

## Adaptation of the Sense of Community Index for Brazilian Children<sup>1</sup>

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**Abstract:** The sense of community is an important construct for assessing the individual's relationship with his/her community context. This study aims to adapt the Sense of Community Index for Brazilian Children and verify its psychometric properties in this sample. The participants are 1,736 Brazilian children between 8 and 13 years old (53.3% girls). Exploratory factor analysis indicated a two-factor solution (Positive bond with community and Community neighbors' relationships), with 47.9% of explained variance. Scale reliability was adequate (Cronbach's  $\alpha = .78$ ) and confirmatory factor analysis presented good fit indices ( $CFA > .95$  and  $RMSEA < .05$ ). Multigroup analysis indicated that the items have the same meanings regarding sex and age, and that the latent factors means are comparable regarding sex, but not for age. The proposed model of the instrument is adequate and can be used in future studies with Brazilian children.

**Keywords:** community psychology, children (Brazil), psychometrics, statistical validity

## Adaptação do Índice de Senso de Comunidade Para Crianças Brasileiras

**Resumo:** O senso de comunidade é um construto importante para acessar a relação do indivíduo com seu contexto comunitário. Esse estudo objetiva adaptar o Índice de Senso de Comunidade para crianças brasileiras e verificar suas propriedades psicométricas na amostra. Participaram 1.736 crianças entre 8 e 13 anos (53,3% meninas). Análises fatoriais exploratórias indicaram uma solução de dois fatores (Vínculo positivo com a comunidade e Relações comunitárias entre os vizinhos), com 47,9% de variância explicada. A confiabilidade da escala mostrou-se adequada ( $\alpha$  de Cronbach = 0,78), e as análises confirmatórias indicaram bons índices de ajuste ( $CFA > 0,95$  e  $RMSEA < 0,05$ ). Análises multigrupos indicaram que os itens apresentam o mesmo significado considerando sexo e idade, e que os fatores latentes são comparáveis entre os sexos, mas não entre idades. Conclui-se que o modelo proposto do instrumento é adequado e pode ser utilizado em estudos futuros com crianças brasileiras.

**Palavras-chave:** psicologia comunitária, crianças (Brasil), psicometria, validade estatística

## Adaptación del Índice de Sentido de Comunidad Para Niños Brasileños

**Resumen:** El sentido de comunidad es un importante constructo para evaluar la relación del individuo con su contexto comunitario. Este estudio tiene como objetivo adaptar el Índice de Sentido de Comunidad para niños brasileños y comprobar sus propiedades psicométricas en la muestra. Participaron 1.736 niños entre 8 y 13 años (53,3% niñas). El análisis factorial exploratorio indicó una solución de dos factores, con el 47,9% de la varianza explicada. La fiabilidad de la escala fue adecuada ( $\alpha$  de Cronbach = 0,78), y los análisis de confirmación indicaron buenos índices de ajuste ( $CFA > 0,95$  y  $RMSEA < 0,05$ ). Los análisis multigrupos indicaron que los ítems tienen el mismo significado considerándose sexo y edad, y que los factores latentes son comparables entre los sexos, pero no entre las edades. Se concluye que el modelo propuesto del instrumento es adecuado y se puede utilizar en estudios futuros con niños brasileños.

**Palabras clave:** psicología comunitaria, niños (Brasil), psicometría, validación estadística

Several studies discuss the importance of strengthening the community network for health and development in Brazil and Latin America (Saforcada & Sarriera, 2008; Sarriera, 2011). However, there is no consensus on

the definition of what a community is among different authors. Because it is a polysemic term that includes a variety of senses and concepts, community has been used to describe everything from small groups to large communities. However, Montero (2004) asserts that the community should be conceived as a territorial space that is composed of physical, social, cultural and psychological dimensions. Additionally, the sense of community must be understood as a representative construct of a community. The community definition proposed by Montero is the one adopted in this study.

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The pioneering author in the use of the sense of community concept was Sarason (1974) in his book *The Psychological Sense of Community: Prospects for a Community Psychology*. Later, McMillan and Chavis (1986) proposed a complementary conceptualization, identifying the sense of community as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan & Chavis, 1986, p. 9). This concept is related to the perceptions of similarity and interdependence among residents (Amaro, 2007).

For this study, the sense of community concept as defined in Community Psychology as a socio-psychological concept is adopted, which emphasizes the experience of the community, seeking to understand attitudes, feelings, relationships and interactions between people in a community context. So, it is related to feelings of belonging and importance as perceived by individuals in a given territory and who share similar values (Chavis, Hogge, McMillan, & Wandersman, 1986).

Researchers have shown significant associations between sense of community and positive psychological aspects such as well-being. Pretty, Andrews, and Collett (1994) investigated the sense of community in adolescents, including it as a measure of subjective well-being, highlighting the dimensions of the feeling of emotional security, sense of belonging, and identity. Other studies of adolescents showed that the sense of community was associated with the support of friends and had an indirect effect on depressive symptoms (Moscardino, Scrimin, Capello, & Altoè, 2010), as well as being considered a protective factor for psychosomatic symptoms (Vieno, Lenzi, Santinello, & Scacchi, 2013).

Although there are fewer of them when compared to studies with adults and adolescents, studies have also investigated the sense of community with children. A study with Portuguese children and adolescents identified a significant relationship between sense of community and life satisfaction: increased sense of belonging and identification with the community combined to increase the level of life satisfaction (Elvas & Moniz, 2010). Also, some American studies have investigated the sense of community in the school environment. Those authors found that children who had developed a sense of community in relation to the school environment presented more collectivist behaviors. In addition, they were more willing to accept the values of the school and displayed less disruptive behavior, such as involvement with drugs, antisocial behavior and truancy (Schaps & Solomon, 2003). Neal and Neal (2014) argue, from a theoretical model, some possibilities for creating neighborhoods where the respect for diversity may be stimulated by fostering a sense of community among residents.

In order to operationalize the concept of sense of community, Chavis et al. (1986) conducted an exploratory study of 1,200 adults who responded to a questionnaire consisting of 23 open questions related to the psychological

sense of community. From this study, the authors constructed the Sense of Community Index with 12 dichotomous items divided into four factors: *Membership* (related to the sense of belonging or of sharing a sense of personal relatedness); *Influence* (sense of influence and of making a difference to a group); *Integration and fulfillment of needs* (feeling that the needs of the group members will be met through their membership in the group); and *Shared emotional connection* (the commitment to and belief that members have shared and will share a story, time and similar experiences) (McMillan & Chavis, 1986).

Since then, the Sense of Community Index (SCI) has been used in different studies on the subject. According to Obst and White (2004), the SCI makes two major contributions to Community Psychology. The first is that this scale has been created with empirical support and it has a strong conceptual base. The second contribution refers to the fact that the SCI is one of the few instruments of psychological sense of community that has been used in several groups, including adolescents and children.

However, there is still a gap in this area of study in Brazil related to instruments to evaluate the sense of community for children. Considering that the investigation of sense of community is one of the important psychosocial aspects in the evaluation of well-being and social participation in childhood (Casas, González, & Navarro, 2014), it is necessary to have instruments to evaluate this aspect in children. Therefore this study aims to adapt the Sense of Community Index for Brazilian children and verify its psychometric properties in this sample.

## Method

### Participants

The participants were 1,736 children aged between 8 and 13 years old ( $M = 10.18$ ,  $SD = 1.49$ ), of both sexes, 53.3% girls and 46.7% boys, coming from public (68.2%) and private schools (31.8%) of the Rio Grande do Sul State. In regard to location, 37.4% are located in the capital Porto Alegre, 17.7% in the metropolitan area, and 44.9% in the inner city areas of the State (Santa Cruz do Sul, Passo Fundo, Rio Grande and Santa Maria).

Porto Alegre is the capital of the State with a population of about 1.5 million people. The Human Development Index (HDI) shows it to be the biggest of the five researched cities, reaching .805 points, according to the United Nations Development Programme for the year of 2010 (Programa das Nações Unidas para o Desenvolvimento [PNUD], 2013). Santa Cruz do Sul, located in the center of the state, has a population of about 100,000 people. The biggest part of its economy is related to the tobacco industry, and its HDI is .773. Santa Maria is a city located in the midwest of the State. Its population is about 275,000 people, and its HDI is .784. The third sector movement is the biggest part of the economy, including a federal university and an army base.

Passo Fundo, in the north of the State, has a population of 200,000 people, and its HDI is .776. The biggest part of its economy is concentrated in agriculture and commerce. Rio Grande, the southern city researched, has a population of about 200,000 people and an HDI of .744. Most of its economy is related to industry and its international harbor.

## Instruments

Besides the Sense of Community Index, a questionnaire was applied containing items related to demographic data such as age, sex, school and city where one lives. The scale is described below:

*Sense of Community Index (SCI)*. The scale was originally developed by Chavis et al. (1986), with 12 items covering four dimensions of sense of community: (a) Member status, (b) Shared emotional connections, (c) Influence, and (d) Integration and needs-satisfaction. Regarding the psychometric properties of the SCI, Pretty et al. (1994) conducted two studies on the reliability of the scale, obtaining values of .72 and .78 for Cronbach's alpha. Petersen (2009) found a Cronbach's alpha of .89 for the overall scale, and alphas of .78 for Integration and Needs-Satisfaction, .87 for Member Status, .53 for Influence and .88 for Emotional Connections Shared in a study with children.

In addition to the original scale items, we added two items from the *Questionnaire of the Children's Worlds Research - The International Survey of Children's Well-Being* (<http://www.childrensworlds.org>): "In my neighborhood, there are enough places to play or to have a good time" and "I feel safe when I walk in my neighborhood". This instrument was answered on a 5-point scale, ranging from "Strongly disagree" to "Strongly agree".

## Procedure

**Data collection.** Data collection was conducted in schools contacted for convenience, which agreed to participate and completed the Institutional Agreement Terms. The children were given copies of the Consent terms, for authorization by parents or guardians. Only children who returned a signed consent form participated in the study. The data collection occurred collectively in the classroom, led by two trained researchers, and lasted about 50 minutes.

The process of translation from English into Portuguese was performed by two independent translators fluent in English. Afterwards, we performed a reverse translation (back translation) by other two translators, from Portuguese to English. At the end of this process, we compared the two final versions with the original version of the scale, seeking the best semantic equivalence in translation.

The instrument was first applied in a pilot study with 30 children aged from 8 to 12 years old, selected from a convenience sample, to check the understanding of the items. As a result of this first phase, it was observed that children presented understanding difficulties regarding two

items of the original scale: "People in this neighborhood do not share the same values" and "I have no influence over what this neighborhood is like". Therefore, these items were removed from the final version. It was also decided to remove the item: "I think my neighborhood is a good place for me to live" because it was redundant with other questions in the questionnaire.

Finally, for the total sample application, we used nine items from the SCI: "My neighbors and I want similar things"; "I can recognize most of the people who live in my neighborhood"; "I feel at home in this neighborhood"; "Very few of my neighbors know me"; "I care about what my neighbors think of my actions"; "If there is a problem in this neighborhood, people who live here can get it solved"; "It is very important to me to live in this neighborhood"; "People in this neighborhood generally do not get along with each other"; and "I expect to live in this neighborhood for a long time", along with the two items from the International Survey of Children's Well-Being: "In my neighborhood, there are enough places to play or to have a good time" and "I feel safe when I walk in my neighborhood", totaling 11 items. After the pilot test, we made changes to the scale according to the children's indications, and the instrument was used in the final phase of the research with 1,736 children.

**Data analysis.** Initially, we conducted bivariate correlation between the items of the Sense of Community Index (SCI). Given the prevalence of less than 5% of missing data, we decided by the regression imputation of these data. It was found that the assumptions of normality, linearity and homoscedasticity of the data for the analyses were met (skewness and kurtosis up to +/- 3). To verify the scale factor structure, we conducted an exploratory factor analysis and internal consistency analysis using SPSS-IBM 21.0, and confirmatory factor analysis using Amos software, version 21.0. Also, confirmatory factor analysis was performed to verify the multigroup factorial invariance of the scale, considering the sex and age of the children.

## Ethical Considerations

At all stages of the research, ethical procedures were respected in accordance with the criteria of ethics in human research in Brazil. The Research Ethics Committee of the Instituto de Psicologia at the Universidade Federal do Rio Grande do Sul approved the research project (CAAE no. 00674612.6.0000.5334). All the participants provided signed consent forms by them and their parents or guardians.

## Results

Initially, correlations were observed among the 9 items of the SCI and the two suggested items for inclusion in the scale (items 10 and 11), as can be seen in Table 1. Pearson's correlations indicate significant and positive relationships between most items. However, items 4 and 8 showed lower correlations with the other items, with few significant and

Table 1  
Correlations Among the Sense of Community Index Items

|   | 1       | 2      | 3      | 4      | 5       | 6      | 7      | 8     | 9      | 10     | 11 |
|---|---------|--------|--------|--------|---------|--------|--------|-------|--------|--------|----|
| 1. My neighbors and I want the same things  | 1       |        |        |        |         |        |        |       |        |        |    |
| 2. I can recognize most of the people who live in my neighborhood                     | .275**  | 1      |        |        |         |        |        |       |        |        |    |
| 3. I feel at home in this neighborhood  | .242**  | .351** | 1      |        |         |        |        |       |        |        |    |
| 4. Very few of my neighbors know me   | -.038   | .146** | .019   | 1      |         |        |        |       |        |        |    |
| 5. I care about what my neighbors think of my actions                                 | .243**  | .221** | .208** | -.033  | 1       |        |        |       |        |        |    |
| 6. If there is a problem in this neighborhood, people who live here can get it solved | .312**  | .277** | .359** | -.026  | .232**  | 1      |        |       |        |        |    |
| 7. It is very important to me to live in this neighborhood                            | .245**  | .281** | .535** | .014   | .247**  | .374** | 1      |       |        |        |    |
| 8. People in this neighborhood generally do not get along with each other             | -.113** | -.015  | .076** | .216** | -.067** | -.038  | -.007  | 1     |        |        |    |
| 9. I expect to live in this neighborhood for a long time                              | .183**  | .204** | .453** | -.039  | .138**  | .280** | .542** | .003  | 1      |        |    |
| 10. In my neighborhood, there are enough places to play or to have a good time        | .210**  | .249** | .289** | .034   | .167**  | .253** | .328** | -.013 | .257** | 1      |    |
| 11. I feel safe when I walk in my neighborhood  | .142**  | .174** | .339** | -.004  | .083**  | .213** | .266** | .046  | .236** | .341** | 1  |

\* $p < .05$ . \*\* $p < .001$ .

some negative correlations. It is noteworthy that these items have a negative sense, and therefore, their scores were reversed before any analysis.

**Principal Component Analysis (PCA) and Reliability Analysis**

After checking the correlations, we performed principal component analysis with varimax rotation. In all analyses, the assumptions were met (approximately .80 KMO and  $p < .001$  for Bartlett’s test of sphericity). To verify the authors’ theoretical proposal, we analyzed first only the nine items of the original scale. The PCA indicated a three-factor solution when considering Kaiser normalization with eigenvalues greater than one, in which the items were grouped differently than expected, with reference to the original scale that proposed four factors, not remaining thus not being sustained as the authors’ theoretical proposition.

A second principal component analysis was performed with the nine items, forcing a four-factor solution to see how they would group. It was observed that item 8, an inverted item, (“people in this neighborhood generally do not get along with each other”) was isolated in a single item factor, and the other items were grouped differently than expected, not in keeping with the division as proposed theoretically.

The internal consistency of the four factors, according to the authors’ proposal, would be as follows: (a) Factor Integration and needs-satisfaction composed of only item 1, (b) Factor Member status, composed of items 2, 3 and 4 with a Cronbach’s alpha of .360 (.518, if item 4 was removed), (c) Factor Influence, composed of items 5 and 6 with an alpha of .374, and (d) Factor Shared emotional connection, with items 7, 8 and 9, with a Cronbach’s alpha of .379 (.70, if item 8 was removed).

After this initial analysis, we decided to remove items 4 and 8 because of their low correlation with the other items, and the improvement of the scale’s internal consistency without those items. The next step was the inclusion of items 10 and 11 related to the perceptions of children concerning their neighborhoods (“In my neighborhood, there are enough places to play or to have a good time”, “I feel safe when I walk in my neighborhood”).

With the new composition of the scale with 9 items (without items 4 and 8, and with the two added items 10 and 11), we performed the third principal components analysis, considering Kaiser normalization and an eigenvalue greater than one. We found a two-factor solution that together explained 47.99% of the variance, the factors of which were named: (a) Positive bond with community, and (b) Community neighbors’ relationships. Table 2 shows the factor loadings of each item, as well as the internal consistency of each factor. All items had factor loadings greater than .50 on their respective factors.

From the data presented in Table 2, it is possible to see that Factor 1’s internal consistency was adequate, being above .70, while the internal consistency of Factor 2 was low. All items contributed to the reliability of their respective factors, and the explained variance of the first factor is also higher compared to the second. Nevertheless, scale reliability considering all items was adequate (Cronbach’s  $\alpha = .78$ ).

**Confirmatory Factor Analysis (CFA)**

A confirmatory factor analysis was conducted to assess the adequacy of the scale using the following goodness of fit indices: Chi-square, CFI (Comparative Fit Index), TLI (Tucker and Lewis Index), NFI (Normed Fit Index), RMSEA (Root Mean Square Error of Approximation) and SRMR (Standardized Root Mean Square Residual). The

Table 2  
Principal Component Analysis of the Sense of Community Index

|   | Factor 1 | Factor 2 |
|---|----------|----------|
| Factor 1. Positive Bond With Community  |          |          |
| 9. I expect to live in this neighborhood for a long time                              | .730     |          |
| 7. It is very important to me to live in this neighborhood                            | .722     |          |
| 3. I feel at home in this neighborhood  | .710     |          |
| 11. I feel safe when I walk in my neighborhood  | .638     |          |
| 10. In my neighborhood, there are enough places to play or to have a good time        | .545     |          |
| Factor 2. Community Neighbors' Relationships  |          |          |
| 5. I care about what my neighbors think of my actions                                 |          | .708     |
| 1. My neighbors and I want the same things  |          | .707     |
| 2. I can recognize most of the people who live in my neighborhood                     |          | .573     |
| 6. If there is a problem in this neighborhood, people who live here can get it solved |          | .529     |
| Reliability (Cronbach's $\alpha$ )  | .73      | .58      |
| Explained Variance (%)  | 35.97    | 12.03    |

values are considered acceptable when above .95 for CFI, NFI and TLI, and when below .08 for the RMSEA and SRMR (Byrne, 2010).

Figure 1 shows the Model obtained from the two-factor solution indicated by the PCA, with the values of the standard parameters, the factor loadings, error covariance's and latent variables correlation. All model parameters are significant.

Table 3 presents the fit indices for the models. It is observed that the initial model presented a CFI of .940 and the index of residues below .08. Considering that these values were close to the limit of what was considered acceptable, we opted to add two error covariance's between the items 9-7, and items 10-11, as indicated by the modification indices and because they are correlated. The final model showed better fit in all the indices analyzed, reaching a CFI of .975.

A multigroup confirmatory factor analysis for sex and age was also conducted to verify the equivalence of parameters between boys and girls and for three age groups (8, 10 and 12 years old). Three models were tested: the first model with freely estimated parameters for each group tested the configural invariance of the model for each group; the second model, in which the factor loadings were constrained to be equal, assessed whether the items have the same meanings for each group, which is the metric invariance; and the third model, in which they also restrict the intercepts, testing the comparability between the means of the latent factors of all groups, which is the strong factorial invariance.

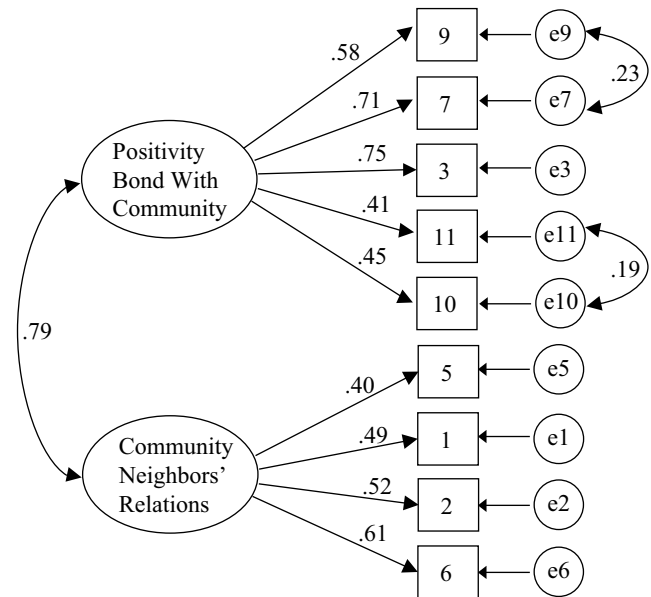


Figure 1. CFA of the Sense of Community Index with standardized estimates.

The indices for the three models can also be checked in Table 3 regarding sex and age.

To compare the fit indices between models, we considered the difference between the Chi-square of each model ( $\Delta\chi^2$ ). This difference should not be significant, indicating the viability of restricting the factor loadings and intercepts for the groups. For sex, all specifications multigroup models show good fit indices, and the difference between the chi-square for model with constrained factor loadings was not significant ( $p = .835$ ), as well as not significant for the model with constrained factor loadings and intercepts ( $p = .427$ ). For age, difference between the chi-square for model with constrained factor loadings was not significant ( $p = .845$ ), but it was significant for the model with constrained factor loadings and intercepts ( $p < .001$ ).

Table 4 presents the standardized estimates of the items for the unconstrained model for boys and girls and for the three age groups. All estimates are significant. Item 3, "I feel at home in this neighborhood," is the one with greatest weight for boys and girls. The item with the least weight is item 11, "I feel safe when I walk in my neighborhood," for boys and item 5, "I care about what my neighbors think of my actions," for girls. Most weights are greater for girls. Regarding age, six of the nine items have greater weights for the 12 years-old children, and the item with the least weight is item 11 for the 8 years old and item 5, "I care about what my neighbors think of my actions," for 10 and 12 years-old children.

## Discussion

This study aimed to adapt the Sense of Community Index to Brazilian Portuguese, in order to be used in research with children. Initially, the analyses were performed with

Table 3  
Confirmatory Factor Analysis Fit Indices

|  | $\chi^2$ | df  | p      | NFI  | TLI  | CFI  | RMSEA (C.I.)    | SRMR |
|--|----------|-----|--------|------|------|------|-----------------|------|
| Sense of Community Index (SCI) with 9 items                            | 209.035  | 26  | < .001 | .932 | .917 | .940 | .064(.056-.072) | .039 |
| Sense of Community Index (SCI) with 9 items and two error covariance's | 100.540  | 24  | < .001 | .967 | .962 | .975 | .043(.034-.052) | .027 |
| SCI - Sex Multigroup unconstrained                                     | 131.291  | 48  | < .001 | .958 | .959 | .973 | .032(.025-.038) | .031 |
| SCI - Sex Multigroup with constrained factor loadings                  | 134.795  | 55  | < .001 | .957 | .966 | .974 | .029(.023-.035) | .033 |
| SCI - Sex Multigroup with constrained factor loadings and intercepts   | 144.165  | 62  | < .001 | .954 | .969 | .973 | .028(.022-.034) | .033 |
| SCI - Age Multigroup unconstrained                                     | 186.689  | 72  | < .001 | .939 | .941 | .961 | .030(.025-.036) | .043 |
| SCI - Age Multigroup with constrained factor loadings                  | 195.470  | 86  | < .001 | .939 | .953 | .963 | .027(.022-.032) | .043 |
| SCI - Age Multigroup with constrained factor loadings and intercepts   | 318.650  | 102 | < .001 | .895 | .922 | .926 | .035(.031-.039) | .043 |

Table 4  
Standardized Parameters for Model 1

| Latent Factor                  | Item  | Sex  |       | Age  |      |      |
|--------------------------------|---|------|-------|------|------|------|
|                                |   | Boys | Girls | 8    | 10   | 12   |
| Positive Bond With Community   | 9. I expect to live in this neighborhood for a long time                              | .561 | .590  | .506 | .571 | .593 |
|                                | 7. It is very important to me to live in this neighborhood                            | .670 | .751  | .671 | .713 | .726 |
|                                | 3. I feel at home in this neighborhood  | .743 | .752  | .732 | .729 | .741 |
|                                | 11. I feel safe when I walk in my neighborhood  | .380 | .446  | .301 | .452 | .439 |
| Community Neighbors' Relations | 10. In my neighborhood, there are enough places to play or to have a good time        | .441 | .446  | .336 | .450 | .459 |
|                                | 5. I care about what my neighbors think of my actions                                 | .408 | .401  | .490 | .287 | .425 |
|                                | 1. My neighbors and I want the same things  | .451 | .527  | .525 | .487 | .523 |
|                                | 2. I can recognize most of the people who live in my neighborhood                     | .510 | .542  | .549 | .474 | .555 |
|                                | 6. If there is a problem in this neighborhood, people who live here can get it solved | .589 | .622  | .588 | .557 | .634 |

nine items of the original version, selected after pilot applications. We attempted to verify if, from these nine items, the original's theoretical propose would be maintained.

The results of the PCA demonstrated that, in this version, the scale presented a different performance from that expected in the original proposal, since the items were not grouped according to the four expected dimensions. Furthermore, the reliability indices for the factors obtained with these nine items were considered poor (below .40). Thus, this version of the modified scale was not considered to perform well with the sample.

We opted to add two new items related to the children's perceptions of the neighborhood ("In my neighborhood, there are enough places to play or to have a good time", "I feel safe when I walk in my neighborhood"). The addition of an item about having fun in the neighborhood was previously recommended by Chipuer and Pretty (1999), from previous studies made by them. The inclusion of these two items considered the importance of the ecological validity (Chipuer & Pretty, 1999), seeking to cover aspects that would be present in the reality of the children and that would be important to them (Casas et al., 2014; Pollard & Lee, 2003). Therefore, the inclusion of these items would be

important features of the Brazilian situation. The item "In my neighborhood there are enough places to play or to have a good time" could be related to the offer of recreational spaces in communities in Brazil. According to Tschoke and Rechia (2012), these places are usually not found in Brazilian poor communities, affecting a child's relationship with the community.

Likewise, the inclusion of the item "I feel safe when I walk in my neighborhood" is tied to a social reality permeated by insecurity and criminality. We observe that violence is common in some Brazilian cities, affecting the disposition of children in the use of community spaces (Avanci, Assis, Oliveira, & Pires, 2009). According to the Violence Map 2013 (Waiselfisz, 2013), Brazil has the highest number of homicides by gunfire in the world, ahead of countries like Mexico, Colombia, United States and Venezuela. Despite this scenario, considering the Brazilian states, Rio Grande do Sul is one of the federal units with the lowest homicide rates. Thus, the inclusion of these items served to improve the ecological validity of the scale. With the addition of two new items, the results from the PCA pointed to a formation of two factors: Positive bond with community and Community neighbors' relationships.

According to Heller (1989), the SCI of McMillan and Chavis (1986) was developed to cover aspects related to the physical territory of the community and the relationships existing in the community. Therefore, we observe that the new version of the scale, containing only two factors, is able to cover the theoretical properties that were underlying the four original factors. Thus, the first factor – Positive bond with community – would be related to the aspects of the physical and symbolic territory of the community, while the second – Community neighbors' relationships – would be related to the community relationships existing among residents.

In relation to psychometric properties, the results indicated that all nine items presented a factor loading greater than .40 and demonstrated a contribution to the scale. In this final version of the instrument, we found an adequate level of reliability, with a Cronbach's alpha of .78. However, for the factor "Community neighbors' relationships", the reliability was lower ( $\alpha = .59$ ), indicating that this factor can be improved with future studies.

The CFA legitimated the results obtained in the PCA: goodness-of-fit indices were found in the confirmatory model, considering a  $CFI > .95$  and an index of residues below .08. Thus, we consider the model proposed for the instrument to be adequate and can be used in new studies. Furthermore, the multigroup analysis indicated that the items have the same meaning regarding sex and age and the good fit allows us to compare the standardized factorial loadings of the groups. Most weights are greater for girls and for the 12-years-old children, indicating that the items contribute more to the sense of community for girls and for older children.

In relation to the changes proposed for the scale, Chipuer and Pretty (1999) claim that oscillations in the psychometric characteristics of scales are interesting, since in Community Psychology, it is understandable that communities exhibit significant variability. Thus, it is necessary to modify and develop new scales and new validation studies, because of the variety of cultural, geographic, political and psychosocial characteristics that research projects aim to cover with the studies.

Chipuer and Pretty (1999) affirm that scales addressing the psychological sense of community are in a constant process of construction. The authors emphasize that the lack of consensus among professionals hinders the consolidation of this concept. The ambivalent content of the four factors present in the original scale of McMillan and Chavis (1986) may be one of the causes of this lack of consensus.

Thus, a debate over the actual allocation of the items into four factors is opened, since other studies using CFA also did not support the formation of the scale in that proposal. For example, Long and Perkins (2003) found a scale model with three factors, after removing seven items of the original scale, also identifying the limitations of the index guided in four dimensions.

In relation to the original scale, it is important to note that difficulties over the use of inverted items were found with the children. Already in the pilot study it was decided not to apply two of them, since children reported difficulty understanding them. After the final application, it was necessary to remove two more items (4 and 8), that also showed reversed meaning in relation to the others. It is observed that inverted items, in general, hamper the understanding as instruments are completed, especially by children. Therefore, it is recommended that the use of inverted items should be avoided.

The elaboration or adaptation of an instrument for children is a challenge for researchers, since the consideration of this population as informants in research is still a recent development. But we consider that, although children may understand questions and formulate their answers differently from adults, this does not mean that their responses have no credibility or reliability. Researchers have to learn how to access children, and avoid drawing conclusions from an adult point of view (Casas & Bello, 2012).

While such difficulties do exist, the creation and adaptation of instruments for quantitative research with this population is important, especially in regard to the questions related to the community and the neighborhood where they live. It is especially emphasized that the field of international research still needs to be further improved with instruments to assess the sense of community in children. Thus, the validation of a scale for Brazil can help expand research with children using this design. It is considered that the adapted scale presented good performance in the sample, and it can be used in future research with Brazilian children.

Previous research pointed to the benefits that a higher level of sense of community brings to its members. Although most of these findings have been derived from adult data, the availability of an adapted instrument for Brazilian children that assesses sense of community allows researchers to advance in their studies with this age group. We highlight the importance of ongoing research involving the perceptions of children concerning different aspects of their lives. Such investment should occur both to better understand their perceptions of others and the community, as in the formulation and improvement of scales and methodologies that can investigate with greater accuracy and quality the opinions of this population.

The possibility of performing a research with a large sample is a positive aspect of the study. Also, the sample was quite heterogeneous, with children of both genders, as well as from public and private schools, and from different cities, not restricted to just an urban context. However, it is important to point out that only children of one Brazilian state (Rio Grande do Sul) participated in this study. Considering the country's cultural diversity, it is important that further studies be conducted in other regions of the country, to check the functioning of the instrument in other contexts.

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