

# Cross-cultural adaptation of *Autism Classification System of Functioning: Social Communication (ACSF: SC)* for use in Brazil

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**Abstract:** Objective: To conduct a cross-cultural adaptation of the instrument: *Autism Classification System of functioning: Social communication (ACSF: SC)*, which allows clinicians to classify the level of the social communication function of children with autism spectrum disorder (ASD), for its use in Brazil. Method: Methodological study of cross-cultural adaptation of the instrument ACSF: SC. We followed recommendations for transcultural adaptation of health protocols, which included assured permission, translation, reverse translation, review, and panel of experts. Results: The evaluation of the experts revealed that the translated version of the ACSF: SC instrument was well understood conceptually and culturally adequate, with 48 sentences presenting a concordance index greater than 90% regarding conceptual and cultural equivalence. Phrases that did not achieve adequate levels of agreement were reviewed, according to experts' suggestions. Conclusion: Equivalence between the original ACSF: SC and its translated into Brazilian Portuguese is guaranteed, as it reached a concordance index above 90%. The Brazilian version of the ACSF: SC will be suitable for clinical use once its psychometrics properties are established.

**Keywords:** *Translation, Adaptation, Social Communication, Autistic Spectrum Disorder (ASD).*

## Adaptação transcultural do instrumento *Autism Classification System of Functioning: Social Communication (ACSF: SC)* para uso no Brasil

**Resumo:** Objetivo: Realizar a adaptação transcultural do instrumento: *Autism Classification System of functioning: Social communication (ACSF: SC)*, que permite classificar o nível da função da comunicação social de crianças com transtorno do espectro autista (TEA), para uso no Brasil. Método: Estudo metodológico de adaptação transcultural do instrumento ACSF: SC. Foram seguidas recomendações para adaptação transcultural de protocolos da área da saúde, que incluiu a permissão assegurada, tradução, tradução reversa, revisão e painel de especialistas. Resultados: A avaliação dos especialistas evidenciou que a versão traduzida do instrumento ACSF: SC foi bem compreendida conceitualmente e adequada culturalmente, com 48 frases apresentando índice de concordância maior que 90% quanto à equivalência conceitual e cultural. Frases que não obtiveram níveis adequados de concordância foram revisadas, conforme sugestões dos especialistas. Conclusão: A equivalência entre o instrumento ACSF: SC original e a tradução está garantida, obtendo índice de concordância acima de 90%. O instrumento estará apto para uso clínico em breve, após validação de suas propriedades de medida.

**Palavras-chave:** *Tradução, Adaptação, Comunicação Social, Transtorno do Espectro Autista (TEA).*

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## 1 Introduction

According to the Diagnostic and Statistical Manual of Mental Disorders 5<sup>th</sup> Edition (AMERICAN..., 2013), Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder manifested in the first years of life (AMERICAN..., 2013). In general, before the child enters school, characteristics such as persistent deficits in communication and social interaction in different contexts, deficits in social reciprocity, non-verbal communication behaviors for social interaction, and skills to develop, maintain and understand relationships (AMERICAN..., 2013). The diagnosis requires the presence of repetitive and restricted patterns of behavior, interests, and activities that impair performance in daily activities. There was a fusion of autistic disorder, Asperger's disorder and overall developmental disorder in autistic spectrum disorder in the latest version of the Diagnostic and Statistical Manual of Mental Health (DSM-5). Thus, symptoms represent a single continuum of impairments with intensities ranging from mild to severe in the domains of social communication and restrictive and repetitive behaviors, being no more variations of the disorder but the severity of ASD.

The impairments in the function of social communication and social interaction are the main characteristics in children with ASD, both in verbal and non-verbal communication (SILVA et al., 2012). For Campelo et al. (2009), the greatest language difficulties faced by children with ASD are related to the pragmatic aspects and the structuring of narratives. The pragmatic aspects, according to Reis, Pereira and Almeida (2016), are the use of language as a tool for communication, specifically how language is used in context in social interactions. Approximately half of the children with autism do not use language in a functional way and still present consistent delays in communication; other children already develop communication similar to normality, even if they present pragmatic difficulties (MILHER; FERNANDES, 2009). The pragmatics assimilate both the linguistic functions as the registration of communication and the possibility of referential expressions as well as non-linguistic functions, such as visual contact and body expressions (REIS; PEREIRA; ALMEIDA, 2016).

Silva et al. (2012) point out that the forms of communication most used by autistic children are the pre-symbolic: global body movement, crying and manipulation. Verbal and non-verbal deficits in the social communication may have varied manifestations

according to the individual's age, intellectual level, and linguistic ability, as well as other variables, such as the history of the treatment and the current reception. These individuals may have varied language deficits such as total absence of speech, delays in language, reduced speech comprehension, speech in echolalia (REIS; PEREIRA; ALMEIDA, 2016), is the most evident aspect according to Tager-Flusberg, Paul and Lord (2005). Some people with ASD find it difficult to initiate or react to another person's speeches and physical actions, others may not be able to sustain a conversation initiated by others, and others even attempt a desire-driven conversation in repetitive and restrictive activities or interests (AMERICAN..., 2013).

For Oliveira (2009), autistic children have difficulties in three areas: social interaction, language for social communication and symbolic play. Oliveira (2009) also reinforces that the behavioral aspect is externalized through aspects such as the absence of visual contact, the absence of speech, stereotypes, routine obsession and fascination with objects. Other authors such as Balestro and Fernandes (2012) add that the communication characteristics of children with ASD involve issues such as the absence of speech in children older than three years old, speech decontextualized and absence of facial expression.

According to Di Rezze et al. (2016), there are two important social media instruments in ASD called the Autism Diagnostic Interview-Revised (ADI-R) (RUTTER; LE COUTEUR; LORD, 2003) and the Autism Diagnostic Observation Schedule (ADOS) (GOTHAM; PICKLES; LORD, 2009). ADI-R is an interview-based instrument with caregivers whose goal is to provide a broad understanding of the developmental history of a child with ASD, with inadequate symptoms and behaviors. This instrument was culturally adapted and validated to use it in Brazil by Becker et al. (2012) and presented good measurement properties in preliminary studies (BECKER et al., 2012). However, the researchers recommend care in the use of ADI-R, since validation was performed with a small sample with case-control methodology, which may overestimate the properties of scales that evaluate behavior (BECKER et al., 2012). ADOS is a standardized observational measure that analyzes social communication, judging repetitive and restricted behaviors. Although Marques and Bosa (2015) affirm that ADOS is also in the process of initial validation in Brazil, no related studies were found.

Both have been useful in the diagnosis of ASD, but only ADOS has levels of severity used in research. One challenge of the clinic with the severity levels of ADOS is the absence of any descriptive meaning. Also, ADOS severity levels are not specific to social communication; the severity of ADOS is based on a number of symptoms, including deficits and abnormal behaviors. While ADOS is currently the standard of diagnostic criteria for autism, children with the same severity may perform quite differently from social communication (DI REZZE et al., 2016). These differences in social communication can lead to different functional abilities in daily life. Thus, classification is necessary to group the different levels of communication of the child with autism.

Considering the characteristics of the communication of children with ASD, Di Rezze et al. (2016) created ACSF: SC (Autism Classification System of functioning: Social communication), based on the Classification of Functioning, Disability and Health of the World Health Organization (WORLD..., 2001), aiming to provide a common language for classifying social communication of children with preschool-age ASD, focusing on their strengths and more specific support needs. Di Rezze et al. (2016) point out that ACSF: SC is a valid and reliable classification system, based on CIF (WORLD..., 2001) to better characterize the “levels” of communication ability of children with ASD. Unlike other instruments that focus on the deficits and symptoms of children with ASD, ACSF: SC emphasizes the child’s abilities. The creation of this classification system was based on reports, observation, and experience of parents and professionals. The instrument was created in Canada, in English.

This study aims to perform the cross-cultural translation and adaptation of the instrument: Autism Classification System of functioning: Social communication (ACSF: SC), development by Di Rezze et al. (2016) to its use in Brazil.

## 2 Method

### 2.1 Procedures

For this paper, the translation criteria proposed by Coster and Mancini (2015) were used following five steps: (1) permission granted; (2) translation; (3) back translation; (4) review; (5) evaluation. In this study, the results of phases 1 to 4 will be presented, since the evaluation of the quality of the instrument will still be performed.

The first step is the author’s permission to perform the translation of his instrument. After the authorization, the initial translation was performed, which was done by two occupational therapists fluent in Portuguese and English, independently. At the end of the independent translations, a consensus meeting was held between the two translators and a third person, also fluent in both languages, to identify possible differences between the two versions and get a final version of the translation. When they got a single version, the next step was the back translation.

The back translation was for checking the accuracy of the translation. The translated instrument was back-translated into its source language and then compared to the original version. This step was also performed independently by two occupational therapists who were not involved in the translation process, for later versions to be compared. The comparison was used to verify discrepancies between the back translation and the original version of the instrument.

After the translation and the back translation, a committee of experts was created, which consists in submitting the translated version to professionals not involved in the translation process, who may be users of this instrument, ensuring that the terms are clear and familiar. Tables containing the original sentences and their respective translations were sent to the expert committee, and each committee member analyzed the conceptual equivalence and cultural appropriateness of each sentence in Portuguese. According to Beaton et al. (2000), the conceptual equivalence refers to the meaning of the word, evaluating the coherence of the concepts in the original instrument and the target population of the new version, while the cultural adequacy refers to the adequacy of the terms used in the translated version, analyzing the understanding and the cultural context of the target population.

The experts received the following guidelines, which should be answered for each sentence of the instrument: (1) Mark if you consider that English and Portuguese sentences have the same meaning (conceptual equivalence - CE); (2) Mark whether you think the sentence in Portuguese is understandable or not understandable, verifying if the terms used are understandable or not for the Brazilian population (cultural adaptation - CA); (3) If you have any suggestions for changes, please write in the comments column. The answers of the experts were tabulated in Excel spreadsheet, considering score 0

for “no” answer and score 1 for “yes” answer, both in conceptual equivalence and for cultural adaptation, and the concordance calculation was performed considering the percentage of “yes” answers among the experts, for each item. The concordance rate among the evaluators considered acceptable is 90% (POLIT; BECK, 2006) and the suggestions of the committee members were used to review items with agreement below that level.

The fourth step was the review carried out by the author of the instrument to ensure that the translation is accurate and with the important characteristics of the instrument from the back translation. Canadian authors recently approved the back translation. Within the fourth step, a pre-test of the classification system was carried out, including 7 occupational therapy interns and 4 mothers of children with ASD, from 3 to 5 years and 11 months old, attended in the Laboratory of Sensory Integration of the University Federal of Minas Gerais. The trainees and the mothers were asked to read the instrument and carry out the classification of the children. The fifth step will be the evaluation of the quality of the measurement properties of the instrument, using the classification system with Brazilian children.

## 2.2 Instrument

The Autism Classification System of Functioning: Social Communication (ACSF: SC) created by Di Rezze et al. (2016) studies children previously diagnosed with ASD at preschool age (from 3 years and under 06 years old) and it will not replace any instruments or diagnosis. The purpose of this classification system is to provide information on the social communication of these children in a simplified and standardized way and to describe communication skills. It is possible to classify two different aspects of skills: the first is typical performance, that is how is the child's most consistent communication ability; and the second is its ability, when it performs its best, on a 5-level scale that distinguishes the child's social communication skills according to social needs and goals.

- Level V is when the child is reacting to other people's communication and the goal is known only to their parent or primary caregiver;
- Level IV is when the child is trying to start by himself and trying to answer to the people he knows;

- At level III the child tries to initiate and answer with social goals about their interests;
- At level II, the child communicates with other people, but having difficulties if there are changes;
- At Level I, the child sustains interaction and adapts to change.

The instrument should be answered only by parents and professionals familiar with the child's social communication skills, that is, the parent does not do the classification, but a professional who asks the parents to describe the child's social skills and make a classification based on that description. No previous training is required for the use of the classification system. The authors (DI REZZE et al., 2016) only highlights that the Instrument Use Guide should be read in advance and that the classification takes only a few minutes. It can be used to group children according to skill levels, to examine interventions with the best potential for each group, and to select specific groups of children for clinical or research purposes.

## 3 Results

The translation was carried out independently by two English-speaking professionals (A.A.C. and S.A.C.) and then a meeting was held between the translators and a third professional (A.G.Q.) to verify discrepancies between the two versions and to reach a consensus for the final version that would be sent for the back translation.

In this process, no significant changes were made, only choices between words with the same meaning, so the sentences were as clear as possible to the examiner (for example, choosing between “In addition to concerns...” or “Beyond concerns...”). All changes made in this process are only intended to simplify the reading of the instrument, without changing the meaning of the sentences. This meeting resulted in the final version sent for back translation, which was carried out by two professionals also fluent in English (C.R.L. and C.P.G.).

The back translation was sent to the researcher responsible for the study (A.A.C.), who met again with the professionals who participated in the translation consensus (S.A.C. and A.G.Q.). These three researchers evaluated the two versions of the back translation, and only grammatical corrections

were made to arrive at the final version of the back translation, which was sent to the panel of experts.

The panel of experts was composed of 10 professionals, including 8 occupational therapists and 2 physiotherapists; all well-qualified professionals with extensive experience in the child development area, as well as fluent in English, which was essential to evaluate the quality of the translation into the Portuguese. Table 1 details the professionals who participated in the expert panel.

The evaluation of the panel of experts showed that the translated version of the instrument Autism Classification System of Functioning: Social Communication (ACSF: SC) for Portuguese was clearly understood conceptually and culturally. Considering the cultural adaptation (CA), 37 (77.08%) of the 48 sentences of the instrument obtained cultural adaptation (CA) of 100% agreement, 07 (14.58%) obtained CA of 90% agreement and 04 (8.33%) received the suggestion of modifications, made by the committee of experts. In conceptual equivalence (EC), 29 (60.41%) phrases obtained 100% agreement, 17 (35.41%) obtained 90% agreement and 2 (4.16%) received suggestions for modifications. Of the 04 phrases with suggestions of modifications in cultural adaptation, 03 had changed and, in cultural equivalence, the 02 phrases with suggestions of modifications had changed. Tables 2 and 3 present

the suggestions for changes in cultural adequacy (CA) and conceptual equivalence (EC), respectively.

In the pre-test of the Brazilian version of the instrument, both the trainees and the mothers were able to understand and use the ACSF: SC without difficulties. Therefore, no change in the version of the instrument was necessary for further evaluation of the measurement properties.

## 4 Discussion

The cross-cultural translation and adaptation process of the ACSF: SC for use in Brazil has been carried out very judiciously, according to the guidelines of Coster and Mancini (2015). There is no consensus in the literature on the best method for cross-cultural adaptation of instruments. According to Epstein, Santo and Guillemín (2015), the prevalence of methods include the use of committees, focus groups, and subsequent translations, there is no evidence for the best methods, but there are studies indicating that further translation may not be mandatory. The procedures suggested by Coster and Mancini (2015) were used because they have an article published recently with a Brazilian author, who knows the reality of our country, both cultural and research context, and with extensive experience in cross-cultural adaptations of standardized

**Table 1.** Characterization of the expert committee.

| Professional | Occupation             | Titration       | Specialties                            | Developed activities               |
|--------------|------------------------|-----------------|--|------------------------------------|
| P1           | Occupational Therapist | Master's degree | Child and adolescent health            | Teaching, research, and assistance |
| P2           | Fisioterapeuta         | Master's degree | Neonatal intensive care                | Research and assistance            |
| P3           | Fisioterapeuta         | Master's degree | Pediatrics and low vision for children | Assistance                         |
| P4           | Occupational Therapist | Master's degree | Mental health and child neurology      | Assistance                         |
| P5           | Occupational Therapist | Master's degree | Child development                      | Teaching and research              |
| P6           | Occupational Therapist | Ph.D.           | Mental health and child neurology      | Teaching and research              |
| P7           | Occupational Therapist | Ph.D.           | Child development                      | Teaching and research              |
| P8           | Occupational Therapist | Master's degree | Child development                      | Research                           |
| P9           | Occupational Therapist | Master's degree | Child development                      | Research and assistance            |
| P10          | Occupational Therapist | Master's degree | Education and psychomotricity          | Teaching and research              |

**Table 2.** Items with suggestions for modifications in conceptual adaptation (CA).

| Original   | Translation  | Suggestion  | Modification  | Percentage of agreement  | Justification  |
|--|--|---|---|--|--|
| STEP 2<br>Please review the descriptions of the 5 levels and their distinctions in the ACSF: SC Tool.  | PASSO 2 Por favor, revise as descrições dos 5 níveis e suas distinções no Instrumento ACSF:SC.   | Specifications, characteristics or particulars.   | -   | Cultural: Not understandable 30%<br>Understandable 70%<br>Conceptual: 90%  | It is exactly the term that appears on the instrument. It was kept like the original |
| Trying to initiate communication for social purposes using simple, practiced or scripted requests (verbally or non-verbally) about their preferred interests/activities. | Tentando iniciar comunicação com objetivos sociais usando solicitações simples, praticadas ou roteirizadas (verbalmente ou não verbalmente) sobre seus interesses/atividades preferidos. | Robotized, mechanized   | Mechanized  | Cultural: Not understandable 20%<br>Understandable 80%<br>Conceptual: 100%   | The word is not widely used in Brazil, accepted suggestion.                          |
| They may respond to requests of others, but communication is scripted and not easily sustained   | Ela pode responder à solicitação de outras pessoas, mas a comunicação é roteirizada e não é facilmente sustentada.   | Robotized, mechanized   | Mechanized  | Cultural: Not understandable 20%<br>Understandable 80%<br>Conceptual: Same concept: 90% does not represent the same concept: 10% | The word is not widely used in Brazil, accepted suggestion.                          |
| Whereas a child in Level II is initiating and responding to most people for social purposes, which may continue the interaction.   | Enquanto uma criança no nível II está iniciando e respondendo, com objetivos sociais, a maioria das pessoas, que podem continuar a interação.  | Enquanto uma criança no nível II está iniciando e respondendo a maioria das pessoas, com objetivos sociais, o que pode continuar a interação. | Enquanto uma criança no nível II está iniciando e respondendo a maioria das pessoas, com objetivos sociais, o que pode continuar a interação. | Cultural: Not understandable 50%<br>Understandable 50%<br>Conceptual: Same concept: 50% does not represent the same concept: 50% | Suggestion accepted  |

**Table 3.** Items with suggestions for modifications in conceptual equivalence (CE).

| Original   | Translation   | Suggestion  | Modification  | Percentage of agreement   | Justification  |
|--|---|---|---|---|--|
| Trying to initiate or react to other people's specific words or physical actions. The purpose of their communication may only be understood by their primary caregiver or highly experienced teacher/therapist). | Tentando iniciar ou reagir a palavras ou ações físicas específicas de outra pessoa. O objetivo de sua comunicação pode ser entendido apenas pelo seu cuidador primário ou professor/terapeuta altamente experiente. | Tentando iniciar ou reagir a palavras específicas ou ações físicas de outra pessoa.   | Tentando iniciar ou reagir a palavras específicas ou ações físicas de outra pessoa.   | Conceptual: Same concept: 70%<br>It does not represent the same concept: 30%<br>Cultural: understandable 100%                 | The suggestion made the sentence more meaningful.<br>Suggestion accepted |
| Whereas a child in Level II is initiating and responding to most people for social purposes, which may continue the interaction.   | Enquanto uma criança no nível II está iniciando e respondendo, com objetivos sociais, a maioria das pessoas, que podem continuar a interação.   | Enquanto uma criança no nível II está iniciando e respondendo a maioria das pessoas, com objetivos sociais, o que pode continuar a interação. | Enquanto uma criança no nível II está iniciando e respondendo a maioria das pessoas, com objetivos sociais, o que pode continuar a interação. | Cultural: Not understandable 50% understandable 50%<br>Conceptual: Same concept: 50% does not represent the same concept: 50% | Suggestion accepted  |

instruments, presenting suggestions quite adequate to our reality.

This study had the steps of the cross-cultural translation and adaptation process of a social function classification system for children with ASD. As pointed out by Di Rezze et al. (2016), ACSF: SC is an unprecedented classification system, which can be useful in clinical practice and in research. In Brazil, there is no similar instrument, and the adaptation of this instrument to its use with this population can collaborate to improve the characterization of the social communication skills of children with ASD between 3 and 6 years old.

Following the recommendations of Epstein, Santo and Guillemín (2015), the panel of experts were high-level experts to evaluate the quality of the final version, with ten professionals with clinical and research experience, working with children and fluent in both Portuguese and English. Therefore, in addition to the knowledge about the target audience, they were also familiar with the terminology used in both languages.

Through the analysis of the data, the results showed that the methodology used for cross-cultural adaptation of the instrument Autism Classification System of Functioning: Social Communication (ACSF: SC) recommended by Coster and Mancini (2015) guaranteed equivalence between the original and translated version, obtaining agreement rates above 90%.

The back translation was sent to the Canadian authors and was recently endorsed by them. From this approval, the last step of the cross-cultural adaptation process will be carried out, which is the evaluation of the properties of measurement, especially validity and reliability (COSTER; MANCINI, 2015).

## 5 Final Considerations

The Brazilian version of ACSF: SC is apt to be submitted to the fifth and last methodological step, suggested by Coster and Mancini (2015), evaluating the properties of measurement, since the equivalence between the original and the translation is guaranteed. The ACSF: SC may enable professionals and parents of autistic preschool children to better understand the communication of these children. Also, it will favor the uniformity of communication among different professionals, as well as use it in clinical research involving intervention approaches.

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### Author's Contributions

Débora Santana Eloi and Kesia Kelen Gonçalves Mareco: Text writing, data collecting, and organizing. Adriana Gonçalves Queiroz: Assessment of translation quality and back translation of the ACSF instrument. SC. Carla Ribeiro Lage and Cecília Pletschette Galvão: Back translation of the instrument. Clarice Ribeiro Soares Araújo and Samara de Araújo Costa: Translation of the instrument. Ana Amélia Cardoso: Participated in all stages since the conception of the study. All authors approved the final version of the text.