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Cross-cultural Adaptation of the Psychosocial Impact of Assistive Device Scale (PIADS) for Puerto Rican Assistive Technology Users

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Abstract

Assistive technology (AT) is important for individuals with disabilities' independence and participation in daily life, and there is a lack of valid AT outcome tools for the Puerto Rican population. This pilot study examined the content validity of a new adaptation of the Psychosocial Impact of Assistive Device Scale (PIADS): the Puerto Rican-Spanish PIADS (PR-PIADS). Following standard procedures, the cultural adaptation methodology included a bilingual multidisciplinary committee review of the original (English language) and Spanish versions of the PIADS and pilot testing of the preliminary version of the PR-PIADS with 20 AT users. The committee recommended a total of 58 semantic and conceptual modifications of the Spanish PIADS. Pilot data analysis resulted in 4 additional semantic and conceptual modifications of items that did not reach the minimum content validity ratio of 0.42 for a panel composed by 20 members: competence (0), efficiency (−0.6), performance (−0.95), and eagerness to take chances (−0.6). This pilot study demonstrated evidence of initial content validity of the PR-PIADS. Future research is required before using this tool with greater confidence to address the construct validity and reliability that are also critical to a successful cultural adaptation.

Keywords

assistive devices; outcome measures; psychometric properties; psychosocial well-being; quality of life

Introduction

Assistive technology (AT) consists of any device, equipment, or service that enables people with disabilities to increase their functional gains, independence, and participation in meaningful activities and occupations (Cook & Hussey, 2008). AT can also improve quality of life (QoL) through matching the individual's abilities, the demands of the activity, and the

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environments in which he or she participates (Cook & Hussey, 2008). However, there is research evidence indicating that people will sometimes reject or abandon devices that seems to be well designed and functional (Cushman & Scherer, 1996; Murphy, Markova, Collins, & Moodie, 1996; Phillips & Zao, 1993). Some serious consequences of non-use of prescribed ATs consist of the loss of functional ability of the user, increases in attendant and other health care costs, and ineffective use of funds from providers' organizations (Phillips & Zao, 1993). ATs can also give the user a feeling of inadequacy and can be perceived as negative symbolic values of disability which result in diminished self-worth (Häggblom Kronlöf & Sonn, 1999; Larsson-Lund & Nygård, 2003). Jutai and Day (2002) stated that, "investigating the psychosocial impact of an AT on its user may shed some light on the reasons for its use and abandonment" (p. 107). Measuring QoL is also relevant for AT providers, administrators, and researchers who have a clear mandate to establish methods for demonstrating that AT services and recommendations are both effective and meaningful. One important way to determine the effectiveness of AT is by exploring its impact on the QoL of its users (Demers, Monette, Descent, Jutai, & Wolfson, 2002). Therefore, it is imperative that AT designers and providers invest time and effort to understand both: the psychosocial factors that impact the user's adoption, retention, or abandonment of these tools, as well as the effectiveness of AT for its users. However, there are few valid and reliable measurement tools that AT practitioners can use to assess the impact of AT in the QoL of people with disabilities. More specifically, no valid and reliable tool exists in Spanish that are culturally sensitive to measure the user perception of how assistive devices impact the QoL of Puerto Ricans with disabilities.

The Psychosocial Impact of Assistive Device Scale (PIADS) is a such tool with evidence of sound psychometric properties, used to measure the impact of AT on functional independence, well-being, and QoL of people with physical or sensory disabilities (Day & Jutai, 1996). The PIADS uses a client-centered approach in which the users of the device identify the extent to which the adoption of the device affect his or her QoL. Therefore, the PIADS can be used to predict at a significant statistical level the retention or abandonment of ATs, resulting in savings of time, money, and stress (Day, Jutai, & Campbells, 2002). The PIADS can also be used to measure clinically important variations on functional independence and QoL among different populations of AT users, categories of devices, and combinations of these factors.

Previous studies with the PIADS have used standardized procedures to translate and culturally adapt this tool from English to other languages (Demers et al., 2002; Hsieh & Lenker, 2006). Although a version of the PIADS produced in Spain is available in Spanish, it was not assumed to be suitable for use with the Puerto Rican population for several reasons. First, the cross-cultural adaptation of health and rehabilitation questionnaires for use in a new country or culture requires a unique methodology to reach equivalence between the original source and target instrument (Guillemin, Bombardier, & Beaton, 1993). Beaton, Bombardier, Guillemin, and Ferraz (2002) stated that if measures are to be used across cultures, the items must not only be well-translated linguistically, but also be adapted culturally in order to maintain the content validity of the instrument across cultures. In this way, researchers and practitioners can be more confident that they are describing the same phenomenon in a similar manner in multi-cultural outcome evaluations as well as assuring

that the adapted tool functions as intended. Second, adaptation of assessment instruments are needed even when the language remains the same, because differences exist in the culture or life experiences of those speaking the same language (Demers et al., 2002).

The many important advantages to having AT outcome measurement instruments, such as the PIADS, available in different world languages include: (a) increased opportunities for international scientific collaboration in AT research and advancement of AT knowledge base and (b) improved accessibility of AT outcome research, and thereby the potential benefits from its results, to populations of persons with disabilities worldwide. The topic is very timely given the significant interest worldwide in developing international standards relating to AT, and recent developments in emerging global consensus on the role of AT in promoting health and well being (Lenker & Jutai, 2002).

The purpose of this pilot study was to conduct the first step of the process for validating and norming translations of questionnaires adopted by the International Society for Quality of Life Assessment (IQOLA) project (Gandek, Ware, & IQOLA Group 1998): the cultural adaptation of the Spain Spanish version of the PIADS for Puerto Rican users of AT. For the purpose of this research, cultural adaptation is the process that looks at language (translation) and tests concept in the process of preparing a questionnaire for use in another setting (Beaton et al., 2002). Cultural adaptation of a test for use in a new country, culture, and/or language necessitates use of a unique method, to reach equivalence between the original source and target version of the test. It is well known that if evaluators want to use tests across cultures, they must use a process composed by two components: (a) the literal translation of the test from one language to another and (b) its adaptation with regard to idiom and to cultural context and lifestyle (Guillemin et al., 1993). The process of cultural adaptation tries to ensure consistency in the content and face validity between source and target versions of a questionnaire.

There are several settings for the cross-cultural adaptation process. For example, instruments require adaptation for use in a different country with both, a different culture and a different language. Instruments also require adaptations for use with populations that live in the same country, use the same language, but have different cultural origin. An instrument used in a country other than that in which it was developed may as well require adaptation if the population concerned have another culture with similar language. The process of cultural adaptation usually includes the translation, the back-translation, an expert committee review of those translations and back-translations, and pre-testing with the target population. However, the translation and back-translation process is not required if researchers want to adapt an instrument from one culture to another using a similar language (from Spanish spoken in Spain to Spanish spoken in Puerto Rico). The adaptation of the Spain version of the PIADS was needed because of significant cultural differences between these two countries. Therefore, the main aims for this pilot study were to: (a) develop a preliminary Puerto Rican version of the PIADS and (b) to pilot test the content validity of the preliminary Puerto Rican version of the PIADS.

Materials and Methods

Subjects

Using purposive and snowball sampling methods, 20 bilingual AT users were recruited for the pilot test. We used a purposive sample to serve the very specific purpose to culturally adapt the meaning of the items and instructions of the PIADS among knowledgeable AT users. For the purpose of this study, sampling for proportionality was not the main concern (Portney & Watkins, 2009). We determined the sample size based on the Beaton et al. (2000) recommended guidelines for cultural adaptation of the meaning of the items of self-report measures and on sample sizes recruited in previous studies to test the content validity of culturally adapted versions of the PIADS (Demers et al., 2002; Hsieh & Lenker, 2006). The inclusion criteria were: (a) Puerto Rican origin, (b) adults aged 18–55 years, (c) no diagnosis of cognitive impairment, (d) bilingual (English and Spanish), (e) able to understand and follow instructions, and (f) AT users. The pilot study was approved by the Institutional Review Board of the Medical Sciences Campus, University of Puerto Rico (Protocol A4120107).

Instruments

English version of the PIADS—The PIADS is a 26-item self-report questionnaire designed to measure three important QoL domains: (a) functional independence; (b) well-being, and (c) QoL of people with disabilities (Day & Jutai, 1996). The PIADS describes user perceptions along three dimensions. The first dimension, competence (12 items), measures the impact of the device on perceived functional independence, performance and productivity. The second dimension, adaptability (6 items), measures the willingness to try new things, take risks, and take advantages of opportunities. The third dimension, self-esteem (8 items), is sensitive to the perceived impact of AT on self-confidence, self-esteem, sense of power and control, and emotional well-being. Users rate each PIADS item using a 7-point scale ranging from -3 = maximum negative impact to 0 = no perceived impact to $+3$ = maximum positive impact.

Under normal circumstances, the PIADS can be completed within 10–15 minutes and can be administered individually, in a group, or via telephone. The original PIADS has demonstrated evidence of content validity, construct validity through factor analysis and known groups technique, internal consistency, and test-retest reliability (Day & Jutai, 1996; Day et al., 2002; Jutai & Day, 2002). All the psychometric proprieties of the scale were established in previously conducted research and have been shown to reliably predict the successful use of AT (Jutai, Day, Woolrich, & Strong, 2003; Jutai, Fuhrer, Demers, Scherer, & DeRuyter, 2006; Saladin & Hansmann, 2008).

Spanish version of the PIADS—A Spanish translation of the PIADS, shown in Figure 1, was conducted by Victoria Quinteiro in Spain as part of her doctoral dissertation (Jutai et al., 2007; V. Quinteiro, pers. commun., November 28, 2006). Quinteiro used a methodology for cross-cultural translation and adaptation established by the authors of the PIADS and used for the development of the French version of the PIADS. This methodology was based on the first step of Vallerand's (1989) methodology and on Guillemin et al.'s (1993)

guidelines for cross-cultural adaptation of health questionnaires. The first step consisted of a forward translation of the original instrument in Spanish by a methodologist and expert researcher and a professional translator. Semantic and content equivalence were used to maintain the same meaning and relevance of the original and Spanish version of the PIADS. Spanish was the native language of both individuals. This preliminary Spanish version of the PIADS was then back-translated into English by a third, native English-speaking professional translator. This backward translation was revised and accepted by Dr. Jutai's team of experts who included Spanish-speaking rehabilitation professionals. Afterward, the experimental Spanish version was administered to a group of AT users (mainly computer access) in a rehabilitation services organization in Madrid, Spain. Currently, researchers from this organization are performing reliability and usability studies of this Spanish version of the PIADS.

Socio-demographic questionnaire—A questionnaire was developed to capture socio-demographic information and was administered to the pilot test and field test participants to describe the characteristics of the sample of this pilot study. It included information such as age, sex, amount of time, and purpose of assistive device use.

Pilot test interview—This interview was developed for the purpose of this pilot study and was administered to pilot test participants in order to obtain information related to the clarity and relevance of the PIADS items, instructions for instrument use, to suggest changes to unclear items, and to determine the utility of the preliminary Puerto Rican version of the PIADS to assess the impact AT on the QoL of its users.

Procedures

Data was collected by the principal investigator at the site of preference of the participants. This included the participants' home, university institution, workplace, or principal investigator's office. The pilot study was explained to the participants, confidentiality and anonymity were guaranteed, and informed consent was obtained from all participants. The cultural adaptation protocol used for this pilot study was a modification of the guidelines for cross-cultural adaptation and validation of health questionnaires by Guillemin et al. (1993), used to create the Canadian-French PIADS (Demers et al., 2002), and is outlined in Figure 2. This pilot study consisted of three phases with the first two phases reported herein. Phase 1 comprised the cultural adaptation of the Spanish PIADS while Phase 2, consisted of the pilot test of the preliminary PR-PIADS, tested with 20 bilingual AT users. Results of Phase 3 encompassed the field testing of the final PR-PIADS and will be reported in a future article by the authors of this article.

Phase 1: Cultural adaptation of the Spanish version of the PIADS—The first phase consisted of the development of a preliminary version of the Puerto Rican PIADS from the original and Spanish versions by a committee of experts. This committee was composed of six Puerto Rican bilingual individuals that included an occupational therapist methodologist researcher, an AT specialist, an AT specialist experienced with the target population, an individual professional translator, and two experienced AT users. A committee approach with different members was preferred for cross-cultural test translation

for several reasons. First, a committee has the advantage of incorporating a variety of opinions and provides less opportunity for linguistic and comprehension biases. In a committee, the mistakes of one member can be caught by other members of the committee, allowing a more objective and thorough analysis of the two experimental versions (Brislin, 1970, 1986; Hachey, Jumoorly, & Mercier, 1995). Second, a committee can generate more opinions and opportunities to clarify and explain any differences regarding the translated terms (Hachey et al., 1995). Third, a group with a diverse composition allows the input of a wide-range input into the relevance of the words and concepts of the target culture (Oquendo, Mena, Antoun, Wojna, 2010). The committee for this pilot study reviewed and compared the Spanish version of the PIADS with the original PIADS by taking into account cultural and socio-economic factors of the Puerto Rican population to achieve cross-cultural equivalence between the original source and the target version (preliminary PR-PIADS) in the areas of semantic, idiomatic, conceptual, and technical equivalence. Semantic equivalence, as described by Guillemin (1993), relates to attaining similar meaning of items in each culture. Idiomatic equivalence relates to the formulation of an equivalent expression in the target version, if there are colloquialisms which are difficult to translate. Conceptual equivalence explains the difference in concepts between cultures and the authors' original purpose. Technical equivalence refers to the requirement that the original and translated versions use comparable methods of measuring technique and appropriate questionnaire format when used in different cultures (Matías-Carrelo et al., 2003). The committee's role was to: (a) review and make any required modification to the questionnaire items, instructions, introductory text, and glossary; (b) examine any found discrepancy; and (c) reach a consensus on any discrepancy found and determine the most accurate and satisfying choice of terms and sentence structure to achieve cross-cultural equivalence. The co-author of the PIADS, Dr. Jeffrey Jutai, volunteered to be a consultant on the project, and gave the committee his advice at key phases of its progress. Following the committee work, the preliminary PR-PIADS was developed, using the same format of presentation as the original tool (see Figure 3).

Phase 2: Pilot test of the preliminary Puerto Rican version of the PIADS—In this phase, the preliminary version was pilot tested to ensure that it was clear and that the content of the items in the preliminary version was free from the influence of factors that were not relevant in the Puerto Rican culture. The pilot test consisted of 20 AT users. The participants were asked to sign the consent form after having the opportunity to clarify all their doubts. Afterward, they were asked to complete a socio-demographic questionnaire, followed by the administration of the preliminary PR-PIADS and the original version, in random order to each participant by the principal investigator. Finally, the participants were interviewed to explore if they found any item, instruction, or section of the introductory text ambiguous or difficult to understand or not relevant for the Puerto Rican culture. Participants were also asked to suggest modifications and the reasons for these changes. The participants spent about 30–60 minutes in the evaluation sessions. The information gathered from the interviews was analyzed by the two authors and the professional translator to make final decisions regarding appropriate changes that resulted in the development of the experimental version of the PR-PIADS. A copy of the PR-PIADS can be obtained from the corresponding author of this article.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) version 17 (SPSS, Inc., Chicago, IL) was used to analyze the data. Means and standard deviations (SD) or frequencies were calculated for numerical and categorical variables, respectively. Since the purpose of this pilot study was to conduct the first step (cultural adaptation of the Spain version of the PIADS for the PR-PIADS), of the three-step process for validating and norming translations of questionnaires (Gandek et al., 1998), only content validity was assessed. We used the content validity ratio (CVR; Lawshe, 1975) to assess content validity. We used the formula of $CVR = (n_e - N/2) / [N/2]$, in which n_e is the number of participants indicating that the item of the preliminary PR-PIADS was significantly different from the item of the original tool and the N is the total number of participants. We computed the CVR for each item and only the items that satisfied the criteria of a $CVR > 0.42$ for a panel composed by 20 members was selected to be included for the next experimental PR-PIADS (Lawshe, 1975; Rungtusanatham, 1998).

We analyzed qualitative data using a conventional thematic content analysis to interpret the content of participants judgements of the meaning of the items and instructions of the Spanish PIADS (Patton, 2002). We initiated this procedure by analysing the field notes, repeatedly reading the interview data, initial coding scheme of significant statements, comparison and sorting of these codes into major categories of the meaning of the items and instructions, and developing interpretations of the resulting meaning of the items.

Results

The socio-demographic characteristics of the pilot test participants are presented in Table 1. The mean age of the 20 participants was 44.4 years ($SD = 12$ years) and 77.7% were men. The majority of the participants had visual impairments (65%), such as macular degeneration, retinitis pigmentosa, and glaucoma. Participants with motor impairments (35%) included individuals with cerebral palsy, muscular dystrophy, lower extremity amputation, and spinal cord injuries. A wide range of ATs were used by the participants of this pilot study including computer access, mobility devices, tape recorders, personal note takers, and closed circuit television (Table 1). These AT devices were used to participate in work, education, activities of daily living, and leisure activities with a frequency of constant use (76–100% of the time) of 59.1% for all participants.

Cultural Adaptation of the Spanish PIADS

As the result of the expert committee's discussions, 22 semantic modifications to the instructions, 7 semantic modifications to the introductory text, 9 semantic modifications to the questionnaire items, and 20 semantic modifications to the glossary of terms were incorporated to attain cross-cultural equivalence of the instrument. Table 2 depicts several of the expert committee's modifications to the introductory texts and all the modifications of the questionnaire's items of the PR-PIADS preliminary version. To obtain semantic equivalence, some words and phrases were changed according to the committees' feedback in order to make the language simpler and more understandable for Puerto Rican persons who have a disability. This was the case, for example, for the translation of the word

“assistive devices” in the instruction and introductory text of the PIADS. The Spanish version translation was *ayudas técnicas*. However, in Puerto Rico, *equipos de asistencia tecnológica* is a synonym and the term commonly used for assistive devices.

In other instances, the substitution of words or phrases was necessary due to differences in meanings of the Spanish terms in Spain and Puerto Rico. For example, the translation of the word “embarrassment” in the Spanish version was *sentirse a disgusto*. In Puerto Rico, this Spanish term means “feeling angry,” which does not reflect the intent and meaning of the original item. The committee suggested using *sentirse avergonzado* instead of *sentirse a disgusto* because it ensured that the meaning of the original language was preserved in the Puerto Rican version. Moreover, semantic equivalence was achieved by modifying the grammatical structure of item to make it clearer. This was the case for the translation of the term “capability.” The Spanish version used *capacidad*. It was necessary to add the verb *sentirse* (“feeling”) before *capaz* (“capable”) to clarify the required information for Puerto Rican persons who have a disability. Other changes were incorporated to attain the *content equivalence* of the instruments. For example, as part of the scale instruction, it asked if the questionnaire is being completed in the “clinic,” which is the term in Spain for “hospital.” In Puerto Rico, neither “clinic” nor “hospital” are relevant contexts in which ATs are delivered. A more pertinent content for AT services in Puerto Rico are public service centers, such as the Department of Education and the Vocational Rehabilitation Centers. Therefore, the committee decided to change the concept of “hospital” to *centros de servicio* to ensure that an equivalent form of the original concept was used in the PR-PIADS.

The committee reached consensus about the appropriateness of the Spanish PIADS format and scoring system for use with Puerto Rican AT users. Therefore, in order to assure technical equivalence, the same layout, format, and scoring methods of the English and Spanish versions were maintained in the Puerto Rican version. No idiomatic equivalence discrepancies were found between the different PIADS versions; thus, no changes were made in this area.

In Phase 2, the preliminary version of the PR-PIADS was administered to 20 AT users. The CVR was computed for each item and only items that met the minimum CVR of 0.42 or greater were included in the final version of the PR-PIADS. Those that did not were modified or rephrased based on the pilot participants’ recommendations and the investigators’ expert judgment. Four items of the preliminary PR-PIADS that did not reach the minimum CVR proposed for this pilot study were modified: competence, efficiency, performance, and eagerness to take chances (see Table 3). The analysis of the qualitative data indicated that the item *competencia* (“competence”) was confused by its homophone in Spanish that means the act of competing between two or more persons. Therefore, this translation did not convey conceptual equivalence with the item of the original version (ability to do well the important things you need to do in life). As a result, the term *sentirse competente* (“feeling competent”) was suggested by most of the participants and adopted as a valid modification as it better reflected the intent of the original term.

The item *eficacia* (“efficiency”) was difficult to understand by most of the pilot participants. Therefore, the term was changed to *sentirse eficiente* to clarify the meaning of the item for

Puerto Rican persons who have a disability. It was agreed by the majority of the pilot participants that the meaning of the term *sentir que puede hacer* (“feel that you can do”) was puzzling and ineffective in clearly conveying the correct meaning of “performance” (able to demonstrate your skills). Therefore, the term *desepeño* (“performance”), was suggested by the majority of the participants as the most correct term that convey the correct meaning of the original item. The item *sentir entusiasmo* (“feeling enthusiasm”) was not considered to have equivalence of meaning with the original item “eagerness.” The participants’ feedback revealed that the term “eagerness” conveyed a stronger connotation than only “feeling enthusiasm.” Therefore, the term selected for the final version was *deseoso* (“eagerness”) because it was most effective in conveying the same meaning of the original item.

Discussion

The purpose of this pilot study was to to conduct the first step (cultural adaptation of Spanish version of the PIADS for Puerto Rican users of AT), of the three-step process recommended by Gandek et al. (1998) for validating and norming translations of questionnaires. We only assed the content validity of the PR- PIADS due to the purpose of this pilot study. The content validity of the PR-PIADS was found to be high in the areas of semantic, content, idiomatic, and technical equivalence. This is the first pilot study in Puerto Rico that assesses the content validity of a tool design to measure the impact of ATs on its users. The methodology employed in this pilot study validates the need to use a standardize set of cross-cultural adaptation procedures even when the language of the instruments remain the same because differences exists in the culture or life experiences of those speaking the same language. Even though semantic and content equivalence were thought to exist during the translation and adaptation of the original PIADS to the Spanish used in Spain, modifications to the Spanish version were necessary to develop an equivalent and culturally sensitive version of the original tool for the Puerto Rican population.

The methodology used in this pilot study had several strengths. Firstly, was the use of a multidisciplinary committee approach consisting of bilingual members of the target population, professional translators, AT specialists, and methodology experts. Secondly, was the use of qualitative and quantitative methods for data analysis of the pilot test and, finally, was the use of bilingual members native to the target language. The use of a committee approach and the pilot test was crucial to reach equivalence between the original source and the Puerto Rican Spanish version. The multidisciplinary committee played a major role in the cultural adaptation, especially in determining choices of terms and sentence structures necessary to ensure cultural relevance, clarity of the items, and appropriateness of the Spanish PIADS format and scoring system for use with the Puerto Rican AT users. As seen in previous studies, the diverse composition of the group representing different expertise, backgrounds, and including members of the target population provided wide-ranging input regarding the relevance of each item to the Puerto Rican culture (Oquendo et al., 2010). The bilingual committee members who were native to the target language helped assure that the choice of terms used was clear, simple, and comprehensible to the Puerto Rican population while maintaining the same meaning with the original tool and content relevance. The committee’s discussion also showed that achieving semantic equivalence is necessary, but not sufficient in obtaining cultural equivalence within the instrument.

Moreover, the information gathered from the pilot-test participants was vital, especially in simplifying the choices of terms, clarifying ambiguous items, and assuring content equivalence. It was evident that even when the committee was able to obtain preliminary semantic and conceptual equivalence, there were several choices of terms in which pilot test participants disagreed on the equivalence between the original and Puerto Rican version of the instrument. Therefore, pilot-test participants suggested additional changes in the choices of words to clarify complex terms and the conceptualization of particular constructs being measured. This resulted in an experimental version of the PR-PIADS that was more comprehensible to the Puerto Rican population.

The use of a quantitative approach to content validity was also crucial to establishing measurement quality as an integral part of the conduct of this empirical research pilot study (Lawshe, 1975). Evidencing validity of a tool is vital to increasing evaluators' confidence in assessment findings as well assuring that the adapted tool functions as intended (Guillemin et al., 1993).

This pilot study was limited by contextual, methodological, and pragmatic factors. First, the sample use was not necessarily representative of the Puerto Rican population of AT users, which limits generalization of the findings of this pilot study. Second, the use of bilingual subjects raises an important methodological issue when examining the results of the CVR. Because no specific criteria were specified, there is no assurance that participants were truly fluent in both languages. Any misunderstanding may have decreased divergence in ratings, and consequently, had a negative impact on the estimates of content validity. A third limitation of this pilot study was that the adapted PR-PIADS applies only to native Spanish-speaking Puerto Ricans. However, the culturally adapted version obtained in this study provides a tool for future cross-cultural efforts.

Conclusion

This pilot study demonstrated the effectiveness of a cultural adaptation methodology to reach equivalence between the original source and target instrument, even when a target language version developed in another culture exists, as there are differences in the culture or life experiences of those speaking the same language. This first pilot study of the PR-PIADS included a previous translation to Spanish of the PIADS, a bilingual multidisciplinary committee review, and quantitative analysis of pilot test data obtained from a sample of bilingual members of the target population. As a result, initial content validity evidence of the PR-PIADS was obtained in the areas of semantic, content, idiomatic, and technical equivalence. Although this pilot study was an important first attempt to establish the initial content validity of the PR-PIADS, future research about the psychometric properties of this tool is imperative before using this measure with greater confidence.

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Escala del impacto psicossocial de ayudas técnicas PIADS¹ Fecha del día: _____
 (día/mes/año)
 Nombre del cliente: _____ ☐ hombre ☐ mujer
 (Apellidos, Nombre)
 Diagnóstico: _____ Fecha de Nacimiento: _____
 (día/mes/año)

El cuestionario se está completando en (elija una) 1. ☐ casa 2. ☐ hospital 3. ☐ otro (describalo) _____
 El cuestionario se está completando por (elija uno) 1. ☐ el cliente sin ninguna ayuda 2. ☐ el cliente, con ayuda del cuidador (p.e. el cliente muestra o dice al cuidador la respuesta a dar) 3. ☐ el cuidador en nombre del cliente, sin ninguna dirección de parte de éste 4. ☐ otro (describalo) _____

Cada palabra o frase que figure más abajo describe un aspecto del cliente que puede verse afectado por la utilización de una ayuda técnica. Aunque algunas les puedan parecer inusuales es importante que responda a todos y cada uno de los 26 puntos. Para cada palabra o frase propuesto ponga una "X" en la casilla más adecuada para mostrar el efecto producido por utilizar:

	(nombre del dispositivo)								
	Ha disminuido	-3	-2	-1	0	1	2	3	Ha aumentado
1) Competencia		☐	☐	☐	☐	☐	☐	☐	
2) Felicidad		☐	☐	☐	☐	☐	☐	☐	
3) Independencia		☐	☐	☐	☐	☐	☐	☐	
4) Sentirse a la altura de las circunstancias		☐	☐	☐	☐	☐	☐	☐	
5) Confusión		☐	☐	☐	☐	☐	☐	☐	
6) Eficacia		☐	☐	☐	☐	☐	☐	☐	
7) Autoestima		☐	☐	☐	☐	☐	☐	☐	
8) Productividad		☐	☐	☐	☐	☐	☐	☐	
9) Seguridad		☐	☐	☐	☐	☐	☐	☐	
10) Frustración		☐	☐	☐	☐	☐	☐	☐	
11) Sentirse útil		☐	☐	☐	☐	☐	☐	☐	
12) Confianza en sí mismo		☐	☐	☐	☐	☐	☐	☐	
13) Saber hacer		☐	☐	☐	☐	☐	☐	☐	
14) Aptitud		☐	☐	☐	☐	☐	☐	☐	
15) Bienestar		☐	☐	☐	☐	☐	☐	☐	
16) Sentirse capaz		☐	☐	☐	☐	☐	☐	☐	
17) Calidad de Vida		☐	☐	☐	☐	☐	☐	☐	
18) Ejecutar		☐	☐	☐	☐	☐	☐	☐	
19) Sensación de poder		☐	☐	☐	☐	☐	☐	☐	
20) Sensación de control		☐	☐	☐	☐	☐	☐	☐	
21) Sentirse a disgusto		☐	☐	☐	☐	☐	☐	☐	
22) Dispuesto a darse oportunidades		☐	☐	☐	☐	☐	☐	☐	
23) Capacidad para participar		☐	☐	☐	☐	☐	☐	☐	
24) Deseoso de nuevas cosas		☐	☐	☐	☐	☐	☐	☐	
25) Capacidad para adaptarse a las actividades de la vida diaria.		☐	☐	☐	☐	☐	☐	☐	
26) Capacidad para aprovechar las oportunidades		☐	☐	☐	☐	☐	☐	☐	

¹PIADS: Psychosocial Impact of Assistive Devices. © H. Day & J. Jutai, 1996. Traducción al Castellano de M. Victoria Quinteiro Moreno como parte de una Tesis Doctoral dirigida por Dr. Dn. Miguel Yarza de la Universidad Pontificia Comillas. Madrid.

Fig. 1.
Spanish version of the PIADS.

Fig. 2.
Schematic procedures of the cross-cultural adaptation of the PR-PIADS.

Escala del Impacto Psicosocial de la Asistencia Tecnológica PIADS¹ Fecha del día: _____Nombre del cliente: _____ ☐ hombre ☐ mujer día/mes/año

Diagnóstico: _____ (apellidos, nombre) Fecha de Nacimiento: _____

_____ día/mes/año

El cuestionario se está completando en (elija una) 1. ☐ casa 2. ☐ centro de servicio 3. ☐ otro (especifique):**El cuestionario se está completando por (elija uno) 1. ☐ el cliente, sin ninguna ayuda 2. ☐ el cliente, con ayuda del cuidador (p.e. el cliente muestra o dice al cuidador la respuesta a dar) 3. ☐ el cuidador en nombre del cliente, sin ninguna dirección de parte de éste 4. ☐ otro (especifique):**

Cada palabra o frase a continuación describe cómo el uso de la asistencia tecnológica puede afectar a un usuario. Aunque algunas les puedan parecer poco usuales, es importante que responda a todos y cada uno de los 26 ítems. Para cada palabra o frase marque con una X el encasillado adecuado para describir como usted ha sido afectado al utilizar: _____ (nombre del equipo)

	Ha disminuido	-3	-2	-1	0	1	2	3	Ha aumentado
1) sentirse competente	☐	☐	☐	☐	☐	☐	☐	☐	
2) felicidad	☐	☐	☐	☐	☐	☐	☐	☐	
3) independencia	☐	☐	☐	☐	☐	☐	☐	☐	
4) sentirse adecuado	☐	☐	☐	☐	☐	☐	☐	☐	
5) confusión	☐	☐	☐	☐	☐	☐	☐	☐	
6) sentirse eficiente	☐	☐	☐	☐	☐	☐	☐	☐	
7) autoestima	☐	☐	☐	☐	☐	☐	☐	☐	
8) productividad	☐	☐	☐	☐	☐	☐	☐	☐	
9) seguridad	☐	☐	☐	☐	☐	☐	☐	☐	
10) frustración	☐	☐	☐	☐	☐	☐	☐	☐	
11) sentirse útil	☐	☐	☐	☐	☐	☐	☐	☐	
12) confianza en sí mismo	☐	☐	☐	☐	☐	☐	☐	☐	
13) sentirse experto	☐	☐	☐	☐	☐	☐	☐	☐	
14) sentirse diestro	☐	☐	☐	☐	☐	☐	☐	☐	
15) bienestar	☐	☐	☐	☐	☐	☐	☐	☐	
16) sentirse capaz	☐	☐	☐	☐	☐	☐	☐	☐	
17) calidad de vida	☐	☐	☐	☐	☐	☐	☐	☐	
18) desempeño	☐	☐	☐	☐	☐	☐	☐	☐	
19) sentido de poder	☐	☐	☐	☐	☐	☐	☐	☐	
20) sentido de control	☐	☐	☐	☐	☐	☐	☐	☐	
21) sentirse avergonzado	☐	☐	☐	☐	☐	☐	☐	☐	
22) dispuesto a arriesgarse	☐	☐	☐	☐	☐	☐	☐	☐	
23) habilidad para participar	☐	☐	☐	☐	☐	☐	☐	☐	
24) descoso por intentar cosas nuevas	☐	☐	☐	☐	☐	☐	☐	☐	
25) habilidad para adaptarse a las actividades de la vida diaria	☐	☐	☐	☐	☐	☐	☐	☐	
26) habilidad para aprovechar las oportunidades	☐	☐	☐	☐	☐	☐	☐	☐	

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Fig. 3.
Puerto Rican Psychosocial Impact of Assistive Device Scale (PR-PIADS).

Table 1

Sociodemographic characteristics of the participants.

Characteristics	Participants (<i>n</i> = 20)
Age (years), <i>M</i> ± <i>SD</i>	44.4 ± 12.0
Minimum	22
Maximum	63
Gender, <i>N</i> (%)	
Women	4 (20)
Men	16 (80)
Disability types	
Visual ^{<i>a</i>}	13 (65)
Motor ^{<i>b</i>}	7 (35)
Purpose of AT use, <i>N</i> (%)	
Work	10 (50)
Education	2 (10)
Activities of daily living	7 (35)
Leisure	1 (5)
Frequency of AT use, <i>N</i> (%)	
Constantly (76–100% of the time)	13 (65)
Frequently (51–75% of the time)	5 (25)
Occasionally (21–55% of the time)	2 (10)
Type of AT, <i>N</i> (%)	
Braille notetaker	1 (5)
Magnification system	1 (5)
Aids for communication	3 (15)
Computer access	8 (40)
Aids for walking	2 (10)
Manual wheelchair	3 (15)
Powered wheelchair	2 (10)

^{*a*}Visual disabilities included macular degeneration, glaucoma, and retinitis pigmentosa resulting in low vision or legal blindness.

^{*b*}Motor disabilities included cerebral palsy, muscular dystrophy, lower extremity amputation, and spinal cord injuries.

Table 2

Committee of experts' modifications to the items of the Spanish version of the PR-PIADS.

Category	Original version	Spanish version	Modification
Conceptual	clinic	<i>hospital</i>	<i>centros de servicio</i>
Semantic	assistive devices	<i>ayudas técnicas</i>	<i>equipos de asistencia tecnológica</i>
	describe	<i>describalo</i>	<i>especifique</i>
	below	<i>que figure más abajo</i>	<i>a continuación</i>
	unusual	<i>inusual</i>	<i>poco usual</i>
	box	<i>casilla</i>	<i>encasillado</i>
	device name	<i>nombre del dispositivo</i>	<i>nombre del equipo</i>
	adequacy	<i>sentirse a la altura de las circunstancias</i>	<i>sentirse adecuado</i>
	expertise	<i>saber hacer</i>	<i>sentirse experto</i>
	skillfulness	<i>aptitud</i>	<i>sentirse diestro</i>
	performance	<i>ejecutar</i>	<i>sentir que puede hacer</i>
	sense of power	<i>sensación de poder</i>	<i>sentido de poder</i>
	embarrassment	<i>sentirse a disgusto</i>	<i>sentirse avergonzado dispuesto a arriesgarse</i>
	willingness to take chances	<i>dispuesto a darse oportunidades</i>	<i>sentirse capaz</i>
	capability	<i>capacidad</i>	<i>entusiasmo por intentar cosas nuevas</i>
	eagerness to try new things	<i>deseoso de nuevas cosas</i>	<i>habilidad para aprovechar las oportunidades</i>
	ability to take advantage of opportunities	<i>capacidad para aprovechar las oportunidades</i>	

Table 3

Recommendations from pilot study participants.

Category	Original version	PR preliminary version	CVR ^a	Modification
Conceptual	competence	<i>competencia</i>	0.0	<i>sentirse competente</i>
Semantic	efficacy	<i>eficacia</i>	−0.6	<i>sentirse eficiente</i>
	performance	<i>sentir que puede hacer</i>	−0.95	<i>desempeño</i>
	eagerness	<i>sentir entusiasmo</i>	−0.6	<i>deseoso</i>

^aItems with CVR < 0.42 requiring modifications.