Discriminant Validity of the Brazilian Version of SCORE-15: A Study with Community and Clinical Samples

Validade Discriminante da Versão Brasileira do Score-15: Um Estudo com Amostra Comunitária e Clínica

Validez Discriminante de la Versión Brasileña del SCORE-15: Un Estudio con Muestras Comunitarias y Clínicas

RESUMO

Objetivo: Avaliar a validade discriminante da versão Brasileira do *Systemic Clinical Outcome and Routine Evaluation* – 15 (SCORE-15) e definir pontos de corte na classificação de funcionamento familiar funcional e problemático. **Método:** A amostra inclui participantes da região Sudeste (amostra comunitária) e famílias com filhos com paralisia cerebral da região Norte (amostra clínica). A validade discriminante foi verificada por meio de teste de comparação de médias, enquanto os pontos de corte foram analisados a partir da curva *Receiver Operating Characteristic*. **Resultados:** O SCORE-15 apresenta capacidade discriminante, quando comparadas as duas amostras, especialmente nas dimensões comunicação e dificuldades familiares. Os pontos de corte foram: dimensão Forças = 1,8; dimensão Comunicação = 2,8; e Dificuldades = 3,0. **Conclusão:** O instrumento pode auxiliar na avaliação de famílias que possuem filhos portadores de diferentes doenças crônicas pediátricas, nas quais o funcionamento familiar influencia o tratamento.

DESCRITORES: Relações familiares; Autorrelato; Reprodutibilidade dos testes.

ABSTRACT

Objective: To assess the discriminant validity of the Brazilian version of the Systemic Clinical Outcome and Routine Evaluation – 15 (SCORE-15) and to define cutoff points for the classification of functional and problematic family functioning. **Method:** The sample included participants from the Southeast region (community sample) and families with children with cerebral palsy from the North region (clinical sample). Discriminant validity was verified using a mean comparison test, while cutoff points were analyzed using the Receiver Operating Characteristic curve. **Results:** The SCORE-15 presents discriminant capacity when comparing the two samples, especially in the dimensions of communication and family difficulties. The cutoff points were: Strengths dimension = 1.8; Communication dimension = 2.8; and Difficulties = 3.0. **Conclusion:** The instrument can assist in the assessment of families with children with different pediatric chronic diseases, in which family functioning influences treatment.

DESCRIPTORS: Family relations; Self report; Reproducibility of results.

RESUMEN

Objetivo: Evaluar la validez discriminante de la versión brasileña del Systemic Clinical Outcome and Routine Evaluation – 15 (SCORE-15) y definir puntos de corte en la clasificación del funcionamiento familiar funcional y problemático. **Método:** La muestra incluye participantes de la región Sureste (muestra comunitaria) y familias con niños con parálisis cerebral de la región Norte (muestra clínica). La validez discriminante se verificó mediante una prueba de comparación de medias, mientras que los puntos de corte se analizaron mediante la curva Receiver Operating Characteristic. **Resultados:** El SCORE-15 presenta capacidad discriminatoria al comparar las dos muestras, especialmente en las dimensiones de comunicación y dificultades familiares. Los puntos de corte fueron: Dimensión Fortalezas= 1.8; Dimensión comunicación=2,8; y Dificultades=3.0. **Conclusión:** El instrumento puede ayudar en la evaluación de familias que tienen hijos con diferentes enfermedades pediátricas crónicas, en las que el funcionamiento familiar influye en el tratamiento.

DESCRIPTORES: Relaciones familiares; Autoinforme; Reproducibilidad de los resultados.

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INTRODUCTION

Understanding and assessing family functioning must consider the challenges and changes in family life in a world that is constantly changing. Instruments for measuring family functioning and relationships, which can assist in family clinical interventions, need to be constantly reformulated in order to keep up with changes in family, social and cultural patterns. In this sense, the Systemic Clinical Outcome Routine Evaluation (SCORE-15) [1] appears as a valid measure for assessing the functioning of contemporary families because, in addition to being multidimensional, it is easy to apply and suitable for different age groups and different family configurations. [2-4] Therefore, we believe that the study of SCORE-15 as a measure with the potential to discriminate between normative family functioning (i.e., in community samples) and problematic family functioning (typical of clinical samples) should be explored, in order to provide a useful instrument for clinicians and researchers who spend their efforts studying and/or carrying out interventions with families.

Contemporary approaches to family studies consider the premise that there are many different types and compositions of families. Family configurations range from the most conventional (e.g., couples who choose civil and religious marriage) to couples who choose not to form a formal union, homosexual couples, remarried/reconstituted families, single-parent families, spouses who live in different homes, and other configurations are part of today's society. To Dessen [5], a contemporary definition of family should be based on the opinion of its members, considering affection and closeness to loved ones – the latter being criteria for the definition of family.

Considering the family life cycle from the systemic perspective of Carter and McGoldrick [6], over the course of its history, a family experiences the development of vertical and horizontal stressors. Vertical stressors refer to family patterns, myths, and legacies that are inherited from previous generations, in addition to the patterns established by the current family. Horizontal stressors, which refer to the development of the family group, refer to transitions between cycles, such as the phase of young children, adolescent children, adult children, and the phase of the family in its later stages. The second horizontal stressor refers to "unpredictable" stressors, such as early death, chronic illness, accidents, wars, among others. These unpredictable stressors can shake the family system and even compromise the development of the family and its members, depending on how the family deals with them.

The birth of a child with a disability can be stressful for the family system, which must reorganize itself to deal with the new care demands resulting from the degree of impairment in the child's physical, motor, cognitive and emotional development. Cerebral palsy (CP) impacts the child's development in different ways, and can generate, in addition to motor deficits, learning difficulties, sensory and speech disorders, among other disabilities and/or health problems. [7]

Health professionals have been concerned about the care needed by children/adolescents and their caregivers during the course of treatment. [8-14] Research aimed at parental care is the object of attention when it involves chronic pediatric disease conditions, such as CP, given the impact generated in the family, due to the difficulties experienced during the ongoing rehabilitation process of the child/adolescent.

In a longitudinal study with adolescents, Colver et al.[15] concluded that interventions in childhood to alleviate psychological difficulties, parental stress and physical pain were justified by the prolonged value in the quality of life of adolescents. In summary, it is essential that health professionals who work side by side with CP patients

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and their families have family assessment tools at their disposal, in order to identify situations of greater risk and/or difficulties at the level of family relationships.

The objective of this study is to assess the discriminant validity of the Brazilian version of SCORE-15 by comparing a community sample with a clinical sample of families with children with CP. The second objective is to define cutoff points for SCORE-15 considering both samples evaluated. In this way, the cutoff point of the clinical sample of families with children with CP is made available so that it can be used as a reference in the evaluation of other families with patients with chronic diseases in which the "family functioning" factor interferes in the improvement of the treatment of the disease and in family relationships. In addition, we intend to assess the differences presented by these samples in relation to their sociodemographic characteristics such as gender, age, education, marital status, income, region, and position in the family.

METHOD

This study is correlational and quantitative in nature, supported by numerical data collected through self-report instruments. This study has a cross-sectional nature, since the data were collected at a single time.

Participants

Two previous samples collected from adults were combined in this study: a community sample of families without a reported clinical situation, and a clinical sample of families with children with CP. In the community sample group, each respondent represented a family, with the exclusion criterion being receiving psychological and/or psychiatric support at the time of the assessment. In the clinical sample group, each respondent represented a family with an informal caregiver (generally a father or mother) of a child diagnosed with CP, and the exclusion criterion was the caregiver being under 18 years old.

Instruments

A questionnaire was used to collect sociodemographic information from the samples, such as gender, age, education, marital status, income, region, and position in the family.

The Portuguese version [16] from SCORE-15 by Stratton et al.[17] was applied to both samples to assess family functioning. This instrument consists of 15 items with Likert-scale responses, distributed across three dimensions: (1) family resources or strengths, (2) family communication, and (3) family difficulties. The psychometric properties of the Brazilian version of SCORE-15 were tested in a previous, unpublished study [data to be included after the publication of this study].

Procedures

The research followed all the criteria for research involving human beings. Data collection from the community sample was approved by the Research Ethics Committee of the State University of Rio de Janeiro (CAAE: 61184222.4.0000.5282; opinion no. 5.754.659). Data collection from the sample of caregivers of children and young people with CP was approved by the Research Ethics and Deontology Committee of the Faculty of Psychology and Education Sciences of the University of Coimbra on March 22, 2018. All participants agreed to participate in the research through the Free and Informed Consent Form.

Participants for the community sample were recruited at schools and universities in the city of Macaé-RJ, which allowed the research to be disseminated on their premises. Online recruitment for the research was also conducted and disseminated through the researcher's social networks. The data collection itself was online in any of the recruitment conditions mentioned, having occurred between February 2022 and February 2023. Regarding the data collection of the PC sample, this occurred between February and December 2019 and the recruitment of caregivers of children and adolescents with CP was carried out in public and private institutions that provide care to people with CP in cities in the state of Pará/Brazil.

The collected data were entered into an Excel spreadsheet to standardize the responses. The SCORE-15 score was calculated according to Stratton et al. (1) The sociodemographic characteristics of the sample, such as sex, age, education, marital status, income, region of the country where the sample lived, and position in the family, were explored using descriptive statistics (mean, standard deviation, frequency, and percentage). The groups were compared in relation to the sample characteristics using the Student's t-test, Chi-square, or Fisher's exact test (tests chosen according to each variable).

To verify the discriminant validity of the SCORE-15, the "community sample" and "clinical sample" groups were compared using the Student's t-test. The Receiver Operating Characteristic (ROC) curve was used to determine the SCORE-15 cutoff points, considering the Sensitivity and Specificity of the samples established for the clinical group. [18]

For all tests performed, a significance level of 95% was considered and all analyses were performed in Jamovi version 2.6.17 of 2024. [19]

RESULTS

The sample consisted of 429 participants, 276 from the community sample (64.3%) and 153 from the clinical sample (35.7%). The samples differed from each other in all characteristics evaluated (Table 1). In general, the community sample presented greater diversity in the categories evaluated, while the clinical sample was mostly composed of younger mothers, from the North region and with lower monthly income.

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Table 1. Sociodemographic characteristics of community and clinical samples - Pará and Rio de Janeiro, 2019 to 2023

Variable	Community sample (n = 276)	Clinical sample (n = 153)	*p value*
Age (years; NA = 14)	43,7 ± 14,6	33,4 ± 8,8	< 0,001
Binary gender (NA = 1)			
Female	158 (57,4%)	144 (92,3%)	< 0,001
Male	117 (42,5%)	9 (5,7%)	
Position in the family (NA = 81)			
Spouse	90 (45,6%)	0 (0%)	< 0,001
Mother or father	73 (37%)	151 (96,7%)	
Son or daughter	34 (17,2%)	0 (0%)	
Education (NA = 4)			
Incomplete Elementary school	15 (5,45%)	15 (9,6%)	< 0,001
Complete Elementary school	5 (1,81%)	35 (22,4%)	
High school	43 (15,6%)	85 (54,4%)	
Higher education	210 (76,0%)	17 (10,8%)	
Marital status (NA = 1)			
Single	76 (27,6%)	47 (30,1%)	< 0,001
Divorced	23 (8,3%)	6 (3,8%)	
Married	140 (50,9%)	38 (24,3%)	
Widowed	9 (3,2%)	4 (2,5%)	
De facto union	27 (9,8%)	58 (37,1%)	
Region where they live (NA = 1)			
North	24 (8,7%)	151 (96,7%)	< 0,001
Northeast	12 (4,3%)	0 (0%)	
Midwest	9 (3,2%)	0 (0%)	
Southeast	216 (78,5%)	0 (0%)	
South	14 (5,0%)	2 (1,2%)	
Income (NA = 12)			
Below 1 minimum wage	20 (7,2%)	76 (48,7%)	< 0,001
1 - 2 minimum wages	59 (21,4%)	50 (32,0%)	
2 - 3 minimum wages	38 (13,8%)	16 (10,2%)	
4 - 5 minimum wages	56 (20,3%)	0 (0%)	
6 - 7 minimum wages	77 (28,0%)	1 (0,64%)	
Over 20 minimum wages	23 (8,36%)	0 (0%)	

Notes: NA = Not available; CP= Cerebral palsy.
Source: authors.

SCORE-15 results (Table 2) indicated that only the Strengths dimension did not differ between the samples. In all other dimensions, the clinical sample obtained higher SCORE-15 scores, indicating worse family functioning.

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Table 2. Discriminant validity of SCORE-15 - Pará and Rio de Janeiro, 2019 to 2023

Dimension	Community sample (n = 276)	Clinical sample (n = 153)	*Student-t test*
Strength	1,85 ± 0,75	1,99 ± 0,71	t (426) = 1,83 [0,136; 0,074]; p = 0,068
Communication	2,35 ± 0,93	3,44 ± 0,82	*t (427) = 12,24 [1,097; 0,089]; p < 0,001*
Difficulties	2,33 ± 0,96	3,67 ± 0,73	t (427) = 15,12 [1,346; 0,089]; p < 0,001
Total	2,18 ± 0,76	3,04 ± 0,37	t (427) = 13,05 [0,853; 0,065]; p < 0,001

Source: authors.

The results of the ROC curve are presented in Table 3 and Figure 1. The models showed good fit, ranging from 56.7% to 86.5%. The cutoff points for the SCORE-15 from the ROC curve were: Strengths dimension = cutoff point 1.8; Communication dimension = cutoff point 2.8; and Difficulties = cutoff point 3.0. It is worth noting that the closer the ROC curve gets to the upper left corner, the better the quality of the test in terms of its ability to discriminate groups.

Table 3. ROC curve results - Pará and Rio de Janeiro, 2019 to 2023

Cutoff	Sensitivity	Specificity	AUC
Strength			
1,8	63,82%	49,82%	*0,567*
2	51,97%	58,91%	0,567
2,2	40,13%	70,18%	0,567
2,4	31,58%	78,91%	0,567
Communication			
2,2	95,39%	49,28%	0,817
2,4	91,45%	55,8%	0,817
2,6	84,87%	62,68%	0,817
2,8	78,95%	69,2%	0,817
3	74,34%	75%	0,817
3,2	66,45%	80,07%	0,817
Difficulties			
2,6	94,74%	66,67%	0,865
2,8	90,79%	73,55%	0,865
3	83,55%	77,9%	0,865
Total			
2,47	93,42%	67,03%	0,841
2,53	92,11%	71,38%	0,841
2,6	90,79%	73,91%	0,841
2,67	87,5%	75%	0,841
2,71	84,21%	75,72%	0,841
2,73	84,21%	76,09%	0,841

Note: AUC = area under the curve.
Source: authors.

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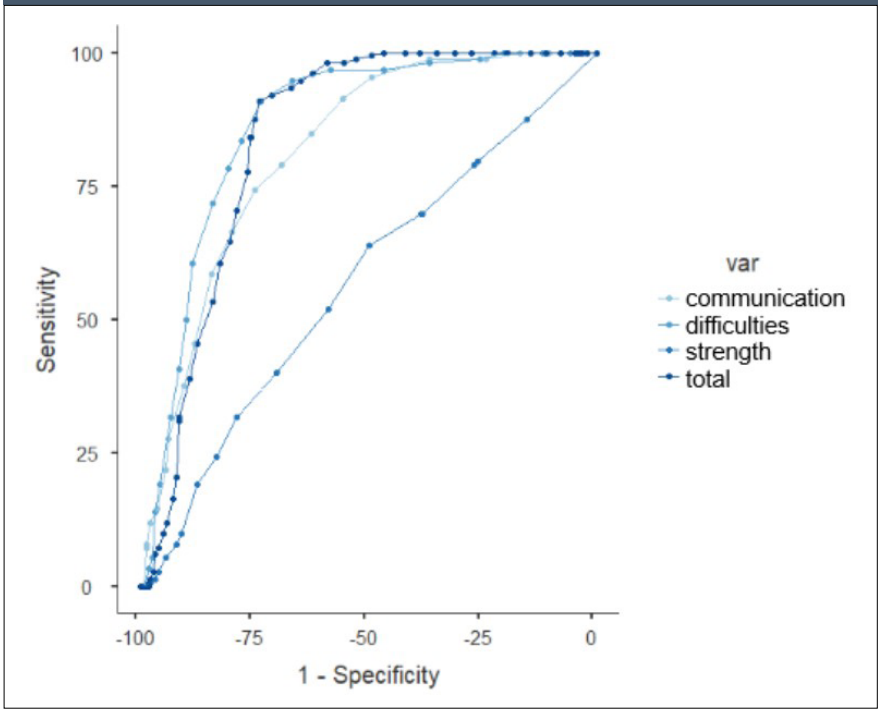
Figure 1. Graphical representation of the results of the ROC curve - Pará and Rio de Janeiro, 2018 to 2023.



Source: authors

DISCUSSION

The research evaluated the discriminant validity of SCORE-15 in a community sample and in a clinical sample (i.e., families with children with CP). Results revealed the discriminant capacity of the instrument in the dimensions Communication, Difficulties and total score. These data are similar to those found by Vilaça et al.[20] which compared a community group and a clinical family therapy group. The numbers show the reality of the differences between the samples, that is, while community respondents may perceive their difficulties as being overcome, those from families with CP deal with a significantly greater burden of daily care demands, indicating greater difficulties.

The Strengths dimension did not reveal any difference between the community and clinical groups, a finding that can be interpreted due to the fact that these families were receiving support from institutions focused on monitoring children with CP. In the research by O'Hanrahan et al. [21] and Vilaça et al.[20] there were differences in all dimensions, including Strengths, between the community and clinical groups.

Results for the Communication and Difficulties dimensions showed differences between the community and clinical groups, as was found in the studies by O'Hanrahan et al. [21] (2017) and Vilaça et al.[20]. The clinical sample showed higher values in both dimensions, confirming that the care required for patients with CP impacts family life, creating challenges for individual members and for the family group as a whole. The results are consistent with expectations, due to the need for help that the clinical group has in various areas of their lives.

The cutoff point for the total SCORE-15 scale based on the ROC curve of this study [2.7] was between the value found in the study by Vilaça et al.[20] (2,4 points) and that obtained in the Irish study by Fay et al. [22] (2,9 points). This diversity in the definition of SCORE-15 cutoff points may be related to cultural differences.

CONCLUSION

The main objective of the research was achieved, that is, the confirmation that the SCORE-15 discriminates between community and clinical groups (families with CP), given that it strengthens its psychometric properties and encourages its use in Brazil, both in research and in the therapeutic process with families. The study of the discriminant validity of the SCORE-15 as an external measure fills a gap in research on family assessment instruments, demonstrating its originality, as well as the relevance of the assessment of the "family functioning" factor to support various types of intervention.

This study has some limitations, namely the imbalance in the size of the two samples; the fact that the clinical sample included only patients with CP and thus limited the generalization of these results to other chronic diseases; and the fact that the community and clinical samples were from specific regions and, probably, not representative of the entire country. It is known that in Brazil, regional differences can be compared to differences between countries on the same continent, so the results obtained need to be viewed with caution. As a suggestion, we indicate future investigations that may help in the analysis and evaluation of clinical groups with different chronic diseases, from deficiencies or disorders in child development to organic diseases, such as autoimmune diseases and diabetes, since the "family functioning" factor may interfere with physical and mental health, indicating the need for more empirical investigations.

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