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Research article

# The needs of the relatives in the adult intensive care unit: Cultural adaptation and psychometric properties of the Chilean-Spanish version of the Critical Care Family Needs Inventory

Noelia Rojas Silva[a,*], Cristobal Padilla Fortunatti[a,c], Yerko Molina Muñoz[b], Macarena Amthauer Rojas[c]

[a] School of Nursing, Pontificia Universidad Católica de Chile, Santiago, Chile
[b] School of Psychology, Universidad Adolfo Ibáñez, Santiago, Chile
[c] Unidad de Paciente Critico, Hospital Clinico UC CHRISTUS, Santiago, Chile

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ABSTRACT

*Introduction:* The admission of a patient to an intensive care unit is an extraordinary event for their family. Although the Critical Care Family Needs Inventory is the most commonly used questionnaire for understanding the needs of relatives of critically ill patients, no Spanish-language version is available. The aim of this study was to culturally adapt and validate theCritical Care Family Needs Inventory in a sample of Chilean relatives of intensive care patients.
*Methods:* The back-translated version of the inventory was culturally adapted following input from 12 intensive care and family experts. Then, it was evaluated by 10 relatives of recently transferred ICU patients and pre-tested in 10 relatives of patients that were in the intensive care unit. Psychometric properties were assessed through exploratory factor analysis and Cronbach's α in a sample of 251 relatives of critically ill patients.
*Results:* The Chilean-Spanish version of the Critical Care Family Needs Inventoryhad minimal semantic modifications and no items were deleted. A two factor solution explained the 31% of the total instrument variance. Reliability of the scale was good (α = 0.93), as were both factors (α = 0.87; α = 0.93).
*Conclusion:* The Chilean-Spanish version of theCritical Care Family Needs Inventory was found valid and reliable for understanding the needs of relatives of patients in acute care settings.


**Implications for clinical practice**

- Health professionals need validated questionnaires in order to perform reliable evaluations of latent variables in the ICU.
- The Chilean-Spanish version of the CCFNI possesses adequate psychometric properties for identifying the needs of the critical care relatives.
- Knowing the needs of the ICU relatives is a unique opportunity for nurses to provide holistic care for both the patient and their family.

* Corresponding author at: School of Nursing, Pontificia Universidad Católica de Chile, Avda. Vicuña Mackenna 4860, Macul, 7820436 Santiago, Chile.
*E-mail address:* nprojas@uc.cl (N. Rojas Silva).

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## Introduction

Admission to the Intensive Care Unit (ICU) is an event that significantly impacts the life of the patients and their family. This uncertain and life-threatening situation alters the normal family routine, it's lived in an unfamiliar environment that is often unwelcoming and involves a healthcare team that primarily focusses on the medical treatment of the patient, leaving the family on the sidelines. In this context, families suffer high levels of anxiety, stress and depression that can last even after the patient is released (Cameron et al., 2016; Haines et al., 2015).

One way to address this issue is to know the needs of the family members and to what degree these needs have been met. Research in the last decade has found that the most important needs of family members of critical care patients are related to assurance and information (Paul and Rattray, 2008; Verhaeghe et al., 2005). Based on this, some interventions centered on the needs of patient family members in the ICU have positively impacted in their satisfaction and, even, decreased psychological impact (Chien et al., 2006; Kynoch et al., 2016).

While there are a number of instruments existing to determinate family needs in the ICU, the most commonly used is the Critical Care Family Needs Inventory (CCFNI) (Olano and Vivar, 2012). This instrument was created to allow patient family members to hierarchically classify a group of needs related to assurance, information, support, comfort, and proximity (Leske, 1991). The CCFNI has been validated in several languages and the original version is available in English (Leske, 1991), French (Coutu-Wakulczyk and Chartier, 1990), Chinese (Chien et al., 2005), Farsi (Bandari et al., 2014), and German (Bijttebier et al., 2000). Currently, only a short version of CCFNI is available in Spanish-language (Gómez Martínez et al., 2011).

Although family needs have been systematically evaluated with the CCFNI (Al-Hassan and Hweidi, 2004; Chatzaki et al., 2012; Prachar et al., 2010), there is currently no published research in Spanish-speaking countries in Latin American. This point is of particular importance, as cultural and geographic contexts could become important factors in determining the importance of the family needs and influence how these needs are categorized by the family members (Al-Hassan and Hweidi, 2004; Chien et al., 2006; Wang et al., 2004).

The objective of this study was to culturally adapt and validate a Spanish-language version of the CCFNI in family members of critical care patients at the ICU of a teaching hospital.

## Methods

### *Design and participants*

This study was carried out in a group of 251 family members of patients hospitalised in the ICU of a teaching hospital in Santiago, Chile. The inclusion criteria for family members were as follows: (1) to be a direct family member, including non-blood relationships, such as spouses and partners; (2) to be older than 18 years; (3) to have at least an 8th-grade educational level; (4) have visited the patient at least once time before the invitation; and (5) length of stay in the ICU > 48 hrs. Individuals were invited to participate during ICU visiting hours.

### *Instruments*

The instruments used for data collection were as follows: (1) Sociodemographic questionnaire of ICU relatives, and (2) the original version of the CCFNI, in Spanish. The CCFNI consists in a list of 45 needs with Likert responses, distributed among five dimensions (i.e. assurance, proximity, information, comfort, and support), and one open-response item to express other needs (Molter, 1979). The CCFNI has a reported reliability of $\alpha = 0.92$ for the general scale and $\alpha = 0.61$; 0.71; 0.78; 0.75; and 0.88 for the dimensions of assurance, proximity, information, comfort, and support, respectively (Leske, 1991).

### *Translation and cultural adaptation process*

The translation and back-translation of the original CCFNI were performed by two independent bilingual nurses.. Then, the following stages were adopted in order to culturally adapt and validate the CCFNI: (1) content validity; (2) linguistic adaptation; and (3) construct validity (Carretero-Dios and Pérez, 2007; Nunnally, 1987).

### *Content validity*

The counter-translated CCFNI was evaluated by a multidisciplinary group conformed by 12 experts which included two intensive care specialists, three MSc nurses with ICU specialisation, four clinical nurses with ICU specialisation, and three MSc nurses with research experience and expertise in family-related subjects. These experts were consulted regarding the congruency of each evaluated item and the construct (i.e. needs of ICU family members). The Lynn Index was calculated to establish the validity of the content for each item (Lynn, 1986). The modifications proposed by the experts were used to obtain an expert-adapted version of the CCFNI.

### *Linguistic adaptation*

The expert-adapted CCFNI was initially administered to a group of 10 family members of patients, recently transferred outside the ICU. Relatives evaluated the following aspects: language clarity, concept clarity, wording, and adequate item comprehension. Once their suggestions were incorporated, a third version of the CCFNI in Spanish was created. For the pre-testing stage, 10 family members of currently ICU patients completed the third Spanish version of CCFNI and a semi-structured interview, about language clarity, wording, and adequate item comprehension. In this final stage, the instrument was not modified, thus producing the final Chilean-Spanish version of the CCFNI.

### *Construct validity*

In order to test the psychometric properties of Chilean-Spanish version of the CCFNI, a sample size was determined according to Brislin (1986) in which a minimum of five subjects were needed for each item, translating into a minimum of 230 family members of ICU patients. Exploratory factor analysis was used to extract the ordinary least squares. Prior to factor analysis, items were assessed for normality. Furthermore, Bartlett's Test of Sphericity and the Kayser Meyer Olkin index were used to determine if the correlation matrix was appropriate for analyses. Afterwards, the number of scaling factors was estimated by considering the following three complementary criteria: (1) the Kaiser-Guttman Rule (i.e. latent roots); (2) a Scree Plot (Hair et al., 2005; Martínez et al., 2006); and (3) Horn's parallel analysis (Buja and Eyuboglu, 1992; Horn, 1965; Timmerman and Lorenzo-Seva, 2011).

Reliability was evaluated using Cronbach's $\alpha$ together with analysis of the discriminative capacity of the items by correlating each reactant with the score for each instrument factor. For interpretation, values between 0.60 and 0.69 indicated acceptable reliability, while 0.70–0.79 indicated high reliability and greater than 0.8 indicated optimal reliability (Cervantes, 2005).

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