

# Brazilian Translation, Cross-Cultural Adaptation, Validity, and Reliability of the EMpowerment of PArEnts in THE Intensive Care 30 (EMPATHIC-30) Questionnaire to Measure Parental Satisfaction in PICUs

**OBJECTIVES:** To conduct the Brazilian translation, cross-cultural adaptation, validation, and reliability testing of the EMpowerment of PArEnts in THE Intensive Care (EMPATHIC-30).

**DESIGN:** Prospective study.

**SETTING:** PICU of a tertiary-care teaching hospital.

**PATIENTS:** Parents ( $n = 141$ ) completed the translated EMPATHIC-30 questionnaire 72 hours after their child's PICU discharge.

**INTERVENTIONS:** None.

**MEASUREMENTS AND MAIN RESULTS:** The translation and cultural adaptation were performed in accordance with the principles of good practice for the translation and cultural adaptation process for patient-reported outcomes measures. Sentences were adapted according to the Brazilian syntax. Total content validity coefficient was above the established average ( $> 0.8$ ). Reliability was evaluated with the coefficients McDonald omega and Cronbach alpha. The lowest Cronbach alpha found was 0.47 (CI 95%, 0.35–0.59) in the organization domain, where the lowest response rate was also concentrated. The values of the other domains were as follows: 0.64 (95% CI, 0.55–0.73) for information, 0.77 (95% CI, 0.71–0.83) for care and treatment, 0.72 (95% CI, 0.66–0.78) for parent participation, and 0.72 (95% CI, 0.65–0.79) for professional attitudes. The total internal consistency independent of the domain was 0.90 (CI 95%, 0.88–0.92). With regard to McDonald Omega, values were identified: 0.68 (95% CI, 0.49–0.88) for information, 0.73 (95% CI, 0.61–0.85) for care and treatment, 0.85 (95% CI, 0.47–0.80) for parent participation, 0.85 (95% CI, 0.76–0.93), and 0.72 (95% CI, 0.58–0.86) for professional attitudes.

**CONCLUSIONS:** EMPATHIC-30 has been translated and culturally adapted for the Brazilian population. Validation demonstrated an above-average total content validity coefficient, confirming the instrument content validity. A sufficient reliability was observed in both analyzed coefficients. The results support the use of the Brazilian version of EMPATHIC-30 for the evaluation of parents' satisfaction of children admitted to the PICU.

**KEY WORDS:** children; intensive care units; patient-reported outcomes measures; patient satisfaction; pediatric; reproducibility of results

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Patients' satisfaction has gained increasing attention over the past 20 years, since it may help identify gaps in hospital performance (1, 2). In this context, patients' family experience and satisfaction also play an important role (3), especially when considering pediatric patients in life-threatening situations, as frequently seen in PICUs. From the family perspective and patient-centered care, parents' satisfaction about the care provided to their children represents a key quality performance indicator (2).

When well documented, patient satisfaction data can be used for benchmarking among hospitals and to measure the impact of it on hospital performance (4, 5). Although the need to understand patient and family satisfaction is well established in the literature, few validated tools are available in the literature to measure effectively the outcomes in PICU (3). Most of the evaluation questionnaires do not have validity, reliability, or specificity for different hospitalization settings. To ensure reliable comparisons of satisfaction data in a hospital setting, clinicians must consider using similar validated instruments for benchmarking satisfaction outcome measures (6).

In the Netherlands, due to the lack of validated instruments, the EMpowerment of PARENTS in THE Intensive Care 30 (EMPATHIC-30) questionnaire was developed to assess parental satisfaction in PICU (7). In Brazil, no validated questionnaires were found for this type of research, measuring parent experiences and satisfaction to improve clinical practice.

In this study, we performed the translation and cross-cultural adaptation of the EMPATHIC-30 questionnaire and assessed the validation and reliability of the questionnaire for use in Brazil. In addition, we evaluated the relationship among sociodemographic variables and the domains of the EMPATHIC-30 questionnaire.

## MATERIALS AND METHODS

### Study Design

This study adopted an explorative psychometric design for the translation, cross-cultural adaptation, and validation of the EMPATHIC-30 for the Brazilian context.

### Setting and Participants

The study was conducted at the PICU at a University Hospital of Southern Brazil, which is responsible for the private care of patients or those coming from the

public health system, aged between 29 days and 18 years. The Brazilian Unified Health System is a government-funded universal healthcare system that includes the public provision of family and specialist doctors and hospital services without any copayments or patient charges. The PICU is a 12-bedded unit with around 400 admissions per year. Data collection was performed between January and June 2018.

We included parents or legal representatives ( $n = 141$ ) over 18 years and over 24 hours of hospitalization of the child in the PICU. We excluded parents (or legal representatives) of children who died at the PICU, rehospitalized children, and participants who declared themselves illiterate.

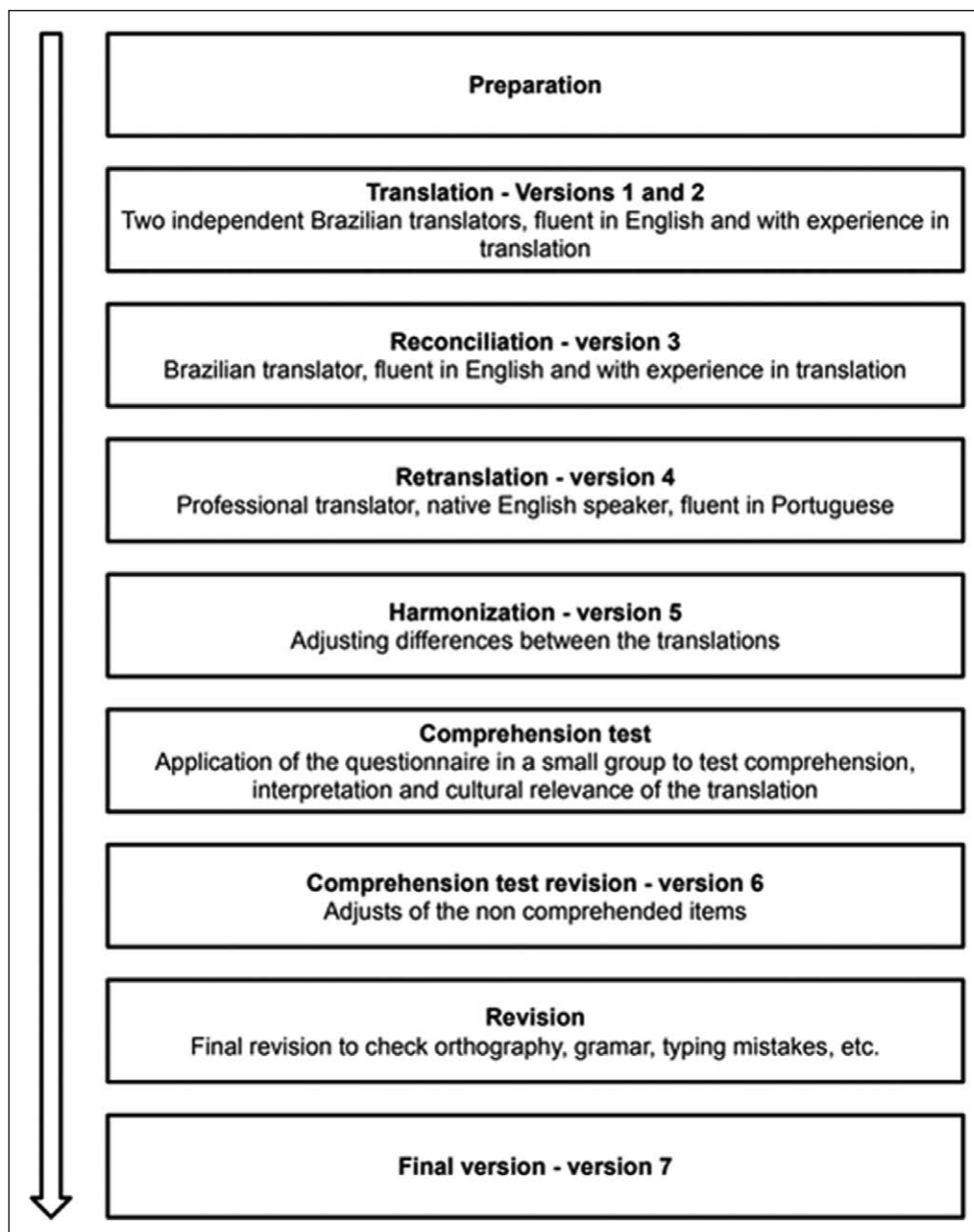
### Translation and Cross-Cultural Adaptation

The translation and cultural adaptation of EMPATHIC-30 were performed in accordance with the protocol established by the International Society for Pharmacoeconomic Research (ISPOR) (8). **Figure 1** demonstrates the steps we followed.

In the preparation phase, we contacted the author of the original instrument to request his authorization for the translation, cultural adaptation, and validation of EMPATHIC-30 in Brazil. We also recruited the translators and provided explanations of instrument concepts and the ISPOR methodology.

The translation consisted of the elaboration of two versions, each translated by independent translators, both Brazilians and fluent in English. In the reconciliation phase, the authors reviewed both versions and prepared a single questionnaire in Portuguese. The questions were also compared with the translation of the EMpowerment of PARENT in The Intensive Care Neonatology (EMPATHIC-N) translated and validated in Brazil (9). The translation from Portuguese to English was performed by a native English speaker translator, fluent in Portuguese, who was unaware of the original version.

After this process, a comprehension test was performed with the patients' parents ( $n = 14$ ). The questionnaire was administered within 72 hours after the PICU discharge, during the hospitalization in the pediatric inpatient unit. This time was determined to cover patients discharged over the weekend. The questionnaire was applied by two researchers after the signature of the Informed Consent Form by the parents, who were consecutively selected. In addition to the



**Figure 1.** Translation and cross-cultural adaptation methodology in accordance with the protocol established by the International Society for Pharmacoeconomic Research.

instrument, participants also answered a sociodemographic questionnaire.

In the test review stage, the sentences, expressions, and words not understood by the participants were analyzed and the necessary modifications were made to improve the instrument. After the revision of the spelling and syntax of the text was performed, the EMPATHIC-30 Brazil was considered to be final for further testing (**supplementary material 1**, Supplemental Digital Content 1, <http://links.lww.com/PCC/B565>).

Content-related validity of the final version was performed by a panel of experts. Professionals working

in the PICU were invited to participate in the evaluation (10). The selection was made by convenience. The researcher went to the unit once a day for 2 weeks to deliver and collect the questionnaires.

Experts evaluated the relevance of the questionnaire items on a Likert Scale from 1 (very irrelevant) to 5 (very relevant), in addition to a qualitative comment section for participants to provide feedback.

### Data Analysis

The final version of the translated EMPATHIC-30 questionnaire was used, and parents were invited to participate up to 72 hours after discharge from the PICU patient. After discharge from PICU, patients were transferred to the pediatric ward and approximately one-third of these patients continued to be attended by PICU's medical staff, as this is a routine procedure in the hospital where the study was conducted. This instrument is

composed of 30 questions divided into five domains (information, care and treatment, organization, parental participation, and attitude of professionals), which provide a comprehensive conceptualization of parental satisfaction. The answer option scale is a 6-point scale, which ranges from 1 (certainly no) to 6 (certainly yes).

Categorical variables were described as absolute and relative frequency, whereas continuous variables were described as mean and SD or median and interquartile range, according to the distribution of the variable.

The psychometric properties evaluated were content validity and reliability. Content-related validity

was performed by a committee of experts. Experts evaluated the relevance of the questionnaire items on a Likert Scale from 01 (very irrelevant) to 05 (very relevant), in addition to a qualitative consideration. Mean and SD were calculated for all items. After that, the content validity coefficient (CVC) was calculated for each item and for the instrument as a whole, using the CVC criterion greater than 0.80 (11). The analysis was performed using the Microsoft Office Excel software.

To assess the internal consistency, the domains were calculated considering the complete cases of the domain questions and the number of missing cases per question was described. The reliability of the translated questionnaire was evaluated with the coefficients McDonald omega (11) and Cronbach alpha (12) within each item, domain, and in general. It was considered that Cronbach alpha and McDonald omega values greater than 0.70 are assumed to be satisfactory.

The relationship between the domains of the scale and categorical sociodemographic variables was verified using the Kruskal-Wallis test or the Wilcoxon Mann-Whitney test. The analysis was performed in software R, Version 3.5.3 (R Foundation for Statistical Computing, Vienna, Austria; <http://www.R-project.org/>), and the level of significance was 5%.

## RESULTS

### Translation and Cross-Cultural Validation

In the translation stage (forward and backward translations), there were only a few differences between the two versions related to the use of distinct words in four items. The structure and sequence of the questions were maintained according to the original instrument as well as the domain titles. In the reconciliation phase, the most common words were used for the studied population. The tenses were kept, and the sequence of some sentences was reversed according to the Brazilian Portuguese syntax. Some sentences have already been modified at this stage, taking into consideration the comparison with the translation of EMPATHIC-N that has been validated in Brazil. **Supplementary material 2** (Supplemental Digital Content 2, <http://links.lww.com/PCC/B566>) demonstrates the modified words in the reconciliation phase (available only in Portuguese).

In the retranslation and harmonization stages, there were no changes in the questionnaire. The comprehension test was applied to 14 subjects, all mothers, with an

average age of 30 years. In relation to the education level, 43% ( $n = 6$ ) had incomplete high school, 22% ( $n = 3$ ) incomplete elementary school, 14% ( $n = 2$ ) technical education, 14% ( $n = 2$ ) high school, and 7% ( $n = 1$ ) undergraduate. Six of them were housewives, one was self-employed and worked at home, and seven of them were employed. Of the 14 mothers, 11 completed the EMPATHIC-30 questionnaire with a dispersion of answer options of the Likert scale (1–6), demonstrating a spread in the answer options and can be presumed that parents understand the translated version. Two mothers scored only the maximum score of every item and one mother only used option 1 or 6 of the Likert scale, which can be considered as a lack of understanding of the use of the questionnaire.

In the question “The IC-unit could easily be reached by telephone,” two mothers answered that they did not understand, one that never needed, three did not answer, and eight answered 1 (1), 4 (1) or 6 (6). The PICU of our hospital does not transmit information by telephone, so it was understood that the mothers did not understand the question. In this way, the sentence was changed to “We could easily get information from the PICU over the phone when needed.” The option “0 = not applicable” was also added to the Likert Scale, considering that most parents remained full time with patients during PICU stay.

Afterward, the questionnaire was applied to five other parents for a second comprehension test, all mothers, with an average age of 41.6 years. The level of education was: one mother with high school, two mothers with incomplete high school, one mother with incomplete elementary school, and one mother with higher education. Two of them were homemakers and three were employed.

In this second test, all mothers answered the scale demonstrated to understand this version; three of them used the “0 = not applicable” in at least one of the items. The final version of the Brazilian translation of the EMPATHIC-30 questionnaire is shown in **supplementary material 3** (Supplemental Digital Content 3, <http://links.lww.com/PCC/B567>). The English version used in the table corresponds to the original text published by Latour et al (7).

### Validation

In the content-related validation stage by the expert committee, 29 questionnaires were delivered, of which



17 were returned. We included clinical multiprofessional staff of the PICU.

Of the 17 questionnaires collected, one was excluded because the staff member was not part of the PICU team and one for not having completed the questionnaire correctly, leaving the evaluation of 15 experts, as shown in **supplementary material 4** (Supplemental Digital Content 4, <http://links.lww.com/PCC/B568>).

Of these 15 experts, 33% ( $n = 5$ ) had postgraduate degrees, 7% ( $n = 1$ ) PhD, and 13% ( $n = 2$ ) Masters, 27% ( $n = 4$ ) were physicians attending residency in pediatric intensive care, and the remaining 20% ( $n = 3$ ) had a degree. The average length of experience in PICU was 8.63 years.

From the experts' answers, the mean, SD, and CVC of each item were calculated as well as the total CVC of the instrument, as shown in **supplementary material 5** (Supplemental Digital Content 5, <http://links.lww.com/PCC/B569>).

The CVC above the cutoff point ( $> 0.8$ ) was obtained in most items. Only 10% ( $n = 3$ ) of the items were below 0.8 ("There was enough room around our son's bed," "We could easily get PICU information over the phone when needed," and "We could always stay close to our child, even during the procedures"). The mean of these items was also low (3.3, 2.3, and 3.3, respectively) and the SD high (1.5, 1.5, and 1.6, respectively). However, considering the socioeconomic and cultural diversities of our country, the questions were kept in the questionnaire.

It is not routine in our hospital to provide information by telephone to family members; however, it is considered that in other PICUs of the country, this is necessary and used. We believe that the question "We could always stay close to our child, even during the procedures" obtained a low CVC due to the fact that in our PICU, parents are asked to wait outside the PICU during medical rounds and procedures. However, considering the importance of evaluating parental satisfaction visioning improvements in the quality of care and patient- and family-centered care (PFCC), we kept this item.

The total CVC of the scale was 0.91, above the cutoff point, thus documenting the general validity of the questionnaire content.

## Reliability

To assess reliability (internal consistency), we analyzed the responses of 141 parents/family members.

The characteristics of patients and family members, as well as the results for internal consistency, are shown in **Tables 1** and **2**, respectively.

**Supplementary material 6** (Supplemental Digital Content 6, <http://links.lww.com/PCC/B570>) shows the distribution of responses in each item of the questionnaire expressed in absolute and relative frequency. There is a low rate of missing values or cases where the participant considered the item as not applicable, except for items 15 (We could easily obtain information from the PICU by telephone when necessary) and 16 (There was enough space around our child's bed), whose rates were 41.8% and 59.6%, respectively.

**Supplementary material 7** (Supplemental Digital Content 7, <http://links.lww.com/PCC/B571>) shows the scale description of each item, showing the mean, SD, and Cronbach alpha in the case of item removal. It is observed that none of the items had an average value lower than 5, indicating high degrees of satisfaction.

Table 2 shows the descriptive analysis of domains in the form of domain mean value and total (sum of all items in the respective domain), the Cronbach alpha, and McDonald omega. The Cronbach alpha had a weighted mean value between the domains of 0.70. Among the domains, Cronbach alpha was lower than 0.60 in the Organization domain only, being 0.47 (95%CI, 0.35–0.59), which was also the domain with a higher nonresponse rate. Exclusion of individual items did not affect Cronbach alpha substantially (supplementary material 7, Supplemental Digital Content 7, <http://links.lww.com/PCC/B571>).

The values of the other domains were 0.64 (95% CI, 0.55–0.73) for information, 0.77 (95% CI, 0.71–0.83) for care and treatment, 0.72 (95% CI, 0.66–0.78) for participation, and 0.72 (95% CI, 0.65–0.79) for professional attitudes. The total internal consistency, independent of the domain, was 0.90 (CI 95%, 0.88–0.92). Due to the difference in the number of respondents in each domain, the internal consistency of the questionnaire was measured by the weighted average of Cronbach alpha, according to the number of respondents in each domain, resulting in 0.70, considered as good (13).

## Validity

**Table 3** demonstrates the relationship between the questionnaire item responses on domain level and the characteristics of the children (mechanical ventilation,

**TABLE 1.**  
**Characteristics of the Children and Their Families**

Characteristics	n (%)
Characteristics of the relatives	
Person who completed the questionnaire (n = 141)	
Mother	101 (71.6)
Father	29 (20.6)
Other	11 (7.8)
Age, yr (median [IQR]) (n = 141)	34 (26–41)
Education (n = 141)	
Incomplete elementary school	34 (24.1)
Complete elementary school	13 (9.2)
Incomplete high school	14 (9.9)
Complete high school	44 (31.2)
Technical course	4 (2.8)
University graduate	26 (18.4)
Other	6 (4.3)
Residents in the house (median [IQR]) (n = 141)	4 (3–5)
Civil status (n = 139)	
Married	84 (60.4)
Not married	43 (30.9)
Divorced	5 (3.6)
Widower	7 (5.1)
Psychologic assistance (n = 139)	58 (41.7)
Time spent with the patient (n = 135), hr	
24	95 (70.4)
6	38 (28.1)
3	2 (1.5)
Public healthcare assistance (n = 141)	93 (65.6)
Patients characteristics (n = 141)	
Age, mo (median [IQR])	35 (5–87)
Need for mechanical ventilation	28 (19.9)
Chronic disease	49 (34.8)
PICU length of stay, d (median [IQR])	3 (1–5)
First hospitalization	104 (73.8)

IQR = interquartile range.

first hospitalization, and chronic disease). It was observed that parents of children in the first hospitalization are more likely to be satisfied with the domains care and treatment, parent participation, and professional attitude. Additionally, considering the total of all items in the questionnaire, parents of children with chronic disease are more likely to be satisfied.

**Supplementary material 8** (Supplemental Digital Content 8, <http://links.lww.com/PCC/B572>) demonstrates the relationship between the domains of the questionnaire and psychologic assistance, full-time presence with the patient, and public health system. Data showed that parents of children from the public health system are more likely to be satisfied with the information received about their children than parents of children from private system. All other domains showed no significant differences between the variables, indicating that the nondifferential validity was sufficient, and therefore, the questionnaire is valid among a heterogeneous group of children and parents.

## DISCUSSION

In Brazil, studies related to the assessment of parent’s satisfaction in PICU are mostly qualitative research and no studies published so far have evaluated this indicator using validated questionnaires. Our study carried out the translation and cross-cultural adaptation and assessed the validation and reliability of the EMPATHIC-30 instrument for PICUs in Brazil.

The process of translation and cultural adaptation was performed using a specific scientific methodology (8) and was also used in the translation of EMPATHIC instruments in other countries (3, 14–16). To assess parental satisfaction in PICU, an EMPATHIC questionnaire was also designed for Neonatal ICUs, the EMPATHIC-N (10). In our study, the changes made to the questionnaire items in the translation and cultural adaptation process were related to the word sequence in the sentences and the use of the most common words in our culture, in order to adapt the Portuguese syntax. These adaptations were performed considering also the translation and adaptation of EMPATHIC-N performed in Brazil (9).

In relation to the content-related validation, as in the study by Gomez et al (9), the item “The IC-unit could easily be reached by telephone” was not considered relevant by the experts. In Spain, this item was the one that

**TABLE 2.**  
Description of the Scores per Domain

Domain	Mean Score	Total Score Mean (sd)	Cronbach Alpha	McDonald Omega
Information	5.6 (0.5)	28.2 (2.7)	0.64 (0.55; 0.73)	0.68 (0.49; 0.88)
Care and treatment	5.7 (0.5)	45.7 (3.7)	0.77 (0.71; 0.83)	0.73 (0.61; 0.85)
Organization	5.6 (0.5)	28.1 (2.7)	0.47 (0.35; 0.59)	0.63 (0.47; 0.80)
Parenteral participation	5.7 (0.6)	34.0 (3.3)	0.72 (0.66; 0.78)	0.85 (0.76; 0.93)
Professional attitude	5.8 (0.4)	35.0 (2.2)	0.72 (0.65; 0.79)	0.72 (0.58; 0.86)
Total	5.9 (0.3)	165.5 (10.5)	0.90 (0.88; 0.92)	0.91 (0.88; 0.95)

**TABLE 3.**  
Overall Nondifferential Validity and Relationship Between the Questionnaire Item Responses and Mechanical Ventilation, First Hospitalization, and Chronic Disease

Domain	Yes	No	p
	Mean (sd)	Mean (sd)	
Mechanical ventilation			
Information	5.66 (0.43)	5.64 (0.57)	0.762
Care and treatment	5.76 (0.36)	5.69 (0.49)	0.862
Organization	5.46 (0.89)	5.66 (0.44)	0.762
Parent participation	5.55 (0.61)	5.69 (0.55)	0.186
Professional attitude	5.79 (0.42)	5.86 (0.35)	0.488
Total	5.76 (0.23)	5.73 (0.38)	0.631
First hospitalization			
Information	5.66 (0.54)	5.59 (0.56)	0.406
Care and treatment	5.75 (0.43)	5.59 (0.54)	0.026
Organization	5.62 (0.58)	5.65 (0.41)	0.645
Parent participation	5.71 (0.53)	5.52 (0.63)	0.027
Professional attitude	5.89 (0.29)	5.73 (0.49)	0.022
Total	5.71 (0.39)	5.83 (0.16)	0.793
Chronic disease			
Information	5.67 (0.52)	5.62 (0.56)	0.790
Care and treatment	5.68 (0.55)	5.72 (0.42)	0.880
Organization	5.72 (0.62)	5.57 (0.49)	0.195
Parent participation	5.58 (0.67)	5.70 (0.51)	0.640
Professional attitude	5.83 (0.42)	5.85 (0.33)	0.805
Total	5.85 (0.29)	5.66 (0.37)	0.023

obtained the highest “not applicable” response rate of the entire instrument (35%) (3), similar to that in our study. Gill et al (16) also found such pattern of responses in Australia. In their study, the use of new communication technologies and the fact that parents stayed with their children during the entire hospitalization may explain that finding. In our study, we believe that the latter is the most likely explanation. Because of the cultural and socioeconomic diversities that exist within our country, that item and the item “There was enough space around our child’s bed” were kept in the questionnaire. Since many PICUs in Brazil are organized as a single room with a little space between beds and others still provide information by telephone, we believe that keeping the two questions in the questionnaire is appropriate.

The question that addresses parental presence during all PICU procedures in our study also obtained a similar results to the study conducted with the EMPATHIC-N questionnaire (9), which obtained a result below the cutoff point to consider content validity. Parents’ presence with their child during hospitalization as well as during medical procedures should be encouraged by the professionals (9, 17). Family participation in rounds is one of the practices of the PFCC model. In the study by Bhansali et al (18), parents were present in 72% of the rounds observed, but they were not involved in the discussions most of the time. Despite the implementation of the PFCC model has been growing worldwide, there is a large discrepancy between the PFCC model and the practice and often parents are treated as visitors (19). The practice of parents stay in our PICU is not performed in its entirety, as they are asked to leave the unit during some procedures. Family members remain in the unit during the rounds but are not invited to participate actively in it. In order to improve patient care and PFCC practice, we believe it is necessary to obtain the opinions of parents regarding this practice. As in our hospital, other institutions should also consider these PFCC practices. For this reason, we have decided to keep this item in the questionnaire.

Our study used the coefficients to assess internal consistency, Cronbach alpha, and McDonald omega. Cronbach alpha has been widely used to measure the reliability of health-related outcome measure instruments. In our context, the McDonald omega has been used as an additional alternative to measure the internal consistency (20). Our decision to use both

coefficients was because alpha has been demonstrated to be representative of a measure’s internal consistency only when the assumptions of the essentially tau-equivalent model are met (21). However, in practice, such requirements are seldom met (22, 23). Hence, the literature has been describing the omega as a more sensible index of internal consistency, in relation to alpha and to other alternatives (21, 24, 25). Studies showed that in the cases of tau-equivalent models, omega at least performs as well as the alpha, and under the violations of tau-equivalence, omega outperforms alpha and is the preferred choice (11).

Within the context of healthcare, patient or parental satisfaction can be described as the degree to which they feel they have been provided with high-quality healthcare. If parents feel that their child has been provided with high-quality care, they are more likely to be satisfied, and vice versa. Thus, satisfaction measurement is an essential part of the evaluation of the quality of health services (26). The EMPATHIC-30 empowers parents to provide feedback on their experiences in PICU and may facilitate healthcare professionals to improve quality of care. Parental satisfaction outcome measures may serve as a valuable quality performance indicator and should, therefore, be widely implemented. We showed a high mean of satisfaction in some subdomains, unlike the study by Latour et al (7). The ceiling effect may be explained by the small size of our sample (141 vs 3454) and the fact that one-third of our patients continued to be treated by the PICU medical staff in the ward. A similar result was demonstrated by Mol et al (27) in South Africa.

Brazil is a middle-income country of continental size, where the profile and provision of care in PICUs have been poorly studied (28). In our study, most patients used the Brazilian public health system and were accompanied by their mothers, who stayed full time with their child. PICU admission is a traumatic event that changes family routine, and usually, the mother is the one who takes the lead in this new setting (29). Within this context, which is likely to be applicable to most Brazilian PICUs, understanding parental satisfaction with a tool that was translated into a local language, culturally adapted, and validated is fundamental to the process of empowering families. The EMPATHIC-30 questionnaire is able to evaluate the provision of clear information about the disease and the perception of quality, professional attitude, and organization of care,



as well as the direct participation of parents in the discussions about the care of their child. We believe that the use of such structured tools will improve the existing bonds between the parents and the healthcare teams, providing parents with greater critical reflection and autonomy over the care of their child, thus contributing to the overall improvement of care (30).

The translation, adaptation, and validation process were performed in only one PICU of a teaching hospital in southern Brazil, so the cultural and socioeconomic diversity of the country can influence the cross-cultural adaptation. This study presents a number of validation and reliability tests of the Brazilian EMPATHIC-30. However, not all steps of a full validation have been performed such as confirmatory factor analysis. A complete evaluation of the psychometric properties of the EMPATHIC-30 might be needed with a larger group of parents to confirm its validity to be used as a national quality outcome measure. In addition, although parents were involved in the translation and cultural adaptation process of the questionnaire, content analysis was performed with PICU staff, which could have been replaced by end users. This is a limitation that needs to be considered.

## CONCLUSIONS

In conclusion, the results of our study support the use of the Brazilian version of EMPATHIC-30 for the evaluation of parents' satisfaction of children admitted to the PICU. We believe that the use of EMPATHIC-30 in Brazil can contribute to the evaluation of the quality of care provided in the PICU and future benchmarking is recommended among all PICUs in Brazil. Based on the results, it is expected that processes and behaviors that interfere with parental satisfaction can be reassessed, aiming at the improvement of care centered on the patient and the family, as well as reinforcing correct and humanized behaviors. Finally, the Brazilian version of EMPATHIC-30 seems a sensible parent-reported outcome measure and can be considered in future research as a study outcome measure.

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The study was approved by the Institutional Review Board of the Catholic University of Rio Grande do Sul (72225317.2.0000.5336) and authorized by the original author of the EMpowerment of PArents in The Intensive Care 30 (personal communication). All patients signed the informed consent form.

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