

**ORIGINAL RESEARCH:  
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## PSYCHOMETRIC EVALUATION OF FILIPINO VERSION OF PATIENT SATISFACTION INSTRUMENT

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**Abstract**

**Background:** Patient satisfaction has been revealed to affect patient outcomes and has been used as an indicator for measuring quality in health care. However, there are no culturally appropriate instruments that measure Filipino patient satisfaction receiving nursing care.

**Objective:** The objective of the study is to examine the validity and reliability of the Filipino version of Patient Satisfaction Instrument (F-PSI).

**Methods:** The study utilized a cross-sectional study and included 131 Filipino patients in selected hospitals in Manila and were selected through convenience sampling. The tool undergone cross cultural adaptation following the WHO guidelines. Also, content validity following Davis technique and construct validity through confirmatory factor analysis was done to assessed its validity. To measure its internal consistency reliability, Cronbach's  $\alpha$  was conducted.

**Results:** The construct validity of the Filipino version of PSI showed a good model fit while the item content validity index (I-CVI) ranges from 0.83-1.0 and a scale content validity index (S-CVI) of 0.96. Also, the translated tool showed an acceptable internal consistency reliability.

**Conclusion:** The Filipino PSI is a valid and reliable instrument for measuring satisfaction among Filipino patients. Supplementary studies are needed to ascertain its validity and reliability for clinical use.

**KEYWORDS**

patient satisfaction; reliability; validity

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## INTRODUCTION

Long before nurses started to care about the patients, there is the quality aspect that is needed to achieve in order to gain the desirable outcome and patient satisfaction. These could be expected from physicians, nurses and other healthcare professionals. Patients have been observing their healthcare provider when it comes to their application of clinical care, intellectual ability, and humanistic approaches. Also, patients were judging their experiences in the hospital and whether it improves their physical and mental state of being.

Equipped with a better understanding on patients' weakness can make nurses understand better ways to alleviate this discomfort and thus should raise patient satisfaction scores ([Cemalcilar, Canbeyli, & Sunar, 2003](#)). [Azizi-Fini, Mousavi, Mazroui-Sabdani, and Adib-Hajbaghery \(2012\)](#) stated that patient satisfaction can be attributed to healthcare professionals that have good communication and progressive mutual connections with

their patients. According to [Hinshaw and Atwood \(1982\)](#) patient satisfaction is the patient's opinion of the care received from nurses working in the hospitals. It is also one of the ultimate validators of effectiveness and quality of care ([Donabedian, 1992](#)). According to [Abdullah, Kousar, Azhar, Waqas, and Gilani \(2017\)](#), the quality of care that nurses delivered can provide a large positive impact on their patients' health and could also provide higher rates of satisfaction in their end. Thus, nurses and all other allied health professionals, have a substantial role in advancing patient satisfaction through research, as a way to validate the influence of nursing care and its impact on satisfaction with the aptitude and hospital care.

According to [Quintana et al. \(2006\)](#), the most common assessment tool for conducting patient satisfaction studies were the used of standardized questionnaires. Hence, reliability and validity of patient satisfaction measurement tools must be

ensured to realize the main goal of collecting patient's feedback ([Urden, 2002](#)). However, although several patient satisfaction instruments have been developed through the years, there has been a few literatures that discussed patient satisfaction research in developing countries ([Uzun, 2001](#)). Thus, the purpose of the study was to determine the psychometric properties of the Filipino version of Patient Satisfaction Instrument (F-PSI).

## METHODS

### Study Design and Participants

This cross-sectional study was conducted among 131 Filipino patients admitted in medical-surgical wards in selected Level 3 public and private hospitals in Manila. The number of samples was based on the recommendation by [Comrey and Lee \(1992\)](#) with a minimum of 5 observations per variable when conducting a factor analysis. Data were collected between December 2017 to February 2018. Convenience sampling was utilized in selecting the participants following the set inclusion criteria (aged 18 years and above, conscious and coherent, admitted in the hospital for at least 3 days since they have been admitted long enough to assess for patient satisfaction and willing to participate in the study).

### Instruments

**Patient Satisfaction Instrument (PSI- Filipino version).** This survey scale was developed by Hinshaw and Atwood (1982) which has 25 items, classified in three (3) areas, namely: patient education (E), technical-professional care (P), and trust (T). Technical-professional care domain has seven items (Items 12, 13, 15, 16, 18, 20, 25) that assess the competence of nurses to execute technical activities; the trust domain has eleven items (Items 1, 3, 4, 5, 6, 9, 10, 14, 19, 22, 23) that assess nursing characteristics that allow a positive and calm interaction with the patient and their interaction; and patient education domains has seven items (Items 2, 7, 8, 11, 17, 21, 24) that assess the capacity of nurses to provide health educations to patients including technique demonstration that are relevant in their care.

### Translation and Cross-Cultural Validation of Instrument

Prior to translation and cultural adaptation of the instrument, permission was first asked from the original developer of the tool to be utilized in the study. Following the guidelines of [World Health Organization \(n.d.\)](#) on translation and cross-cultural validation, the original tool was forward translated from English to Filipino by an independent bilingual translator who is a health professional. Then, an expert panel consisting of experts was formed that includes the original translator of the tool, a nursing lecturer with PhD in Nursing, a registered psychometrician and a nurse supervisor with 10 years of hospital experience. The goal of the expert panel was to determine vague concept or expressions of the translated tool and to assess the content validity of the items in the tool.

Afterwards, the translated tool was back translated to English by an English language teacher who has no knowledge of the instrument. Then, pretesting and cognitive interview was done to ensure that no problems will be encountered related to the length and intent of the items during the actual use of the tool. A total of ten participants who met the inclusion criteria set in the study

were included. The participants stated that the meaning of the translated tool was clear and can be understood well. Further, no problems were encountered related to the length and intent of the questions.

### Data Analysis

In order to ensure the internal consistency reliability of the translated tool, Cronbach's  $\alpha$ , inter-item and total-item correlation were computed. Alpha coefficient of more than 0.70 for Cronbach's  $\alpha$  was considered acceptable ([Ferketich, 1991](#); [D. Polit & Beck, 2014](#)). For the content validity, an Item Level CVI (I-CVI) of 0.78 and a Scale Level CVI (S-CVI) of 0.80 is considered content valid ([Davis, 1992](#)). For the construct validity, a confirmatory factor analysis using maximum likelihood estimation with the following values were considered as a good model fit: relative chi-square ( $\chi^2/df$ ) at  $\leq 3$ , root mean square error approximation (RMSEA) at  $\leq 0.08$ , comparative fit index (CFI) at  $\geq 0.90$ , Tucker-Lewis index at  $\geq 0.90$ , incremental fit index (IFI) at  $\geq 0.90$  and standardized root mean square means  $\leq 0.08$  ([Kline, 2015](#)). Data gathered was analyzed using SPSS 21.0 and AMOS 20.0 (IBM Corp. Armonk, NY, USA)

### Ethical Consideration

The objectives of the study were fully explained to the participants and informed consent forms were given. The Institutional Ethics and Review Committee of Centro Escolar University approved the conduct of the study.

## RESULTS

### Demographic Characteristics

There were a total of 131 Filipino patients included in the study with a mean age of 33.3 years ( $SD=14.30$  years), 60 of them were females and 71 were males. The average hospital stay of the participants was 7.72 days ( $SD=9.28$  days).

### Content Validity

According to [Lynn \(1986\)](#) in order to establish the content validity of an item a panel consisting of six experts should be formed. Thus, an expert panel consisting of one nursing lecturer with PhD in nursing, four nursing lecturers with MA degree in Nursing, and one nurse supervisor with 8 years of working experience was formed. The expert panel evaluated the translated tool using a 4-point Likert scale with one being irrelevant and four as highly relevant. The content validity index (CVI) was then calculated by determining the measure of items rated as three or four by the experts. I-CVI refers to the proportion of content experts giving item a relevance rating of 3 or 4 while S-CVI is the proportion of items given a rating of quite/very relevant by raters involved ([Waltz, Strickland, & Lenz, 2005](#)). Based on the evaluation of the experts, the translated tool obtained an I-CVI ranging from 0.81 to 1.0 and an S-CVI of 0.96.

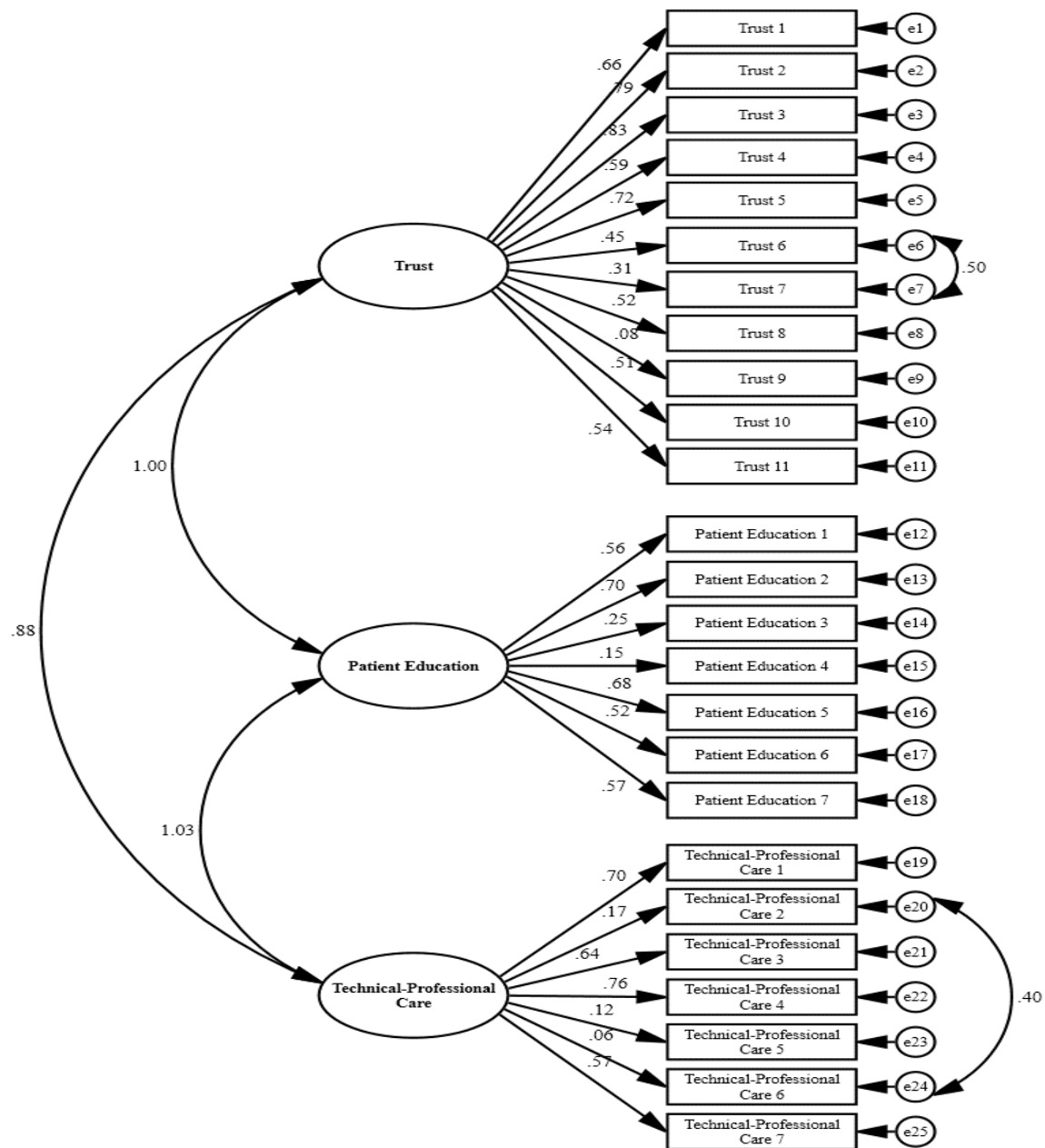
### Construct Validity

The study followed the original three-factor model proposed by ([Hinshaw & Atwood, 1982](#)). The model output is shown in standardized estimates in **Figure 1**. The 25 items were loaded on the three latent variables and the CFA revealed a chi-square goodness ( $CMIN/df$ )=2.74, root mean square error of approximation (RMSEA)=0.079, comparative fit index

(CFI)=0.92, Tucker-Lewis index (TLI)=0.91, incremental fit index (IFI)=0.92 and standard root mean square residual (RMSR)=0.073. It was found that the results were acceptable and in good agreement (**Table 1**).

**Table 1** Model Fit Parameters for the Emerging Models ( $N = 131$ )

Model	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Acceptable Values	$\leq 3.00$	$\leq 0.08$	$\geq 0.90$	$\geq 0.90$	$\geq 0.90$	$\leq 0.08$
Index Values	2.74	0.079	0.92	0.91	0.92	0.045



**Figure 1** Confirmatory Factor Analysis of F-PSI

### Reliability Analysis

The translated tool was then administered to Filipino patients admitted in medical-surgical ward and was tested for reliability analysis. **Table 2** showed the Cronbach's alpha coefficient for

the items and total score of the questionnaire. The results showed a Cronbach's  $\alpha$  coefficient was 0.856, while the alpha coefficient for trust, technical-professional care and patient education were 0.798, 0.738, 0.809 respectively.

**Table 2** Cronbach's Alpha Reliability Properties of CNPI-Patient Filipino Version

Item	Mean (SD)	Cronbach's $\alpha$ if item deleted
1. The nurse should be more attentive than...	4.32 (0.87)	0.878
2. Too often the nurse thinks I can't understand...	4.21 (0.94)	0.878
3. The nurse is pleasant to be around	4.21 (0.96)	0.876
4. I always feels free to ask the nurse questions	4.26 (0.90)	0.877
5. The nurse should be more friendly than he...	4.18 (1.03)	0.879
6. The nurse is a person who can understand...	4.10 (0.99)	0.878
7. The nurse explains things in simple language	4.22 (0.96)	0.878
8. The nurse asks a lot of questions, but once...	3.70 (1.16)	0.884
9. When I need to talk to someone, I can go to...	3.88 (1.18)	0.881
10. The nurse is too busy at the desk to spend...	3.61 (1.15)	0.881
11. I wish the nurse would tell me about the....	3.63 (1.24)	0.883
12. The nurse makes it a point to show me how...	3.93 (1.15)	0.875
13. The nurse is often too disorganized to.....	3.72 (1.34)	0.887
14. The nurse is understanding in listening to....	3.80 (1.03)	0.881
15. The nurse gives good advice	3.81 (1.05)	0.880
16. The nurse really knows what he/she is.....	4.01 (0.96)	0.878
17. It is always easy to understand what the...	3.94 (0.93)	0.878
18. The nurse is too slow to do things for me	3.47 (1.46)	0.888
19. The nurse is just not patient enough	3.01 (1.55)	0.888
20. The nurse is not precise in doing his/her work	3.55 (1.48)	0.888
21. The nurse gives directions at just the right...	3.71 (1.08)	0.878
22. I'm tired of the nurse talking down to me	3.98 (0.97)	0.879
23. Just talking to the nurse makes me feel better	3.80 (1.06)	0.880
24. The nurse always gives complete enough...	4.1 (1.03)	0.879
25. The nurse is skillful in assisting the doctor....	4.03 (1.14)	0.879

Note: Overall Cronbach's  $\alpha$  for 25 items=0.856

**Table 3** Reliability Analysis of the Domains of Filipino Version of Patient Satisfaction Instrument

Domains	Item	Cronbach's $\alpha$
Trust	11	0.798
Technical Professional Care	7	0.738
Patient Education	7	0.809
Overall Summary Score	25	0.856

## DISCUSSION

This study evaluated the validity and reliability of the Filipino version of the Patient Satisfaction Instrument. The guidelines set by the World Health Organization were followed to culturally adapt and translate the original tool. Backward and forward translation were done to ensure that semantic equivalence was met. According to [Erkut, Alarcón, Coll, Tropp, and García \(1999\)](#), the back-translation method has been considered the preferred method of obtaining a culturally equivalent questionnaire when translating an existing instrument.

In assessing the psychometric properties of the translated tool, the content validity, construct validity and internal consistency reliability were evaluated. For the content validity, a panel of six experts was formed following the recommendation of [Lynn \(1986\)](#). Then, the content validity index was computed. According to [D. F. Polit and Beck \(2006\)](#), I-CVI refers to the proportion of content experts giving item a relevance rating of 3 or 4 while S-CVI is the proportion of items given a rating of

quite/very relevant by raters involved ([Waltz et al., 2005](#)). The translated have an I-CVI ranging from 0.81 to 1.0 and an S-CVI of 0.96 which was considered content valid ([Davis, 1992](#)).

In assessing the construct validity, a Confirmatory Factor Analysis (CFA) was conducted performed following the original three-factor model of PSI developed by [Hinshaw and Atwood \(1982\)](#) and used the same model specification in this analysis. The CFA revealed a  $\chi^2/df=2.74$ , root mean square error of approximation=0.079, comparative fit index=0.092, Tucker-Lewis index=0.91, incremental fit index=0.92 and standard root mean square residual=0.045 and was shown to have a good fit model. Thus, the F-PSI confirmed the loading factors on the PSI which consists of trust, technical-professional care, and patient education.

According to [Brown \(2002\)](#), the most widely used tool for assessing internal consistency reliability is Cronbach's alpha. The PSI which is used to measure patient satisfaction in acute care setting was assessed for internal consistency in different

health care settings worldwide. [De Oliveira and Guirardello Ede \(2006\)](#) evaluated the Brazilian version of PSI which showed an over-all value of 0.936 while the subscales showed an alpha of 0.777 for trust, 0.879 for technical professional care and 0.811 for patient education. On the other hand, the PSI Persian version showed an internal consistency of 0.94 ([Rafii, Hajinezhad, & Haghani, 2008](#)). The study of [Wolf, Miller, and Devine \(2003\)](#) assessed the alpha coefficient of PSI among 73 cardiac patients undergoing interventional cardiology studies and showed a value of 0.89 while an American study among 86 patients in the emergency department (ED) showed an alpha coefficient of 0.94 ([Bucco, 2015](#)). In the study, Cronbach's alpha coefficient of 0.798, 0.738 and 0.809 for the trust, technical-professional care, and patient education was computed while the over-all scale showed a value of 0.856. Reliability estimates from this study suggest that the Filipino version of PSI is internally consistent based on the acceptable value which is higher than 0.70 ([D. Polit & Beck, 2014](#)).

The limitation of the study is that most of the participants were patients from medical and surgical wards, which suggests that further evaluation of the translated instrument with more diverse participants is warranted. Also, the participants were recruited through convenience sampling which limits the generalizability of the findings.

## CONCLUSION

The Filipino PSI is a valid and reliable instrument for measuring patient satisfaction among Filipino patients admitted in medical-surgical ward. However, further studies are needed to ascertain its validity and reliability for clinical use.

## Declaration of Conflicting Interest

The authors have no conflict of interest to disclosed.

## Acknowledgment

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## Author Contribution

G. P. S: Performed analysis, interpretation of data, wrote manuscript and acted as corresponding author. K.A.C.C: Assisted in writing the manuscript and analysis and interpretation of data, conducted the data collection, secured permission from the tool developers and ethical clearance.

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