasters and accelerate recovery processes globally.[3]

Given the recognized role of SC in post-disaster recovery and the lack of validated SC measurement instruments for use in large-scale studies in Brazil, this study introduces a new scale: the Brazilian PSCS-10 (brPSCS-10). This instrument is based on the original PSCS[9] and the abbreviated PSCS-8,[8] translated into Brazilian Portuguese and culturally adapted for the Brazilian context. It is intended for use in future studies assessing community resilience following the 2024 floods in RS. As climate change increases the frequency and severity of such events, especially in countries of the Global South, strengthening SC will become ever more critical.

Methods

Sample and procedures

The sample used in this study was derived from an ongoing longitudinal study that assesses individuals living in RS, Brazil, during and after an extreme weather event that resulted in a catastrophic flood in May 2024.[2] Since data collection occurred during an active state of emergency, no *a priori* sample size calculation was performed. However, the final sample (n=1,057) resulted in a subject-to-item ratio of approximately 105:1, which exceeds the desirable 20:1 ratio according to confirmatory factor analysis (CFA) literature recommendations,[27] ensuring sufficient statistical power.

Participants were initially recruited via social media and local media platforms to respond to a survey that comprised questions regarding sociodemographic data, flood impact levels, and validated instruments to assess symptoms of depression, anxiety, and PTSD. Participants who had previously enrolled in data collection and left their contact information were invited via email to respond to a similar questionnaire with the addition of brPSCS-10, 6 months after the event. Invitation emails were sent weekly between November 6 and December 31. The questionnaire was administered online through the SurveyMonkey platform (www.surveymonkey.com). The inclusion criteria were age over 18 years and living in RS during the floods. Participants who were under 18, who did not live in RS during the floods, or who did not complete the brPSCS-10 in full were excluded from the sample.

The original Personal Social Capital Scale

The PSCS-8 is a brief, eight-item, five-point Likert-type scale[8] derived directly from the original 42-item PSCS.[9] To preserve the construct validity of the original instrument, the PSCS-8 consists of eight unmodified items that were selected from the 42 PSCS items based on psychometric data from the original validation study.[9] This rigorous selection ensures that the brief version of the scale captures the core and most representative elements of SC while remaining practical for large-scale surveys where questionnaire length is a significant concern. The PSCS-8 successfully retains the original two-factor model, which divides SC into Bonding and Bridging. Each item represents one of four components for each factor: network size, trustworthiness, resource ownership, and reciprocity. The reliability of the scale represented by Cronbach's alpha was 0.83 for the total scale and 0.64 and 0.85 for the Bonding and Bridging subscales, respectively.

Cultural adaptation process

For the cultural adaptation and translation into Brazilian Portuguese, the authors were divided into two groups: 1) SMD and MLH, and 2) AC, DPB, and SH. Each group independently developed an adapted and translated version of the original scale.[8,9] These translated versions were then compared. Additionally, the European Portuguese version of the PSCS-16[28] was used as a reference for comparison. None of the authors had read this Portuguese version prior to the adaptation and translation process. The authors then collaboratively discussed the phrasing of each item until a consensus was reached. SH was responsible for coordinating the translation and adaptation process, ensuring conceptual consistency and cultural adequacy, given her previous experience with cross-cultural adaptation.[29-31]

During this process, several adaptations were made to improve the clarity and relevance of the items, considering three key dimensions: 1) specific cultural nuances; 2) the context of climate-related disasters; and 3) aspects the authors considered crucial for evaluating disaster response. While departing from standard methodological protocols for scale translation, these adaptations are considerably frequent[32-35] and necessary in the field of SC and community resilience, as these constructs can vary significantly depending on culture and context. As a result, instead of the original eight items of the PSCS-8, 10 items were included in the brPSCS-10 (Supplementary Material S1). The changes were as follows:

1. Item 2: The term ''coworkers/fellows'' was replaced with ''friends'' to assess trustworthiness. This change was made because literature findings suggest that support during disaster responses typically comes from closer individuals.[3,36] Additionally, Chen et al.[8] reported that trust in friends had a higher item-total correlation in the original 42-item scale.[9]
2. Items 4 and 5: Rather than using ''coworkers/fellows,'' the authors separated ''friends'' and ''relatives'' into two distinct questions to assess reciprocity. This was done because friends and relatives are usually the main sources of support during emergencies, and also to investigate which of these relationships is more strongly associated with SC in the post-disaster context.
3. Items 9 and 10: While the PSCS-8 originally asked about the reciprocity of ''governmental, political, economic, and social groups/organizations,'' the authors recognized that, in the Brazilian sociopolitical context, government aid can be perceived differently depending on one's political beliefs. Therefore, a similar item referring to ''non-governmental, non-profit, or voluntary groups/organizations'' was added to examine how these items would perform differently.

Additional measures

Besides the brPSCS-10, the questionnaire included demographic variables, such as age (in years), sex (male or female), monthly household income, and educational attainment. Flood impact variables were also assessed and used to describe the sample further. A binary categorical question about the perceived effectiveness of the support network was included and analyzed as convergent validity. Lifetime history of psychiatric diagnosis by a health professional and use of psychiatric medication were also assessed. The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) was used to assess PTSD symptomatology. Community resilience perception (CRP) was assessed through four items selected and adapted from a vast literature review of community resilience assessment[37-43] and scored on a five-point Likert-type scale: ''People in my community are willing to help each other,'' ''There is a strong sense of belonging in my community,'' ''I believe that together people in my community can solve major challenges,'' and ''My community can handle and overcome difficult times.'' The Brazilian Portuguese CRP items are available in Supplementary Material S2. PCL-5 and CRP total scores were used to assess concurrent validity.

Statistical analysis

To comprehensively evaluate the adapted scale, two distinct scoring models were created and used in all subsequent analyses. The first score, Model A, was calculated by summing all 10 items of the adapted scale. The second score, Model B, was derived to align with the structure of the original eight-item instrument. To calculate this score, the mean of the paired Bonding reciprocity items (items 4 and 5) was treated as a single component, and the mean of the paired Bridging reciprocity items (items 9 and 10) was treated as another. These two averaged values were then summed with the remaining six items. This dual-scoring approach ensures that the reciprocity items, which were divided during the cultural adaptation process, do not outweigh the other components of SC in the total score of Model B. At the same time, it allows for a more detailed analysis of each item's contribution to SC in Model A.

Descriptive analysis of the sample and item responses was conducted according to the original PSCS-8 scale to draw comparisons. Reliability was assessed using Cronbach's alpha, McDonald's omega, item-total correlations, and item-drop Cronbach's alpha. Reliability within groups was also assessed, as well as correlations between all items. A CFA was conducted to assess the fit of the proposed two-factor structure in the original study.[8] To compare scores between items 4 and 5 and items 9 and 10, a Wilcoxon signed-rank test was used, according to Shapiro-Wilk test of normality results ($p < 0.001$). T-tests and analysis of variance (ANOVAs) were performed to assess construct validity by comparing scores between different demographic groups, regarding sex, educational level, and age (older or younger than 40 years). Finally, regression analyses were conducted between brPSCS-10, PCL-5, and CRP.

Cronbach's alpha and McDonald's omega were deemed acceptable when $\geqslant 0.75$, very good when $\geqslant 0.80$, and excellent when $\geqslant 0.90$. In CFA, a comparative fit index (CFI) $\geqslant 0.90$, a Tucker-Lewis index (TLI) $\geqslant 0.90$, a root mean square of error approximation (RMSEA)

< 0.08, a standardized root mean square residual (SRMR) < 0.08, and chi square/degrees of freedom ratio (χ^2/df) $<$ 2.0 were used as parameters of good data-model fit. A 95%CI was used whenever applicable. Statistical analyses were performed in JAMOVI version 2.6.26.

Ethics statement

To enroll in the study, participants were first required to review and agree to the informed consent form, which was located on the opening page of the questionnaire. The study protocol was approved by the ethics committee of Hospital de Clínicas de Porto Alegre (CAAE 80017124.7.0000.5327).

Results

Sample characteristics

Women accounted for the vast majority of the sample (n=899; 85.05%). Three-fourths of the sample had completed higher education. Over half of the individuals were personally affected by the flood. There were similar proportions of individuals who had and did not have material losses/damages. Sample characteristics are described in Table 1.

Reliability

Table 2 shows the mean scores for each item, item-total correlations, and Cronbach's alpha if the item was deleted. The Wilcoxon signed-rank test revealed no significant difference between item 4 and item 5 scores (W = 69263.0, p = 0.117), which indicates no difference between reciprocity from family or friends. Conversely, there was a significant difference between items 9 and 10 (W = 10570.0, $p < 0.001$), indicating that participants reported higher reciprocity from non-governmental organizations (NGOs) than governmental organizations. Additionally, items 5 and 8 showed the highest item-total correlations, revealing an important role of ''reciprocity from friends'' and ''organizations that represent your interests.'' All item-total correlations were positive and significant, and the removal of any single item resulted in a decrease in the overall Cronbach's alpha coefficient, suggesting all items are relevant to the reliability of the scale. Cronbach's alpha for Model A was 0.85 (Bonding = 0.79; Bridging = 0.85), whereas for Model B it was 0.82 (Bonding = 0.75; Bridging = 0.82). McDonald's omega for Model A was 0.85 (Bonding = 0.81; Bridging = 0.86), whereas for Model B it was 0.8 (Bonding = 0.77; Bridging = 0.83). For Cronbach's alpha coefficients across different groups according to gender, age, educational level, monthly household income, lifetime history of psychiatric diagnosis, and use of psychiatric medication, see Supplementary Table S1.

Confirmatory factor analysis

A two-factor model (Bonding and Bridging) was tested via CFA for both the brPSCS-10 scoring models. Figure 1 shows the path diagrams for both models. The results indicated that Model A did not fit the data well, with multiple indices failing to meet the pre-specified criteria ($\chi^2(34) = 486.03$, $p < 0.001$; CFI = 0.90; TLI = 0.86;

Table 1 Characteristics of the study sample

Characteristic	Women	Men	Total
	n=899	n=158	n=1,057
Scale scores, mean (SD)			
brPSCS-10 (Model A score)	23.88 (6.66)	25.13 (6.08)	24.07 (6.58)
brPSCS-10 (Model B score)	18.88 (5.32)	19.95 (4.98)	19.04 (5.28)
PCL-5	25.50 (18.22)	18.69 (16.52)	24.48 (18.14)
CRP	12.55 (3.27)	12.81 (3.36)	12.59 (3.28)
Age, years			
$\geqslant$ 40	582 (55.06)	102 (9.65)	684 (64.71)
$<$ 40	317 (29.99)	56 (5.30)	373 (35.29)
Mean (SD)	44.86 (11.90)	44.58 (12.52)	44.82 (11.99)
Monthly household income,[†] BRL			
Up to 3,000	194 (18.73)	24 (2.32)	218 (21.04)
3,000 to 5,000	221 (21.33)	27 (2.61)	248 (23.94)
5,000 to 10,000	262 (25.29)	43 (4.15)	305 (29.44)
Above 10,000	202 (19.50)	63 (6.08)	265 (25.58)
Education			
Any primary education	21 (1.99)	1 (0.09)	22 (2.08)
Completed secondary education	202 (19.11)	37 (3.50)	239 (22.61)
Completed higher education	676 (63.95)	120 (11.35)	796 (75.31)
Lifetime history of psychiatric diagnosis by a health professional	503 (55.95)	65 (41.14)	568 (53.74)
Use of psychiatric medication	448 (49.83)	57 (36.07)	505 (47.78)

Data presented as n (%), unless otherwise specified.
brPSCS-10 = Brazilian Personal Social Capital Scale-10; CRP = community resilience perception; PCL-5 = Posttraumatic Stress Disorder Checklist for DSM-5.
[†] USD 1 $\simeq$ 6.3 BRL as of January 2025.

Table 2 Item analysis and reliability of the brpscs-10

Items by subscale	Model A (alpha = 0.85)			Model B (alpha = 0.82)		
	Mean (SD)	r with total	Alpha if deleted	Mean (SD)	r with total	Alpha if deleted
Bonding capital subscale						
1. How do you rate the number of friends you have?	2.17 (1.20)	0.49	0.84	-	0.50	0.81
2. Considering your friends, how many can you trust?	2.72 (1.03)	0.54	0.84	-	0.52	0.80
3. Considering all your family members, neighbors, friends, coworkers, and/or classmates, how many have a broad network of relationships or contacts?	3.01 (0.87)	0.48	0.84	-	0.47	0.81
4. How many of your family members would certainly help you upon your request?	3.02 (1.12)	0.52	0.84	3.00 (0.97)†	0.57	0.80
5. How many of your friends would certainly help you upon your request?	2.98 (1.04)	0.62	0.83			
Bridging capital subscale						
1. How do you rate the number of cultural, recreational, and leisure groups or organizations in your community (such as sports, artistic, religious groups, and others)?	2.05 (1.09)	0.51	0.84	-	0.52	0.80
2. How many of these groups/organizations have social connections that could help you?	2.04 (0.93)	0.63	0.83	-	0.63	0.79
3. How many of these groups/organizations represent your interests?	2.03 (0.95)	0.57	0.83	-	0.57	0.80
4. How many of these governmental, political, economic, and social groups/organizations in your community would certainly help you upon your request?	1.95 (0.88)	0.59	0.83	2.03 (0.85)‡	0.58	0.80
5. How many of these non-governmental, non-profit, or volunteer groups/organizations in your community would certainly help you upon your request?	2.10 (0.94)	0.61	0.83			

Items listed were back-translated into English. The Brazilian Portuguese items are available in Supplementary Material S1.
† The fourth bonding item in Model B was derived from the mean score of bonding items 4 and 5 in Model A.
‡ The fourth bridging item in Model B was derived from the mean score of bridging items 4 and 5 in Model A.

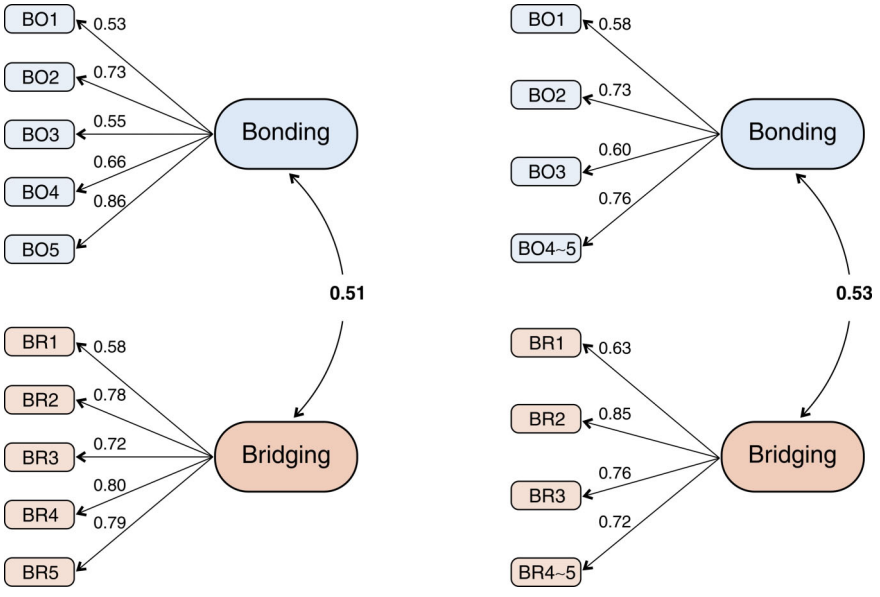


Figure 1 Confirmatory factor analysis for Model A (left) and Model B (right). Items are coded as BO for the Bonding factor and BR for the Bridging factor. For Model B, composite items BO4∼5 and BR4∼5 represent the averaged scores of their respective individual items, as specified in the Methods section. Standardized factor loadings, all of which were statistically significant ($p < 0.001$), are shown on the arrows.

RMSEA = 0.112; SRMR = 0.051). Conversely, Model B demonstrated adequate fit, with most robust indices meeting the recommended thresholds ($\chi^2(19) = 140.55$, $p < 0.001$; CFI = 0.96; TLI = 0.94; RMSEA = 0.078; SRMR = 0.037). While the chi-square test was significant for both models, a known issue in large samples, the

overall pattern of fit indices supports the factor structure of Model B. Correlations between all items are described in Supplementary Table S2.

Construct and concurrent validity

For construct validity, the difference between brPSCS-10 scores was tested between different groups according to age, sex, income, educational level, perceived efficacy of the support network, lifetime history of psychiatric diagnosis, and use of psychiatric medication. T-tests showed no statistically significant difference between the $\geqslant$ 40 and $<$ 40 age groups for both scoring methods (Model A: Student's $t = 0.25$, $p = 0.80$; Model B: Student's $t = 0.34$, $p = 0.73$). Regarding sex, men showed significantly higher scores than women (Model A: Student's $t = -2.20$, $p = 0.028$; Model B: Student's $t = -2.34$, $p = 0.19$). SC scores were also higher in individuals who reported an effective support network (Model A: Welch's $t = -9.03$, $p < 0.001$; Model B: Welch's $t = -8.56$, $p < 0.001$). Individuals with a lifetime history of psychiatric diagnosis showed lower SC scores (Model A: Student's $t = 2.80$, $p = 0.005$; Model B: Student's $t = 2.51$, $p = 0.012$) while no statistical difference was found between individuals who did or did not use psychiatric medication (Model A: Student's $t = 1.06$, $p = 0.287$; Model B: Student's $t = 0.96$, $p = 0.34$)

One-way ANOVA revealed significant differences in SC scores across income level groups (Model A: $F(3, 562.1) = 34.58$, $p < 0.001$; Model B: $F(3, 562.4) = 34.64$, $p < 0.001$), where higher income levels were associated with higher SC scores. Regarding educational levels, a significant difference was also found (Model A: $F(2, 55.28) = 18.85$, $p < 0.001$; Model B: $F(2, 19.87) = 19.87$, $p < 0.001$), as higher levels of SC were present in the higher educational level groups.

The regression analysis showed that both brPSCS-10 scoring models significantly predicted both PCL-5 and CRP scores ($p < 0.001$). Higher levels of SC predicted higher levels of CRP and lower levels of PTSD symptomatology, as measured by PCL-5. The mean score for both scoring methods, along with the 95%CIs and the standardized regression coefficients (b) of the regression analyses, are seen in Table 3.

Discussion

This study introduced and validated the brPSCS-10, an adapted and expanded version of the PSCS-8 culturally tailored for the Brazilian context and applied in the aftermath of one of the most severe natural disasters in the country's history. The results offer strong evidence of the scale's reliability, internal consistency, and construct and concurrent validity.

The brPSCS-10 demonstrated good internal consistency, as shown by Cronbach's alpha and McDonald's omega values. Reliability results were similar to those of the original PSCS-8, with the Bonding subscale presenting the lowest indices. Model B, which corrects for the potential overweighting of reciprocity items by averaging them, provided a better fit to the original two-factor model (bonding and bridging SC) than Model A. Therefore, we conclude that Model B is the recommended scoring method for the brPSCS-10, as it successfully integrates specific Brazilian cultural nuances (by assessing distinct sources of reciprocity) without compromising the psychometric integrity of the original scale's structure.

The results also confirmed robust construct validity. While in the original PSCS-8, the authors point out a limitation in not finding significant correlations between SC and educational attainment, our results show higher SC scores at higher educational levels. SC scores were also significantly higher for men and for individuals with higher incomes. Additionally, participants who perceived their support network as effective had significantly higher SC scores. These findings align with prior studies that indicate SC is not equally distributed across socioeconomic groups, often favoring those with greater access to resources, education, and civic engagement.[3,36,42,44]

The decision to expand the scale from eight to 10 items allowed for meaningful cultural adaptations that enhanced the instrument's contextual relevance. For example, separating reciprocity items into "family" and "friends" revealed similar average scores, though reciprocity from friends showed stronger correlations with total SC scores. This nuance may reflect the relational dynamics in Brazilian society, particularly in times of crisis, and opens up space for further investigation.

Likewise, separating reciprocity from governmental organizations and NGOs also yielded important insights. Participants reported significantly higher reciprocity from NGOs than from government bodies. This reflects the sociopolitical context of distrust in state institutions, which may have been aggravated by a lack of preparedness, climate change skepticism, and inaction towards severe-weather warnings.[45,46] This finding is consistent with broader literature on disaster preparedness, underlining the urgent need for public-sector engagement and proactivity in developing evidence-based public health strategies that promote resilience.[47]

The scale's concurrent validity was demonstrated by its significant associations with both lower PTSD symptom severity and higher perceived community resilience. These findings reinforce existing evidence that SC is a protective factor for mental health in post-disaster contexts[4] and further support the scale's utility for examining psychosocial outcomes in vulnerable populations.

Consequently, the brPSCS-10 facilitates a necessary shift from reactive recovery to proactive disaster preparedness.[36] Our results suggest that measuring SC before catastrophes occur is essential not only to assess community vulnerability but also to evaluate the efficacy of preventive social interventions. In this dual framework, SC serves as a critical clinical indicator of individual vulnerability, highlighting patients who lack resilience resources beyond the disaster context, while in public health, it signals areas requiring targeted policies to foster cohesion. Given the paucity of research on this topic in the Brazilian context, this validated tool is vital for expanding our understanding of the mechanisms by which SC influences mental health, ultimately guiding

Table 3 Construct and concurrent validity of the brPSCS-10

	Model A		Model B	
Variable/category	Mean	95%CI	Mean	95%CI
Construct validity				
Sex				
Women	23.88	23.45 to 24.32	18.88	18.54 to 19.23
Men	25.13	24.18 to 26.09	19.95	19.17 to 20.72
Age, years				
$\geqslant$ 40	24.03	23.53 to 24.54	19.00	18.60 to 19.41
$<$ 40	24.14	23.49 to 24.78	19.12	18.60 to 19.64
Effective support network				
No	21.55	20.91 to 22.19	17.13	16.62 to 17.64
Yes	25.21	24.73 to 25.69	19.91	19.52 to 20.30
Monthly household income,[†] BRL				
Up to 3,000	21.02	20.25 to 21.81	16.6	16.00 to 17.23
3,000 to 5,000	23.72	22.90 to 24.53	18.72	18.08 to 19.37
5,000 to 10,000	24.55	23.82 to 25.27	19.4	18.83 to 19.99
Above 10,000	26.63	25.86 to 27.40	21.12	20.49 to 21.75
Education				
Any primary	19.27	16.27 to 22.27	15.11	12.71 to 17.52
Completed secondary	22.34	21.57 to 23.12	17.62	17.01 to 18.24
Completed higher	24.72	24.26 to 25.18	19.58	19.21 to 19.95
Lifetime history of psychiatric diagnosis				
Yes	23.55	23.01 to 24.08	18.66	18.23 to 19.10
No	24.68	24.10 to 25.27	19.48	19.01 to 19.95
Use of psychiatric medication				
Yes	23.84	23.26 to 24.43	18.88	18.41 to 19.35
No	24.28	23.73 to 24.82	19.19	18.76 to 19.63
	b	95% CI	b	95% CI
Concurrent validity				
PCL-5 total	-0.83	-0.99 to -0.68	-1.04	-1.24 to -0.85
CRP total	0.24	0.21 to 0.26	0.29	0.26 to 0.32

brPSCS-10 = Brazilian Personal Social Capital Scale-10; CRP = community resilience perception; PCL-5 = Posttraumatic Stress Disorder Checklist for DSM-5.
[†] USD 1 $\simeq$ 6.3 BRL as of January 2025.

strategies to promote it as a protective factor against extreme weather events.

In this way, brPSCS-10 provides researchers, public health professionals, and policymakers with a brief yet valid tool to assess perceived SC for Brazilian Portuguese-speaking populations. Its brevity makes it suitable for large-scale surveys, rapid assessments, and longitudinal tracking. Importantly, the scale captures both bonding and bridging dimensions, offering insights into internal community cohesion and external connections that may facilitate collective action and resource access.

This study's findings warrant consideration in light of several limitations. Despite the large sample size, the sample was recruited online and is predominantly composed of women with high educational attainment, which may introduce selection bias and restrict the generalizability of the results. Future studies should aim to replicate these findings in more diverse populations. Also, although the adaptation aimed to reflect national rather than exclusively regional characteristics, cross-regional replications should be conducted to evaluate nationwide validity outside the state of Rio Grande do Sul. Additionally, this was a cross-sectional validation study; test-retest reliability was not assessed, nor was sensitivity to change over time. Longitudinal studies are needed to determine whether the scale can capture fluctuations in SC following new crises or throughout the recovery process.

This study presents a culturally adapted, psychometrically sound, and practically useful tool for measuring perceived SC in Brazil. The brPSCS-10 fills an important gap in the literature and enables researchers and practitioners to better understand how social networks, trust, and reciprocity contribute to resilience in the face of climate-related disasters. As climate change continues to amplify the frequency and severity of such events, validated instruments like this are indispensable for designing effective, evidence-based responses grounded in community strengths.

Acknowledgements

This project received financial support from Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS).

The authors thank Dr. Paulo Sousa Nascimento of the University of Lisbon for providing the European Portuguese version of the Personal Social Capital Scale-16.

Disclosure

The authors report no conflicts of interest.

Data availability statement

The data that support this study are not publicly available.

Author contributions

SMD: Conceptualization, Investigation, Methodology, Formal analysis, Project administration, Writing – original draft, Writing – review & editing.
ACM: Conceptualization, Investigation, Writing – original draft, Writing – review & editing.
AR: Conceptualization, Investigation, Writing – original draft, Writing – review & editing.
MLH: Conceptualization, Investigation, Writing – original draft, Writing – review & editing.
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All authors have read and approved of the final version to be published.

Handling Editor: Lais Razza

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