Published in final edited form as:

Psychooncology. 2012 December ; 21(12): 1309–1315. doi:10.1002/pon.2018.

Cross-cultural Validation of a Patient Satisfaction with Interpersonal Relationship with Navigator Measure: A Multi-site Patient Navigation Research Study.

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Abstract

Background—Patient Navigators are trained to help patients effectively access and utilize healthcare resources to facilitate timely completion of cancer screening and recommended treatment. Patient navigators provide logistic, instrumental and psychosocial support to cancer patients. Yet, studies that examine patient-navigator relationships are lacking.

Objective—To validate a Spanish version of the Patient Satisfaction with Interpersonal Relationship with Navigator (PSN-I-Sp).

Methods—We translated and back translated the English Patient Satisfaction with Navigator Interpersonal measure in Spanish and administered the resulting PSN-I-Sp to 165 Spanish fluent participants. Then, we conducted psychometric validation of the PSN-I-Sp using principal components analysis (PCA) for latent structural evaluation, Cronbach coefficient alpha (α) for internal consistency, and correlation analyses to examine divergence and convergence of the PSN-I-Sp with the Patient Satisfaction with Cancer-Related Care-Spanish (PSCC-Sp), the Rapid Estimate of Adult Literacy in Medicine (REALM) Long Form, and patients' demographics.

Results—The PCA revealed a one-dimensional PSN-I-Sp measure explaining 85% of the variance. Reliability assessment revealed high internal consistency ($\alpha = 0.98$). The PSN-I-Sp had good face validity, and demonstrated appropriate convergent and divergent validity as indicated by moderate correlation with score on the PSCC (all $p_s < 0.0001$) and non-statistically significant correlations with primary language, marital status, and scores on the REALM-Long Form (all $p_s > 0.05$).

Conclusion—The PSN-I is a valid and suitable measure of satisfaction with a patient navigator for the persons who preferred language is Spanish.

INTRODUCTION

In recent years, Patient Navigation (PN) has been used to help reduce disparities in cancer-related care across multicultural and underrepresented racial/ethnic and socioeconomic

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groups.¹ The process of PN is involve identifying barriers to receiving timely and equitable beneficial cancer care, and then providing logistic, educational and emotional support as needed to help individuals from underserved racial/ethnic minorities and lower income successfully access and utilize resources that facilitate timely cancer diagnostic and treatment care.²

Patient navigators vary in educational and socioeconomic status backgrounds ranging from lay health workers (i.e., trained paraprofessional) to health professionals (e.g., nurse and social worker).³⁻⁶ Irrespective of their educational and training background navigators generally provide support to patients that can be categorized as emotional (e.g., direct emotional such as accompanying patients to visits or indirect emotional such as through referral to a support group or mental health treatment)^{2,7-8} or instrumental/technical (e.g., assistance with insurance, arranging transportation, assisting with financial aid), and educational (e.g., sharing approved information, explanation of medical terms, and coaching).

In recent years, interest in PN research and clinical services has steadily increased as evidenced by funding support from the National Cancer Institute (NCI), Centers for Medicare and Medicaid Services, the U.S. Department of Health and Human Services, Health Resources and Services Administration, the American Cancer Society (ACS), and other foundations.⁹⁻¹⁰ The rapid growth in interest in PN underscores the need to develop valid and reliable measures to assess various dimension of PN across diverse racial/ethnic and socioeconomic populations patient.¹¹

The Hispanic population in the United States is rapidly increasing. In fact, individuals of Hispanic heritage account for a significantly larger proportion of the inhabitants of major cities in the United States. The Hispanic population in the United States has increased by 57.9% from 22.4 million in 1990 to 35.3 million in 2000.¹² The growth of the Hispanic population in the United States is expected to steadily increase and is expected to reach or surpass 102,560 million (24.4% of the total projected United States population) by the year 2050.¹³ People of Hispanics origin also constitute one of the largest underserved racial minority groups in the United States, and often confront linguistic and socioeconomic barriers to accessing and effectively utilizing health care resources. Hispanics that lack English language proficiency have lower rates of cancer screening (Fiscella et al Disparities in health care by race, ethnicity, and language among the insured findings from a national sample Med Care, 2002) Despite their presence in major cities, linguistically appropriate assessment tools that are developed and psychometrically validated for the Spanish-speaking individuals are still lacking. This lack of reliable assessment tools is especially evident in the cancer screening and control research arenas.

Generally, satisfaction with interpersonal care, is often a key driver underlying overall patient satisfaction across diverse clinical populations including cancer.¹⁴⁻²⁰ Patient satisfaction measures often focus on satisfaction with physicians and usually reflect at least two dimensions: interpersonal/affective and technical/competence.^{14-15, 22-23} We start to address this paucity of data through the development of culturally appropriate and reliable measures. This study reports findings of the development and cross-cultural validation of a Spanish version of the Patient Satisfaction with the Interpersonal relationship with their navigator (PSN-I-Sp).

MATERIALS AND METHODS

Patient Satisfaction with Interpersonal Relationship with Navigator Spanish (PSN-I-Sp)

We developed the PSN-I-Sp based on items of the Patient Satisfaction with Interpersonal relationship with Navigators (PSN-I). We professionally translated and back translated items of PSN-I into Spanish and conducted psychometric validation and scale reliability assessment of the PSN-I-Sp. Members of the PSN-I-SP psychometric validation team included researchers and clinical team members from the National Cancer Institute (NCI) sponsored Patient Navigation Research Program (PNRP) with experiences in clinical research and practice with multicultural populations, statistics and psychometrics. Items of the PSN-I-Sp are balanced and equivalent to those of the PSN-I, which was developed through an iterative process that involved multiple revisions based on clinical and research expertise that led to the generation of items that assess interpersonal aspects of PN. Similarly to the PSN-I, development of the PSN-I-Sp resulted in a 9-item measure (Table 2) that assesses adequacy of time spent with patient, patient's level of comfort, perceived navigator's dependability, courtesy and respect, listening ability, ability to facilitate the patient-navigator communication, perceived navigator's problem solving, and perception of a caring relationship and accessibility of the navigator.

Response Options and Scoring of the PSN-I-SP

Similarly to the English version, the 9-item PSN-I-Sp was developed for oral administration. The following instructions were read to study participants in Spanish: "The next nine statements are related to your satisfaction with the interpersonal relationship with your navigator(s). For these next statements, I will read the statement to you and I want you to tell me if you "strongly disagree," "disagree," "are undecided," "agree," or "strongly agree" with the statement I am going to read." We calculated a total scale score by adding response Scores on the items of the PSN-I-Sp for each participant. A higher total score on the PSN-I-Sp indicates higher satisfaction with interpersonal relationship with navigator.

Study Participants

The NCI Center to Reduce Disparities in Cancer Care sponsored PNRP is a cooperative program that involves eight sites plus an additional site (Ohio) funded by the American Cancer Society (ACS). The PNRP was designed to systematically assess the effects of patient navigation on disparities in cancer-related care across diverse racial/ethnic minority and lower socio-economic populations with abnormal cancer screening findings or cancer diagnosis (e.g., breast, cervical, colorectal or prostate cancer) within the United States.²

A total of 165 Spanish fluent participants completed the PSN-I-Sp measure (See Table 1). Participants were recruited from the multi-site NCI-sponsored PNRP collaborative study designed to systematically assess and describe the impact of navigating patients on diagnostic or therapeutic care for breast, cervical, colorectal or prostate cancer as described above.

Procedures

The institutional Review Boards of all participating PNRP institutions approved the study. The principal investigators and research personnel at each of the PNRP recruiting sites informed medical staff and clinicians (e.g., clinics or hospitals) about the study. These medical staff and clinicians subsequently referred eligible patients to the PNRP study. A trained Research Assistant (RA) or a patient navigator met all referred participants to confirm their eligibility and consent them to the study. Some sites such as Boston consented patients over the telephone. Surveys were read out loud to participants in Spanish in order to minimize possible effects of low literacy.

Inclusion and Exclusion Criteria

Participants included in this study presented with either an abnormal breast, cervical, colorectal and prostate cancer test finding or a new histologically confirmed diagnosis of any one of these types of cancers. Participants were excluded if they had any history of treatment for primary cancer of the breast, cervical, colorectal or prostate, or if they had a history of prior patient navigation experience.

Additional Measures

Demographic characteristics—Demographic indices included age, sex, race, ethnicity, primary language, income, education, and marital status. We also assessed whether the patient received care related to evaluation of cancer screening abnormalities or treatment of cancer, and type of cancer being evaluated or treated (i.e., breast, cervical, colorectal or prostate).

Patient Satisfaction with Cancer-Related Care Spanish version (PSCC-Sp)—

The PSCC-Sp is an 18-item measure that assesses patient satisfaction with the care they received. The PSCC-Sp is a Spanish version of the Patient Satisfaction with Cancer-related Care (PSCC) measure, which has been shown to explain 62% of the variance in patient satisfaction. The PSCC also has high internal consistency reliability as indicated by Cronbach coefficient alphas ranging from 0.95 to 0.96. The psychometric development and validation of the PSCC showed that it is a reliable and valid tool for assessing satisfaction for cancer-related care across diverse racial-ethnic and socioeconomic populations.²⁴

Rapid Estimate of Adult Literacy in Medicine Long Form (REALM-LF)—A

translated Spanish version of the was administered to participants in this sample. The REALM-LF is a 125-item word recognition measure developed as a quick screening tool to help physicians identify patients with limited reading skills and estimate patients' health literacy in primary care, patient education, and medical research. The REALM-LF has good psychometric properties, as indicated by Cronbach alpha of 0.91, and can be administered and scored in three to five minutes.²⁵

Data Analysis

Dimensionality analysis of the PSN-I—We conducted latent structural analysis, psychometric validation, and reliability of the PSN-I using IBM PASW® (SPSS) version 18.0 statistical software package for Microsoft Windows. Prior to conducting the principal components analysis (PCA), we examined the suitability of the data for dimensionality analysis using various criteria including examination of the correlation matrix for correlations of .30 or greater. We had an adequate size sample that supported calculation of reliable correlation coefficients for the PSN-I in accordance with guides on sample sizes for factor analysis and principal components analysis.²⁶⁻²⁷ Nonetheless, the PCA solutions also contained many high variables markers that could support stable and reliable estimates of correlation coefficients with an even smaller sample size.²⁸

We conducted the PCA to reduce our data to a few components that facilitate comprehension and explication. We performed an initial non-rotated PCA to allow automatic extraction and examination of all meaningful components based on eigenvalues criteria to help more adequately describe the latent structure of the PSN-I-Sp. We used the Kaiser-Meyer-Olkin value (KMO), an index of sampling adequacy, to confirm suitability of the data for dimensionality analysis.²⁹⁻³¹ We also examined the screeplot of eigenvalues to help determine the number of retainable components.

Measurement reliability analysis—We conducted a scale reliability assessment to determine to what degree items of the PSN-I-Sp represent a coherent set that measures a common underlying construct. We used Cronbach's coefficient alpha as an index of internal consistency reliability of the PSN-I-Sp.

RESULTS

The present sample included adult individuals 20 to 73 years old (Mean = 40.5, SD = 10.8). The majority were female (approximately 94.5%). More than half (55%) of the sample reported a high school education or less. Most of the participants included in the present analysis presented with abnormal test findings or diagnosis related to breast cancer (78%) followed by cervical (13%) , and colorectal (8%). Detailed demographic and clinical characteristics of study participants are provided in Table 1.

Testing of PSN-I-Sp Latent Structure

Suitability for Factor Analysis—The items correlation matrix included many correlation coefficients of .30 and higher. In addition, the data also revealed a Keiser-Meyer-Olkin (KMO) value of 0.95, exceeding the recommended value of 0.60.³⁰⁻³¹ The Bartlett's Test of Sphericity also reached statistical significance ($\chi^2(36) = 2119.9; p = 0.001$).³² These aforementioned criteria supported the appropriateness of dimensionality analyses of the correlation matrix.²⁸

Construct Validity—The PCA revealed that the PSN-I-Sp had a single component with one eigenvalue exceeding one ($\lambda > 1 = 7.65$) that explained 85% of the total cumulative variance. The screeplot test and eigenvalue criteria indicated that only one component could be retained for further investigation.²⁹ Consequently, the data indicated that the 9-item PSN-I constitutes a one-dimension measure of patient satisfaction with the interpersonal relationship with the navigator (Table 2). Results of the PCA supported the use of the PSN-I-Sp as a valid and reliable measure for our Hispanic sample.³⁰⁻³²

PSN-I-Sp – Reliability, Convergent, and Divergent Validities

Scale reliability assessment was conducted for the 9-item PSN-I-Sp—Internal consistency – the degree to which items that make up this scale represent a coherent set that measures the same underlying construct – was evaluated using Cronbach's coefficient alpha. The results showed a Cronbach's coefficients alpha of 0.98 based on standardized items for the PSN-I-Sp. Our scale reliability assessment supported the use of the PSN-I-Sp as a reliable tool for measuring patients' satisfaction with their interpersonal relationships with their navigators.³³⁻³⁴

Convergent and Divergent Validity—The PSN-I-Sp total score correlated positively with the total score on the PSCC-Sp ($r = 0.27, p < 0.003$), indicating convergence of the PSN-I-Sp with the PSCC-Sp, a measure of satisfaction with cancer-related care. The results, however, did not reveal any statistically significant correlation between the PSN-I-Sp total score and patients' primary language, marital status, and scores on the REALM long form (all p -values > 0.05).

PSN-I-Sp Scale

Scores on the 9-item PSN-I-Sp ranged from 9 to 45 with a mean of 41. As seen with most patient satisfaction measures values were skewed toward favorable ratings with mean coefficient of skewness equal to 2.17.³⁵ PSN-I-Sp mean scores by geographic site (all nine

sites) of navigation ranged from 38 to 43, and by navigators 32 to 45 (although some of these ranges were based on a very small numbers).

DISCUSSION

Patient navigation is rapidly becoming an integral aspect of the cancer-related care process on a continuum from cancer screening to diagnostic resolution to cancer treatment and survivorship. However, the application of patient navigation as a tool to reduce disparities in cancer care poses a research and measurement challenge, and underscore the need to develop and validate reliable measures to assess the quality of patient navigation. We conducted the Spanish cross-validation of the PSN-I-Sp to assess a key dimension of patient navigation for Spanish-speaking people: patient perceptions of the interpersonal/relational aspects of navigation. The PSN-I-Sp is based on the English version Patient Satisfaction with Interpersonal relationship with the navigator (PSN-I), which was developed through an iterative process and included items with high face validity designed to reflect patient perceptions of key interpersonal characteristics of navigation. We translated and back-translated items of the PSN-I to arrive at a culturally balanced and equivalent PSN-I-Sp measure for Spanish-speaking individuals.

Similarly to the PSN-I, results of our structural analysis and psychometric validation revealed an internally consistent one-dimensional scale, the 9-item PSN-I-Sp with high construct validity. The PSN-I-Sp also showed a moderate statistically significant correlation with the Spanish version of the Patient Satisfaction with Cancer-Related Care (a milieu-specific patient-oriented measure of perceived relevance and satisfaction with cancer care).²⁴ The PSN-I-Sp also had no statistically significant correlation with patients' primary language, marital status and score on the REALM-LF; indicating adequate convergence and divergence of the PSN-I-Sp.

The PSN-I-Sp represents one of the first validated measures to assess patient satisfaction with their navigator for Spanish-speakers. Similarly to the English PSN-I measure, the 9-item PSN-I-Sp provides a convenient way for both research programs and community navigator programs to assess patient satisfaction with the interpersonal process of navigation. The PSN-I-Sp is a reliable tool for assessing important dimensions of the work of patient navigators including time spent with patients, navigator's dependability and accessibility, and important interpersonal characteristics of patient navigators such as abilities to listen, respect and care for patients. Patient navigation programs could prospectively utilize the PSN-I-Sp to evaluate the quality of the interpersonal dimension of their navigation services and to inform necessary steps to improve the process of navigation. Similarly to the PSN-I, the PSN-I-Sp could be utilized to also evaluate key differences in patients' satisfaction with different models of navigation (i.e. telephone-based versus face-to-face navigation).

Parallel to the PSN-I, the PSN-I-Sp has certain limitations that need to be understood. The study sample included primarily female patients undergoing diagnostic testing following a cancer screening abnormality, rather than on patients with diagnosed cancer. However, the analysis of patients with diagnosed cancer revealed similar performance of the PSN-I-Sp. Further, the PSN-I-Sp assesses only one dimension of navigation, the patient-navigator interpersonal relationship. We do not know yet whether this aspect of patient navigation (i.e., satisfaction with the patient-navigator interpersonal relationship) is associated with other patient navigation outcomes such as timely receipt of care, patient adherence, or improvements in health status. Additionally, like most patient satisfaction measures, we found that the PSN-I-Sp is skewed towards favorable ratings of navigators.³⁵ Nevertheless, we observed significant variation in PSN-I-Sp scores by site and by navigator.

Despite these aforementioned limitations, our analysis indicates that the 9-item PSN-I-Sp is a brief and reliable measure to assess patients' perceptions of their interpersonal relationship with their navigator. Further prospective studies are needed to assess the association between patients' satisfaction with their navigator and treatment outcomes.

Acknowledgments

Supported by grants from the National Cancer Institute (3U01CA116924-03S1, U01 CA116924-01, 1R25CA10261801A1, U01CA116892, U01CA 117281, U01CA116903, U01CA116937, U01CA116885, U01CA116875, and U01CA116925) and the American Cancer Society (SIRSG-05-253-01). The contents are solely the responsibility of the authors and do not necessarily represent the official views of the Center to Reduce Cancer Health Disparities, NCI.

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Table 1

Demographic and Clinical Characteristics of 165 participants.

	N	Mean (Standard Deviation)
Age	160	40.5 (10.79)
	N	Percent
Cancer Site		
Breast	128	77.6
Cervix	22	13.3
Colorectal	14	8.5
Gender		
Female	156	94.5
Male	4	2.4
Race/Ethnicity		
White	0	0
Black/African American	0	0
Asian	0	0
American Indian/Alaska Native	0	0
Hispanic or Latino	165	100
Other	0	0
Primary Language		
English	7	4.2
Spanish	147	89.1
Other	6	3.6
Birth Country		
US	6	3.6
Other	94	96.4
Marital Status		
Single/Never married	41	24.8
Married/living as married	93	56.4
Divorced/separated	17	10.3
Widowed	4	2.4
Education		
8th grade or less	67	40.6
Some high school	23	13.9
High school diploma (including equivalency)	28	17.0
Some college/vocational after high school	8	4.8
Associate degree	2	1.2
College graduate	4	2.4
Graduate or professional degree	1	0.6
Household Income		
Less than \$10,000	51	30.9
\$10,000 to \$19,999	57	34.5

	N	Mean (Standard Deviation)
\$20,000 to \$29,999	32	19.4
\$30,000 to \$39,999	2	1.2
\$40,000 to \$49,999	2	1.2
\$50,000 or more	1	0.6
Employment Status		
No current employment	80	48.5
Part-time employment	25	15.2
Full-time employment	43	26.1
Health Insurance Status		
Yes	65	39.4
No	95	57.6

Table 2

Component Loadings for PSN-I-Sp (N = 165): Correlations between Individual Items and the Underlying Component.

Satisfaction with Interpersonal Relationships with Navigator Spanish Version	Component Loadings
Scale Items	$\lambda = 7.65$
	N = 165
My navigator gives me enough time	.925
My navigator makes me feel comfortable	.949
My navigator is dependable	.925
My navigator is courteous and respectful to me	.953
My navigator listens to my problems	.897
My navigator is easy to talk to	.906
My navigator cares about me personally	.899
My navigator figures out the important issues in my health care	.923
My navigator is easy for me to reach	.919