


Cross-Cultural Adaptation and Psychometric Testing of the Spanish Version of Iceland Health Care Practitioner Illness Beliefs Questionnaire

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Abstract

The beliefs of nursing professionals who care for families experiencing illness are fundamental to the quality of the nurse–family relationship and the level of the nurse’s involvement in the therapeutic process of Family Systems Nursing. It is essential to have valid and reliable instruments for assessing nurses’ illness beliefs, especially in the Spanish context where no instruments have been identified to date. The Iceland Health Care Practitioner Illness Beliefs Questionnaire (ICE-HCP-IBQ) is a reliable and valid measure of professionals’ beliefs about their understanding of the meaning of the illness experience of families. The purpose of this study was to adapt and psychometrically test the Spanish version of the ICE-HCP-IBQ ($N = 249$ nurses). The exploratory factor analysis showed one-factor solution with good internal consistency (Cronbach’s $\alpha = .91$) and test–retest reliability ($r = .72, p < .01$). This questionnaire is a promising tool for mapping nurse’s illness beliefs and monitoring the effectiveness of family nursing educational interventions in the Spanish context.

Keywords

nurses’ beliefs, illness beliefs, Iceland Health Care Practitioner Illness Beliefs Questionnaire, Spanish translation, family nursing

The illness experience is a significant event that often disrupts family life and affects the behavior, emotions, and particularly the beliefs of patients and their families (Wright & Bell, 2009). Serious illness often affects a family member, both individual and family illness beliefs can be reinforced, challenged, or threatened (Årestedt et al., 2015; Wright & Bell, 2009). What a family believes about the diagnosis, prognosis, and the role of the family, for example, may affect how family members respond to the illness and to each other (Walsh, 2016; Wright & Bell, 2009). These beliefs act as a cognitive map that guides the family’s decisions and responses to the illness situation (Rolland, 1998; Walsh, 2016), sometimes causing more suffering than the diagnosis itself (Wright & Bell, 2009).

The Illness Beliefs Model (IBM) developed by Wright and Bell (2009) defines *beliefs* as “the lenses through, which the world is viewed and that guide choices in life, behaviors, and emotional responses. In that way, beliefs are the blueprint from which lives are constructed and intervene with the lives of others” (p. 19).

According to the IBM, family illness beliefs may have a constraining or facilitating influence on the family’s way of coping with and managing the illness experience (Wright & Bell, 2009). The model posits that constraining beliefs limit the family’s ability to find solutions or solve problems, thus increasing the level of illness suffering. In contrast, facilitating beliefs allow family members to find answers and alternative solutions, and have the potential to invite healing and ease the suffering caused by the disease (Wright & Bell, 2009).

Nurses therefore can offer the family an opportunity to recount the illness experience and reflect on it and their beliefs, with the intention of promoting within family, a new

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view of themselves, their resources and strengths, and help them discover alternative methods for coping with the illness, soften suffering, and improve family functioning (Årestedt et al., 2015; Östlund et al., 2016; Wacharasin et al., 2015; Wright & Bell, 2009).

According to the IBM, the healing power of establishing a therapeutic relationship with the family resides at the intersection of three sets of beliefs: the beliefs of the patient, the family, and the health professional. Nurses' beliefs about illness, family, and health care will especially influence the relationship between the nurse and the family and, in the end, the quality of care offered (Wright & Bell, 2009).

Nurses' beliefs about etiology, prognosis, and treatment of illness influence both family nursing assessment and intervention. Nurses who consider illness to be a "family affair" that affects all family members and affects their beliefs will be more likely to involve the family in their clinical practice. Likewise, beliefs about who constitutes the family and how it influences the health of its members will affect how the nurse approaches and treats the family and others involved in clinical practice (Wright & Bell, 2009).

In the same way, nurses' beliefs about the type of relationship that must be established with the family are essential to promoting a change in the family's beliefs (Wright & Bell, 2009). Evidence suggests that to create a trusting relationship with families, it is essential to show compassionate curiosity, a key element in preserving neutrality and remaining respectful of family beliefs and experiences while recognizing one's own beliefs (Maturana & Varela, 1992; Wright & Bell, 2009). For this to be possible, nurses must show openness toward each family's unique illness experience, without judging, blaming, or attempting to impose their own beliefs on those of the family (Maturana & Varela, 1992; Wright & Bell, 2009).

Given the impact that nurses' beliefs potentially have on patient and family care, it is essential that nurses identify and, if necessary, challenge their own beliefs as they establish a therapeutic relationship with the family (Gísladóttir & Svavarsdóttir, 2016; Svavarsdóttir et al., 2018; Wright, 2017). Toward this end, it is essential to have valid and reliable instruments for measuring health professionals' beliefs about the meaning of the illness to the family.

In the Spanish context, only one instrument has been identified. The Personal Beliefs about Illness Questionnaire (PBIQ) has been used to measure nurses' beliefs about chronic renal failure (Vélez, 2013). However, this instrument is not specific to health professionals, and it offers an individual perspective rather than considering the family perspective.

The development of the Iceland Health Care Practitioner Illness Beliefs Questionnaire (ICE-HCP-IBQ), was influenced by the IBM (Wright & Bell, 2009) and seems to be one of the most promising instruments for assessing nurses' beliefs about their understanding of the meaning of the illness for families (Svavarsdóttir et al., 2018).

Despite its short history, the ICE-HCP-IBQ has been shown to demonstrate adequate psychometric properties (Svavarsdóttir et al., 2018).

Given the importance of understanding health professionals' beliefs when establishing a therapeutic relationship with the family—and because of the scarcity of instruments in the Spanish context—we propose an adaptation of the ICE-HCP-IBQ to Spanish and aim to investigate its psychometric properties.

Purpose of the Study

The aim of this study was the translation and cross-cultural adaptation to Spanish of the ICE-HCP-IBQ and testing the psychometric properties of validity and reliability of the Spanish version in a sample of nurses.

Method

A descriptive, cross-sectional study was conducted in two phases: Phase I involved the cultural and linguistic adaptation to Spanish of the ICE-HCP-IBQ. Phase II included administering the adapted version of the ICE-HCP-IBQ to hospital nurses and analyzing the psychometric properties of the tool. To ensure the quality and transparency of the study, the Guidelines for Reporting Reliability and Agreement Studies (GRRAS) checklist (see Supplementary Material) was used.

Instruments

The ICE-HCP-IBQ. The ICE-HCP-IBQ was developed by Svavarsdóttir and colleagues (2018) from the Iceland Family Illness Beliefs Questionnaire (ICE-FIBQ) that focuses on capturing components of family members' illness beliefs that are discussed in a therapeutic conversation with a health care professional (Gísladóttir & Svavarsdóttir, 2016). The ICE-HCP-IBQ was developed and tested to capture health care practitioners' illness beliefs when caring for school-age children with asthma or attention deficit/hyperactivity disorder (ADHD).

The instrument was validated in a sample of 162 school nurses, including 81 nurses from Iceland and 81 from the state of Minnesota, and psychometric properties were reported. In the study, principal components analysis (PCA) and confirmatory factor analysis (CFA) found that a single factor, "illness beliefs," explained 66.3% of the variance, confirming the unidimensionality of the questionnaire. Regarding internal consistency, Cronbach's α was excellent for both versions (.92 for ADHD and .91 for asthma).

The ICE-HCP-IBQ consists of one dimension and includes seven items and four open-ended questions. According to the theoretical basis of the IBM (Wright & Bell, 2009), the seven items of the instrument focus on illness beliefs and include key aspects, such as (a) the cause of

illness, (b) the control of the illness symptoms, (c) the effect of the illness, (d) suffering due to the illness situation, (e) support received from health professionals, and (f) coping with the illness situation. All items are scored using a Likert-type scale with five response options ranging from 1 (*never*) to 5 (*always*). The total scores range from 7 to 35 points. A higher score reflects greater confidence of the professional in his or her beliefs about understanding the meaning of the illness to the family (Svavarsdottir et al., 2018).

For this research, the authors collaborated with the author of the original instrument, Dr. Erla K. Svavarsdottir, to develop a new version of the ICE-HCP-IBQ to measure health professionals' beliefs about their understanding of the meaning of the illness situation for families, from a general perspective, that is, without focusing on any specific illness (see Table 1 for further details).

Families' Importance in Nursing Care—Nurses' Attitudes Scale Revised (FINC-NA-R). The FINC-NA, developed by Benzein and colleagues (2008), measures nurses' attitudes about the importance of including the family in their clinical practice. It consists of four dimensions and a total of 26 items, distributed as follows: family as a resource in nursing care, 10 items; family as a conversational partner, eight items; family as a burden, four items; and family as its own resource, four items.

In this study, the revised version of the FINC-NA (FINC-NA-R) scale (Saveman et al., 2011) was used. The only difference between this version and the original is that all the items are answered using a 5-point Likert-type scale rather than 4-point Likert-type scale, to indicate the level of agreement, with responses ranging from 1 (*totally disagree*) to 5 (*totally agree*). The scale scores range from 26 to 130 points. A higher score indicates more positive attitudes toward the family. Cronbach's α for this sample was .90 for the total scale and between .64 and .84 for the four subscales.

Ethical Considerations

The study was approved by the Clinical Research Ethics Committee (CREC) of the University of Navarra (Reference 2018.086). Before beginning the study, the author of the original version of the instrument provided their authorization to use it. Participants received oral and written information about the purpose and design of the study, and all of them signed the informed consent document to participate.

Phase I: The Linguistic and Cultural Adaptation of the Instrument

Methods of Phase I. For the translation and cross-cultural adaptation of the instrument, the guide proposed by Sousa and Rojjanasrirat (2011) and coinciding with the guidelines formulated by the World Health Organization (n.d.) was used. The process was developed in five steps (see Figure 1).

Table 1. Modification of the ICE-HCP-IBQ.

ICE-HCP-IBQ for ADHD (Svavarsdottir et al., 2018)	
I believe that . . .	
1.	. . . I know the cause of ADHD for school-age children
2.	. . . I know how much control school-age children and their families have over ADHD
3.	. . . I believe that I know how much control ADHD has over school-age children with ADHD and their families
4.	. . . I would know what the effect would be (if any) on ADHD if parents would agree on the treatment of ADHD
5.	. . . I know who is suffering the most (if any) in families of school-age children with ADHD because of the changes in family life due to ADHD
6.	. . . I believe I know what has been the most useful thing health care professionals have offered to help families of school-age children with ADHD to cope with their suffering related to ADHD
7.	. . . I believe I know what has been the least useful thing health care professionals have offered to help families of school-age children with ADHD to cope with their suffering regarding ADHD
Modification of the ICE-HCP-IBQ	
I believe that . . .	
1.	. . . I know the cause of the health situation that my patients and their families are now dealing with
2.	. . . I know how much control my patients and their families have over the health situation
3.	. . . I know how much control the health situation has over my patients and their families.
4.	. . . I would know what the effect would be (if any) on the health situation, if my patients and their families would agree on treatments
5.	. . . I know who is suffering the most (if any), among my patients and their families, because of the changes in their family life due to the health situation
6.	. . . I know what has been the most useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation
7.	. . . I know what has been the least useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation

Note. ICE-HCP-IBQ = Iceland Health Care Practitioner Illness Beliefs Questionnaire; ADHD = attention deficit/hyperactivity disorder.

Step 1. Forward translation of the instrument into Spanish. The initial step consisted of two independent translations of the English version of the ICE-HCP-IBQ by two bilingual individuals whose native language was Spanish. The first translator was an expert in family nursing and thus was familiar with the theoretical construct of the questionnaire and its terminology. The second translator was familiar with colloquial phrases and idioms in English. As a result of this step, two translations of the original instrument into Spanish were obtained.

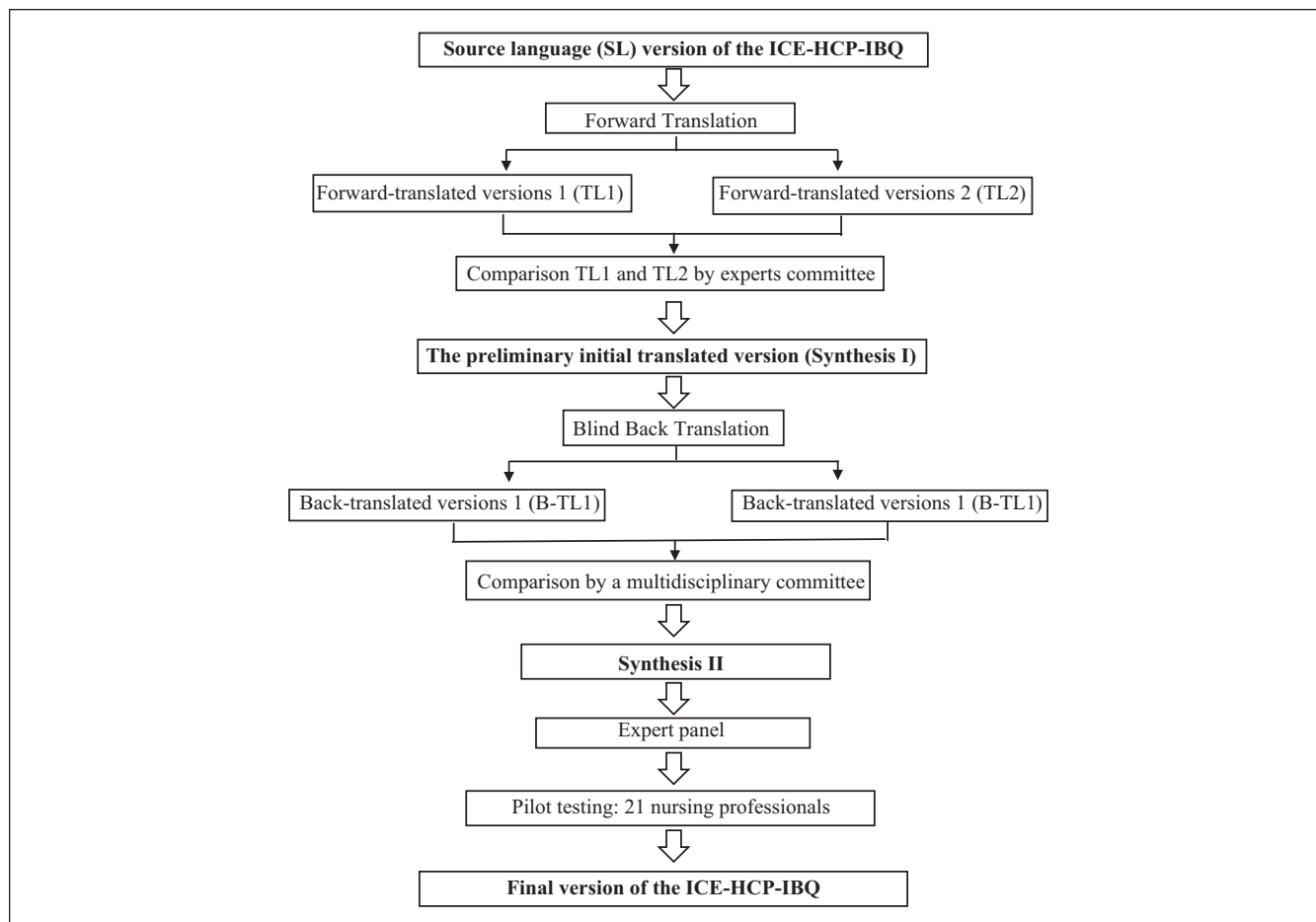


Figure 1. Translation and cross-cultural adaptation process of ICE-HCP-IBQ into Spanish.
 Note. ICE-HCP-IBQ = Iceland Health Care Practitioner Illness Beliefs Questionnaire.

Step 2. Comparison of the two translated versions of the instrument: Synthesis I. In this step, a third independent translator compared the two translated versions with one another and with the original scale to identify ambiguities or discrepancies in words, phrases, or meanings. This translator was bilingual and knew the terminology used in the instrument. Subsequently, a committee composed of the three translators and the authors of this study analyzed and discussed the ambiguities and discrepancies. Finally, the first version of the instrument in Spanish was obtained by consensus (Synthesis I).

Step 3. Blind back-translation of the instrument into English. In this third step, two new bilingual translators independently performed a back-translation of the first Spanish version of the instrument into English (Synthesis I). One translator was a nursing professional and an expert in family nursing, and the other was a linguistic expert with extensive experience in the translation and adaptation of instruments whose native language was English. This step resulted in two English translations of the instrument.

Step 4. Comparison of the two back-translated versions of the instrument: Synthesis II. Next, a multidisciplinary committee composed of all the bilingual translators involved in the previous steps and the authors of this study compared the two back-translated versions of the instrument with one another and with their respective original version. The aim was to discuss and resolve any ambiguity regarding cultural significance, colloquialisms, and idiomatic expressions. This process resulted in the second Spanish version of the instrument (Synthesis II).

Step 5. Content validity testing and pilot testing of the prefinal version of the instrument. In this last step, to analyze the instrument's content validity, a panel of experts was selected based on academic, professional, and work experience criteria. Seven nurses, two from academia and five from clinical practice, were asked to evaluate the relevance of each item to the underlying dimension that the ICE-HCP-IBQ intends to measure, "illness beliefs." To do this, they completed a 4-point Likert-type scale ranging from 1 (*not relevant*) to 4 (*very relevant*). For items classified as irrelevant, the experts were asked to propose an alternative expression (Polit & Beck, 2006).

Content validity or the degree to which the content of an instrument is an adequate reflection of the construct to be measured (Mokkink et al., 2010) was estimated assessing the content validity at the item level (I-CVI) and the scale level (S-CVI/Ave). The minimum acceptable standard was .78 for the I-CVI and .90 for the S-CVI/Ave (Polit & Beck, 2006).

Finally, a pilot study was conducted to assess item understanding and the applicability of the adapted version. For that purpose, the translated and adapted version of the instrument was administered to a convenience sample of 21 clinical nurses working at Clínica Universidad de Navarra, a hospital in the northern Spain (Sousa & Rojjanasrirat, 2011).

First, the instrument was administered, and the estimated completion time was recorded. Subsequently, item understanding and meaning for the target population were evaluated using cognitive interviewing techniques (Drennan, 2003; Polit & Yang, 2015). For this step, the participants were asked to reread the entire questionnaire and indicate whether they understood the meaning of each item and whether there were concepts that they did not understand. Next, the participants provided a general assessment of the questionnaire. To do so, they were asked whether there was any item that was difficult to understand or answer, whether there were unclear words or sentences, whether they thought that some important item was missing in relation to the subject of study, or whether any aspects were not needed. Participants who indicated that an item was confusing or complex were asked to provide an alternative expression. The data obtained were analyzed by the authors of this study, who agreed on the changes to be introduced. As a result of this last step, the final Spanish version of the ICE-HCP-IBQ was obtained.

Results of Phase I. The results of content validity analysis performed by the expert panel provided evidence of weak content validity of the overall scale since the S-CVI/Ave and the I-CVI values did not achieve the acceptable minimums. The S-CVI/Ave was .74, whereas the I-CVI values were .86 for Item 4; .71 for Items 1, 3, and 5; and .6 for Items 3 and 7. Therefore, following the recommendations of Polit and Beck (2006), a second round of the expert panel discussion was conducted.

According to the experts' suggestions, modifications were made to Items 3 and 7 to adapt the vocabulary and expressions to more natural-sounding Spanish. For example, Item 3 "Yo conozco cuánto control tiene la situación de salud/enfermedad sobre mis pacientes y sus familias" ("I believe that I know how much control the health/illness situation has over my patients and their families") was revised to "Yo conozco el grado de control que el problema de salud ejerce sobre mis pacientes y sus familias" ("I believe I know the level of control the health problem has over my patients and their families"). Similarly, Item 7 "Yo sé qué ha sido de menos ayuda o menos útil de aquello que

los profesionales de la salud han ofrecido a mis pacientes y sus familias para ayudarles a afrontar su sufrimiento por la situación de salud/enfermedad" ("I believe I know what has been the least useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health/illness situation") was revised to "Yo sé qué actuación de los profesionales de la salud ha sido de menos ayuda para aliviar el sufrimiento de mis pacientes y sus familias debido al problema de salud" ("I know what intervention, conducted by health care professionals, has been less helpful in alleviating the suffering of my patients and their families due to the health problem"). Other minor changes were made to the rest of the questionnaire.

In the second round of the expert panel, the S-CVI/Ave was excellent, with a value of .97. The I-CVI was 1.00 for all items except Item 3 "I know how much control the health situation has over my patients and their families," for which the I-CVI was .71.

In the pilot study, the sample consisted mostly of women (95%), with an average age of 32.90 years ($SD = 9.92$ years). The participants had worked as nurses from 3 months to 28 years, with an average experience duration of 9.83 years ($SD = 10.24$) and a mean duration in the current position of 4.17 years ($SD = 5.29$).

The time required to complete the questionnaire ranged from 5 to 7 min. Regarding understanding, five participants indicated they had difficulty understanding Item 3 "I know how much control the health situation has over my patients and their families." Therefore, modifications were made to use more natural-sounding vocabulary and expressions while the original meaning of the item was preserved. Likewise, two participants felt unsure if they had interpreted the questions in a correct manner. Therefore, the instructions were clarified and a definition of the term "beliefs," by Wright and Bell (2009), was included to avoid potential misunderstandings. The remaining participants indicated that they understood the meanings of each item and the instrument's instructions. In addition, the participants agreed with the items included in the questionnaire and did not suggest adding new ones.

Phase II: Test of Psychometric Properties

Methods of Phase II

Sample and location. The study was conducted with a convenience sample of clinical nurses working at Clínica Universidad de Navarra, Spain. Regarding sample size, anticipating a minimum response of 30% (Boynton & Greenhalgh, 2004) and following the recommendations for the application of factorial techniques (10 participants per item; Nunnally & Bernstein, 1994; Polit & Beck, 2008), a total sample of 293 nurses was calculated. The inclusion criteria were as follows: (a) working at the time of the study, (b) fluent in the Spanish language, and (c) in contact with families in daily clinical

practice. To estimate measure reliability (test–retest reliability), a total of 51 nurses completed the questionnaire a second time, 10 to 15 days after the first administration.

Data collection. Data were collected between March and May 2019. To access the sample, initial meetings were held with the supervisor of each unit of the hospital and cooperation in selecting potential participants and data collection was then requested. Following, informative sessions were organized in all the hospital units and potential participants were invited to attend. Prior to conducting surveys, the principal researcher explained the purpose and design of the study and a two-page information sheet was given to the assistants.

Then, nurses who voluntarily agreed to participate in the study signed the informed consent, and the principal researcher personally distributed the paper-based surveys, including the Spanish version of the ICE-HCP-IBQ, the FINC-NA-R scale (Saveman et al., 2011) and a sociodemographic questionnaire. Nurses individually filled out the survey forms in the presence of the principal researcher, who collected them immediately as they were completed. The researcher was responsible for giving instructions to the participants and answering their queries and concerns.

Sample analysis. A descriptive analysis of all the variables was performed. Frequency measures were calculated for categorical variables, and measures of dispersion and central tendency were calculated for continuous variables.

Item analysis. Item analysis and acceptability were calculated for each item as well as for the total score of the Spanish version of the ICE-HCP-IBQ, by determining the percentage of missing responses, mean, median, standard deviation, skewness, minimum and maximum values, and floor and ceiling effects. Specifically, viability tested whether the instrument could apply to the intended context. This was estimated analyzing missing responses. Accepted values for missing responses ranged between 5% and 10%. Acceptability provided information on the adequacy of the instrument to the target population through the analysis of the quality of the data. Data acceptability was considered satisfactory when all possible scores were observed, the mean and median were close, floor and ceiling effects were <15% (McHorney & Tarlov, 1995), and skewness values ranged from -1 to +1 (Van der Linden et al., 2005).

Structural validity. Exploratory factor analysis (EFA) was conducted using PCA with varimax rotation to investigate whether the variables (items) of the Spanish version of the ICE-HCP-IBQ were synthesizing the same factors as the original ICE-HCP-IBQ version.

EFA was conducted after the Kaiser–Meyer–Olkin (KMO) measure and the Bartlett test of sphericity identified the collected data were compatible with EFA. This study followed the standard that suggests that if the KMO measure is

greater than .80 (Kaiser, 1974) and the Bartlett sphericity test yields $p < .001$, it is compatible for factor analysis (Polit & Yang, 2015). The percentage of total variance explained by the original data (>50%) and the eigenvalue <1 criteria (Kaiser, 1974) were used to identify the number of factors to retain. An item was eligible to be associated with a factor if its factor loading was above ($\geq .40$) (Rattray & Jones, 2007).

Convergent validity. In the absence of a gold standard, convergent validity tested the correlation between two assessment tools thought to measure the same or a similar construct (Polit & Yang, 2015). Specifically, in this study, the correlation between the ICE-HCP-IBQ and the FINC-NA-R scale was evaluated. The hypothesis guiding this analysis was that the more confidence nurses have in their beliefs about their understanding of the meaning of the illness situation for families, the more positive their attitudes toward including the family in their clinical practice will be (Årestedt et al., 2015). To examine this hypothesis, the Pearson correlation coefficient (r) was estimated, and a moderately positive correlation ($r = .30-.59$) was expected (Fisk et al., 2005).

Discriminant validity. Discriminant validity was carried out to test the degree to which a measure can discriminate between known groups to differ with regard to the construct of interest “illness beliefs” (Polit & Yang, 2015). Analysis of variance (ANOVA) was used to determine whether there were significant differences in the scale by differentiating the groups according to the following variables: previous training in family nursing, having had a seriously ill family member, and finally, whether the professional felt that there was a caring attitude toward the family in their workplace.

Internal consistency. Internal consistency was conducted to test the degree to which the items of the scale measured the same construct (Polit & Yang, 2015). This was estimated using Cronbach’s α (criterion: $>.70$) (Streiner, 2003). The calculations included the corrected item-total correlation, indicating the correlation between the item and the total score (criterion: $r \geq .40$; Clark & Watson, 1995; Streiner et al., 2015); the interitem correlation (criterion: between .2 and .75; Clark & Watson, 1995); and the homogeneity coefficient, indicating the extent to which the items measure the same construct (criterion: $>.30$; Clark & Watson, 1995).

Test–retest reliability. Test–retest reliability measured the stability of a measure over time. Absolute agreement (%) and the kappa statistic (K_w) (with biquadratic weights) were used to evaluate test–retest reliability on an item-level, whereas the intraclass correlation coefficient (ICC) was used on the scale level. The weighted kappa coefficients higher than .60 were considered acceptable (Altman, 1991), whereas a value higher than .7 was considered acceptable for the ICC.

Table 2. Participants' Demographic Characteristics (N = 249).

Characteristics	Respondents
Age, M (SD)	41.46 (10.8)
Gender	
Female, n (%)	249 (100.0)
Highest level of education in nursing	
Diplomate, n (%)	132 (53.0)
Graduate, n (%)	81 (32.5)
Master degree, n (%)	36 (14.5)
Job training	
Specialization, n (%)	226 (90.8)
Expert, n (%)	50 (20.1)
Workplace	
Hospitalization plant, n (%)	91 (36.5)
Consultation room, n (%)	58 (23.3)
Other, n (%)	100 (40.2)
Time since graduation as RN, M (SD)	19.07 (10.8)
Working department	
Medical department, n (%)	109 (43.8)
Critical care, n (%)	69 (27.7)
Other, n (%)	71 (28.5)
Years working in the current service, M (SD)	12.97 (10.7)
Employment status	
Temporary staff, n (%)	43 (17.3)
Permanent staff, n (%)	199 (79.9)
Other, n (%)	7 (2.8)
Training in family nursing ^a	
Yes, n (%)	43 (17.3)
Family-approach ^b	
Yes, n (%)	141 (56.6)
Had a seriously ill family member ^c	
Yes, n (%)	167 (67.1)

Note. RN = registered nurse.

^aHas a member of your family ever been seriously ill? ^bIs there a general approach to the care of families at your place of work? ^cHas a member of your family ever been seriously ill?

SPSS Version 22.0 and STATA Version 14.0 were used to analyze the data. Listwise deletion was used for dealing with missing values leaving only complete cases (Peugh & Enders, 2004).

Results of Phase II

Sample analysis. Of the 293 nurses invited to participate in the study, 263 completed the Spanish version of the ICE-HCP-IBQ (response rate of 89.7%). The responses of 14 nurses were omitted because one or more items were missing, resulting in a total number of 249 responses that were suitable for further analysis.

All the nurse participants were women, and the mean age was 41.46 years ($SD = 10.84$). The average duration of work experience was 19.07 years ($SD = 10.84$). Most of the participants (79%) had a permanent employment contract, and their mean duration in the current position was 12.97 years ($SD = 10.71$) (see Table 2).

Item analysis. The scale showed good acceptability, with 5.3% missing data for the total score, and between 3.4% and 4.2% missing data for the items. The total score did not show ceiling and floor effects, nor did most items; the exception was Item 1, which showed a ceiling effect. The mean total scale score was 24.63 ($SD = 3.57$), with a median of 24.00 and an asymmetry of -0.112 , indicating that the data approached normal distribution. Table 3 summarizes the descriptive statistics.

Structural validity. Factor analysis was justified by the result of the Bartlett sphericity test ($p < .001$) and the sample adequacy coefficient ($KMO = .812$). PCA suggested a one-factor solution "illness beliefs" that explained 50.12% of the total variance. All items showed factorial loads $>.40$, with values between .62 (Item 1) and .81 (Item 3; see Table 4).

Convergent validity. Consistent with the preestablished hypothesis, the Spanish version of the ICE-HCP-IBQ and the FINC-NA-R scale showed a moderate positive correlation ($r = .38$). This result shows that the two questionnaires, which measure related constructs, correlated as planned according to the theory on which they were founded.

Discriminant validity. Regarding the discriminant validity of the ICE-HCP-IBQ, statistically significant differences were found only in the scores for the variable "care approach." Nurses who felt that their unit had a family-oriented approach to care obtained higher scores than those who indicated that their unit lacked this approach (ICE-HCP-IBQ = 25.43, $SD = 3.09$ vs. ICE-HCP-IBQ = 23.61, $SD = 3.89$; $p < .001$).

Internal consistency. Cronbach's α for the total scale was .83, demonstrating adequate internal consistency. All item-total correlations were $>.30$, ranging from .49 (Item 1) to .71 (Item 3). The homogeneity index was .38, and inter-item correlations ranged between .22 (Items 1, 5) and .65 (Items 6, 7); all items exceeded the .20 standard value (see Table 5).

Test-retest reliability. The weighted kappa coefficients for the items ranged between .30 (Item 6) and .64 (Item 1), and the percentage of agreement was $>94\%$ for all items. The results of the test-retest analysis showed an ICC of .72, which confirmed the stability of the questionnaire (Table 6).

Discussion

The results of this study ensure the validity and reliability of the Spanish version of the ICE-HCP-IBQ. This is the first instrument in the Spanish context aimed at measuring nurses' beliefs about their understanding of the meaning of the illness situation for families. A strength of the ICE-HCP-IBQ is that it is based on the IBM (Wright & Bell, 2009), a solid conceptual framework, built on decades of research, with

Table 3. Acceptability Data of the Spanish version of Iceland Health Care Practitioner Illness Beliefs Questionnaire.

Items	Missing <i>n</i> (%)	Minimum	Maximum	<i>M</i> (<i>SD</i>)	Median	Ceiling effect	Floor effect	Skewness
... I know the cause of the health situation that my patients and their families are now dealing with	10 (3.8)	1	5	3.85 (0.74)	4.00	0.8	17.0	-0.474
... I know how much control my patients and their families have over the health situation	9 (3.4)	1	5	3.46 (0.70)	3.00	0.4	4.3	-0.197
... I know how much control the health situation has over my patients and their families.	11 (4.2)	1	5	3.42 (0.71)	3.00	0.4	4.8	-0.043
... I would know what the effect would be (if any) on the health situation, if my patients and their families would agree on treatments	11 (4.2)	1	5	3.77 (0.73)	4.00	0.8	12.3	-0.592
... I know who is suffering the most (if any), among my patients and their families, because of the changes in their family life due to the health situation	10 (3.8)	1	5	3.38 (0.73)	3.00	1.6	4.0	-0.351
... I know what has been the most useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	10 (3.8)	1	5	3.51 (0.70)	4.00	0.4	5.2	-0.232
... I know what has been the least useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	11 (4.2)	1	5	3.26 (0.75)	3.00	1.2	4.8	0.043
Total	14 (5.3)	11	35	24.63 (3.58)	24.00	0.4	1.2	-0.112

Table 4. Construct Validity by Principal Components Analysis of the Spanish Version of Iceland Health Care Practitioner Illness Beliefs Questionnaire for Nursing Professionals (*n* = 249).

Items	Component loading
... I know the cause of the health situation that my patients and their families are now dealing with	.620
... I know how much control my patients and their families have over the health situation	.720
... I know how much control the health situation has over my patients and their families.	.818
... I would know what the effect would be (if any) on the health situation, if my patients and their families would agree on treatments	.693
... I know who is suffering the most (if any), among my patients and their families, because of the changes in their family life due to the health situation	.671
... I know what has been the most useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	.734
... I know what has been the least useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	.683

Note. The factor explained 50.12% of the total variation of the items in the factor. KMO = .812; Bartlett's test = 635,762; $p < .000$.

practice guidelines that favor operationalization to identify, assess, and intervene in the beliefs that both families and health professionals have about illness (Gisladottir & Svavarsdottir, 2016).

Regarding the translation and adaptation of the instrument, the use of a systematic and rigorous method ensured the quality of the measure, providing evidence of the validity, acceptability, and feasibility of the content of the Spanish version of the questionnaire (Cha et al., 2007; Dunckley et al., 2003; Sousa & Rojjanasrirat, 2011). A strong point in reaching equivalence between the original and the Spanish version of the instrument was the involvement of expert

translators with knowledge of the source and the target languages. They were able to analyze all possible item meanings and select the most appropriate language in relation to the original scale (D'Angelo et al., 2017; Hagedoorn et al., 2018; Teresi et al., 2019).

Likewise, the use of an expert panel of professionals from different fields and diverse professional profiles improved the adaptation of the instrument to the Spanish context and confirmed the content validity of the Spanish version of the questionnaire (Polit & Beck, 2006; Sousa & Rojjanasrirat, 2011). Based on the modifications proposed in the first round, statements that were difficult to understand were improved, and

Table 5. Reliability Analysis of the Spanish Version of Iceland Health Care Practitioner Illness Beliefs Questionnaire for Nursing Professionals ($n = 249$).

Items	Corrected item-total correlation	Cronbach's α if item deleted
. . . I know the cause of the health situation that my patients and their families are now dealing with	.487	.823
. . . I know how much control my patients and their families have over the health situation	.589	.807
. . . I know how much control the health situation has over my patients and their families.	.710	.787
. . . I would know what the effect would be (if any) on the health situation, if my patients and their families would agree on treatments	.567	.810
. . . I know who is suffering the most (if any), among my patients and their families, because of the changes in their family life due to the health situation	.540	.815
. . . I know what has been the most useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	.617	.802
. . . I know what has been the least useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	.549	.813

Note. Cronbach's alpha coefficient for the total scale = .830; homogeneity index = .380.

Table 6. Test–Retest Reliability of the Spanish Version of Iceland Health Care Practitioner Illness Beliefs Questionnaire for Nursing Professionals ($n = 249$).

Items	Agreement (%)	K_w	ICC
. . . I know the cause of the health situation that my patients and their families are now dealing with	96.22	.64	
. . . I know how much control my patients and their families have over the health situation	94.00	.44	
. . . I know how much control the health situation has over my patients and their families.	96.38	.50	
. . . I would know what the effect would be (if any) on the health situation, if my patients and their families would agree on treatments	95.69	.46	
. . . I know who is suffering the most (if any), among my patients and their families, because of the changes in their family life due to the health situation	95.46	.62	
. . . I know what has been the most useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	94.22	.30	
. . . I know what has been the least useful thing health care professionals have offered to my patients and their families, to help them cope with their suffering regarding the health situation	95.88	.40	
Total			.72

Note. ICC= intraclass correlation coefficient.

content validity analysis indicated satisfactory agreement among the experts on the items' relevance for measuring the construct "illness beliefs" (Polit & Beck, 2006).

On the other hand, although few studies incorporate cognitive interviewing technics as part of the translation and adaptation process, recent studies indicate their inclusion increases the certainty that the instrument can be applied to the target population (Beatty & Willis, 2007; Drennan, 2003). In our case, the use of such techniques allowed us to identify comprehension problems with Item 3 and modify it so that it used expressions that sounded natural to nurses. Likewise, suggestions regarding the instrument instructions and the definition of the term "beliefs" were followed, and the resulting modifications facilitated the understandability of the instrument. The contributions of the participants in the

pilot study confirmed the questionnaire items addressed important aspects of professionals' beliefs that should be recognized and incorporated when establishing a therapeutic relationship with the family.

The item analysis parameters were considered satisfactory. Data quality was considered acceptable as there were very few missing responses considering the large number of ICE-HCP-IBQ responses collected. Moreover, the Spanish version of the ICE-HCP-IBQ showed excellent acceptability, which means that the instrument is acceptable to the target sample, as the complete theoretical range of scores was observed for all items, all values remained within the acceptable range of skewness and the total score and most items did not show ceiling or floor effects (McHorney & Tarlov, 1995).

Based on exploratory factorial analysis, one-factor solution was identified, “Illness belief,” confirming the unidimensionality of the instrument (Burga, 2006). This item structure reflects the underlying theoretical construct, the Illness Belief Model (Wright & Bell, 2009). In addition, the item structure is identical to that of the original instrument (Svavarsdottir et al., 2018) and to the version developed for families (Gisladottir & Svavarsdottir, 2016), which strengthens the validity of the tool. These findings confirm that all the items of the Spanish version of the ICE-HCP-IBQ measure a single construct—illness beliefs—in terms of control, effect, suffering, and support in the illness experience (Wright & Bell, 2009).

Regarding convergent validity, the positive and moderate correlation between the Spanish version of the ICE-HCP-IBQ and the FINC-NA-R scale could be explained by the relationship between greater confidence in beliefs about the meaning of the illness situation for families and a more positive attitude toward including the family in clinical practice. This relationship has also been found in other studies and confirms the influence of facilitating beliefs when working with the family and a positive attitude toward family support in clinical practice (Årestedt et al., 2015; Duhamel et al., 2015). Similarly, Svavarsdottir et al. (2018) obtained similar results when evaluating the association between the ICE-HCP-IBQ and the Family Nursing Practice Scale (FNPS), which measures nurses’ attitudes toward working with families, critically appraises their family nursing practice, and examines reciprocity in the nurse-family relationship (Simpson & Tarrant, 2006).

Regarding the validity of known groups, a statistically significant correlation was found between nurses having greater confidence in their beliefs about their understanding of the meaning of the illness situation to the family and feeling that their work unit has a family-oriented approach to care. This result is consistent with previous studies in family nursing showing nurses’ beliefs about family and illness are associated with the integration and implementation of knowledge and skills in family nursing in clinical practice (Årestedt et al., 2015; Wright & Bell, 2009). This supports the IBM’s assumption (Wright & Bell, 2009) that nurses’ beliefs influence their cognition and behavior (Duhamel et al., 2015; Wright & Leahey, 2013).

However, no significant differences were found between nurses’ illness beliefs and having personally experienced the seriously illness of a family member. A possible explanation for this fact is that the nurse’s relation to the ill person was not specified, nor was the severity of the relative’s illness. These are potentially pertinent variables in the development of facilitating or constraining beliefs among family members (Akhtar et al., 2013; Feldberg et al., 2011; Roig Tortajada et al., 2003; Wright & Bell, 2009). In addition, although previous studies have shown that previous personal experiences, such as having a seriously ill family member, have an impact on nurses’ attitudes toward families (Benzein et al., 2008; Linnarsson et al., 2015), there is very little information about how this influences beliefs.

Similarly, no significant differences were found between the nurses’ beliefs about their understanding of the meaning of the illness to the family and previous education in family nursing. However, this result could have been affected by the sample size since, in this study, only some nurses reported having received family nursing education ($n = 43$, 17.3%; Polit & Yang, 2015). Moreover, in the Spanish context, educational interventions in family nursing have been scarce and have not included coaching or supervised practice as teaching methods. The latter have been recognized by experts as key teaching strategies to promote the use of family nursing knowledge in practice and to strengthen the facilitating beliefs of nurses regarding a more integrative view of the illness experience and working with the family (Duhamel et al., 2015).

The internal consistency and test-retest reliability were excellent, supporting the construct validity of the instrument and confirming that it is a reliable measure (Polit & Yang, 2015). In relation to internal consistency, Cronbach’s alpha for the Spanish version of the ICE-HCP-IBQ presented satisfactory results (Cronbach’s $\alpha = .83$), with values lower than those found in the original instrument (Cronbach’s $\alpha = .92$ for ADHD, .91 for asthma; Svavarsdottir et al., 2018) but higher than those obtained in the version of the instrument for families (ICE-FIBQ; Cronbach’s $\alpha = .78$; Gisladottir & Svavarsdottir, 2016). This finding together with the homogeneity and item-total correlation indices indicate that the Spanish version of the ICE-HCP-IBQ maintains good internal consistency and is a reliable measure overall. Furthermore, there was no need to delete any items due to the alpha coefficient not increasing if they were deleted.

In previous research, the stability of the instrument had not been reported (Svavarsdottir et al., 2018). In contrast, in this study, a test-retest reliability analysis was performed, demonstrating it is a stable measuring instrument since the value of ICC achieved the minimum acceptable. This result showed the instrument has the capacity to yield a similar score when administered under the same conditions, to the same participants, and at different times. Thus, this characteristic provides evidence of the potential of the Spanish version of the ICE-HCP-IBQ to study the effectiveness of educational interventions in family nursing that aim to create changes in nurses’ beliefs about the family illness experience.

Finally, it is important to note that the Spanish version of the ICE-HCP-IBQ appears to be applicable as a valid and reliable measure of illness beliefs in family nursing practice or research. However, the results from this study are from one culture and the instrument should be psychometrically tested before using it in other cultures or with other populations.

Implications for Using the ICE-HCP-IBQ in Clinical Practice

The Spanish version of the ICE-HCP-IBQ may be of interest for mapping nurses’ beliefs when caring for families and

identifying educational needs of the nurse. The instrument has the potential to inform the development of educational interventions in family nursing that promote a more inclusive view of the patient's and his or her family's health/illness experience. The instrument could be applied to measure the effectiveness of such family nursing interventions due to its ability to produce stable responses over time. This way, families could benefit from receiving a family-focused care approach that helps families find strategies to face the challenges brought forth by the illness and encourages family well-being and healing.

Limitations

Among the limitations of this study, it is worth mentioning possible selection bias since participation was voluntary and nonprobabilistic sampling was used. Therefore, the nurses who chose to participate in this study might have been more involved or thoughtful in their clinical practice with the family, which could somehow limit the extrapolation of the results to other nurses. However, the use of explicit eligibility criteria allowed us to describe and identify the sample adequately, ensuring the reproducibility of the results (González-Bueno et al., 2017).

Likewise, the use of a self-assessment questionnaire can generate social desirability bias. That is, nurses may overestimate their responses to reflect more socially desirable behavior, which could affect the validity of the results (Krumpal, 2013). Nonetheless, we believe that the data obtained are close to the real data, with adequate distribution of the responses and a large number of participants, reinforcing the value of the findings and providing more stable results.

Conclusion

The Spanish version of the ICE-HCP-IBQ is the first valid and reliable instrument for measuring nurses' beliefs about their understanding of the meaning of the illness situation for the family in the Spanish context. Since nurses' beliefs about the family and illness are fundamental to the quality of the nurse's relationship with the family, the availability of this questionnaire in the Spanish context could help nurses identify their illness beliefs, and, if necessary, challenge them to establish an effective therapeutic relationship with the family. Finally, future studies assessing the psychometric properties of the instrument in other populations and contexts are recommended to expand its use.

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Supplemental Material

Supplemental material for this article is available online.

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