

A translation and validation study of the Filipino version of the Psoriasis Epidemiology Screening Tool (PEST) among Filipino patients with psoriasis seen at the Rizal Medical Center

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ABSTRACT

INTRODUCTION Psoriasis is a chronic autoimmune disease that affects the skin, nails, and musculoskeletal system. Musculoskeletal involvement, called psoriatic arthritis occurs in 10-25% of patients with psoriasis and can lead to disability if left untreated. Early detection and intervention of psoriatic arthritis has been shown to decrease morbidity.

The Psoriasis Epidemiology Screening Tool (PEST) may detect the presence of psoriatic arthritis and has been validated in different countries. Currently, there is no Filipino version.

OBJECTIVES To translate, adapt, and validate PEST in Filipino language.

METHODS In the first part of the study, PEST was translated and culturally adapted into Filipino. It was pretested in 30 participants.

Three experts then assessed its content and face validity. After the content and face validity were met, 115 participants answered the Filipino version of the PEST questionnaire.

RESULTS The Filipino version of the PEST questionnaire was comprehensible, clear and appropriate. All questions were relevant. Some words were edited per expert recommendation. One hundred fifteen adult patients were asked to answer the questionnaire. It showed good reliability at 94%.

CONCLUSION The Filipino Version of the PEST was found to be reliable and valid. Larger samples to determine the tool's applicability is recommended.

KEYWORDS PEST, Filipino translation, psoriasis, psoriatic arthritis screening

INTRODUCTION

Psoriasis is a chronic autoimmune disease that affects the skin, the nails, and the musculoskeletal system. Most present as plaques. Other subtypes are guttate, pustular, and erythrodermic. It has a global prevalence of 0.1% to 3%.^{1,2}

Psoriasis can also affect the nails and the musculoskeletal system. Musculoskeletal involvement is known as psoriatic arthritis. It is present in 10% to 25% of patients with psoriasis. It is estimated that 0.3 to 1% of the population has psoriatic arthritis. Psoriatic arthritis has both articular and non-articular features. Articular or joint findings refer to peripheral and axial arthritis while non-articular or soft tissue inflam-

mation refers to dactylitis and enthesitis.^{3,4,5}

Clinical features of psoriatic arthritis include dactylitis, enthesitis, tenosynovitis, spondyloarthritis, distal interphalangeal arthritis, and arthritis mutilans. Dactylitis is the inflammation of the entire finger or toe and is the marker for severity in psoriasis. Enthesitis is the inflammation of the entheses, which is the site of the attachment of the ligaments and tendons to the bone. Tenosynovitis is the inflammation of the tendon sheath; while spondyloarthritis involves the spine. Arthritis mutilans on the other hand, is the most severe form, which leads to shortening and destruction of the fingers and toes.³

The Classification Criteria for Psoriatic Ar-

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thritis (CASPAR) is used to diagnose psoriatic arthritis in a person with psoriasis who has a swollen digit, or pain in a joint or a heel. It has three parts: clinical, radiologic, and rheumatoid factor test. The clinical part has three components: psoriasis, nail dystrophy, and dactylitis. Psoriasis may be current, past history, or family history. Radiographs show ossification, and rheumatoid factor is negative. Both the clinical and the diagnostic tests comprise the five domains. Three or more points are required to diagnose psoriatic arthritis.^{4,5}

A meta-analysis has shown that between 10.1% to 15.5% of patients with psoriasis have undetected psoriatic arthritis.⁶ Other observational studies have found even higher percentages of undiagnosed psoriatic arthritis.^{7,8}

It is recommended to screen annually for psoriatic arthritis. Among the screening tools are PEST, Psoriasis and Arthritis Questionnaire (PAQ), Psoriatic Arthritis Screening and Evaluation (PASE), and Psoriasis and Arthritis Screening Questionnaire (PASQ).^{4,5}

The PEST is highly sensitive (0.94) and specific (0.78). It is composed of a five-item yes or no questionnaire that will be answered by patients who have a diagnosis of psoriasis, and a score of three out of five will warrant referral to a rheumatologist for further evaluation and management. This screening tool has been established as superior compared to the other screening tools for psoriatic arthritis.^{4,5}

SIGNIFICANCE OF THE STUDY

A large percentage of patients with psoriasis are managed by primary care physicians and dermatologists.⁹ Most of the patients in our country are native Filipino speakers. Currently, there is no available Filipino version of a psoriatic arthritis screening tool such as the PEST. That is why the translation and validation of this tool would be beneficial to both physicians and patients for screening of psoriatic arthritis. It will help in the detection of psoriatic arthritis, early intervention, and disability prevention.^{10,11}

OBJECTIVES

The general objective of this study was to translate, adapt, and validate the Filipino version of the PEST. This study specifically aims to: 1. describe the demographic characteristics of the study participants, 2. translate PEST to the Filipino language, and 3. adapt and validate the Filipino version.

METHODS

This two-part study consisted of the translation and cultural adaptation of the PEST, and the validity and reliability testing of the Filipino version. The process flow of the methods used in the study is shown in Appendix 1.

Permission was obtained from the primary author of PEST for the Filipino translation prior to conducting the study.

PART 1: TRANSLATION AND CULTURAL ADAPTATION

In the forward translation, a total of two translators with experience in translation and cultural adaptation measures translated the questionnaire separately. Forward translation refers to the translation of the questionnaire from the original language (English) to Filipino. Discrepancies between the two translations were discussed and resolved through an online meeting.¹²

During back translation, two other translators translated the Filipino version back into English.¹²

An online meeting composed of the forward, back translators, and the authors reviewed the translation. Thirty participants answered the pre-final version of the questionnaire.

PART 2: VALIDATION AND RELIABILITY TESTING

A panel of experts who are familiar with the construct that the questionnaire is designed to measure was formed to assess the content and face validity of the questionnaire. It is composed of one rheumatologist and two dermatologists who specialize in psoriasis.

Content validity ensures that the questionnaire includes an adequate set of items that tap the concept of the tool, while face validity refers to the degree to which a test appears to measure what it claims to measure.¹³

Content validity was measured and analyzed using the item level-content validity score (i-CVI). Each one rated the items as 1-not relevant, 2-somewhat relevant, 3-quite relevant, and 4-highly relevant. Face validity was also evaluated by the panel of experts and their comments and suggestions were documented. Revisions were made according to suggestions and consensus of the experts.

After content and face validity were met, 115 participants answered the Filipino version of the PEST questionnaire. Reliability was assessed through test-retest.

STUDY DESIGN, SETTING, AND DURATION

The study was conducted in adult patients with psoriasis at the Rizal Medical Center outpatient clinic and online service from November 2020 to April 2021.

STUDY PARTICIPANTS

Inclusion criteria

1. Male or female patients diagnosed with psoriasis (of any duration)
2. Legal age (19 and above) to sign an informed consent
3. Able to understand and speak Filipino

Exclusion criteria

1. Patients diagnosed with psoriatic arthritis or any rheumatic disease
2. Patients who cannot understand and speak Filipino
3. Patients who did not consent to be part of the study

SAMPLE SIZE DETERMINATION AND SAMPLING

The initial translation was pilot tested on 30 respondents. This number was based on the power of 80% and the prevalence (p) of power of 5%.^{11, 14-15}

A sample size of 115 was determined for the study. This number was adequate to estimate a proportion equal to 50% with a 7.5% margin of error and a 95% level of confidence using the formula below:

$$n = \frac{N * X}{X + N - 1} \quad \text{where } X = \frac{(Z_{\alpha/2})^2 * p(1 - p)}{E^2}$$

$Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ (e.g., for a confidence level of 95%, α is 0.05 and the critical value is 1.96), E is the margin of error, p is the sample proportion, and N is the population size. Assuming $N = 350$, $p = 50\%$, level of confidence or $1 - \alpha = 95\%$ and $E = 7.5\%$, the recommended minimum sample size is 115.^{11, 14-15}

DATA COLLECTION

Data were collected using a self-administered paper or online questionnaire (Google® form). The questionnaire consisted of 5 close-ended questions answerable by yes or no.

DATA MANAGEMENT AND ANALYSIS

A reliability test was performed through a test-retest method, which measures the reliability of the tool over time. The agreement or correlation was measured using the Spearman coefficient. In general, a test-retest correlation of 0.80 or greater indicates good reliability.

Demographic characteristics and responses were encoded in MS Excel and summarized using descriptive statistics. Numerical data were shown as mean (median) \pm standard deviation. Nominal data were presented as frequencies and percent-

ages. Means or medians of numerical data were compared using Mann-Whitney U-test. All tests were performed using SPSS software version 26 at 5% level of significance.

ETHICAL CONSIDERATION

We sought permission from the original developers of PEST to translate the questionnaire. The Rizal Medical Center Institutional Review Board approved the protocol. Informed consent from participants were obtained. Data gathered were kept confidential.

RESULTS**PART 1: TRANSLATION OF PEST**

All of the respondents who answered the pre-final version of the questionnaire concluded that the Filipino version was clear and easy to understand. The pretested Filipino translation was used in the second part of the study.

PART 2: VALIDATION AND RELIABILITY TESTING OF PEST

Content validity was done and all of the items showed 100% relevance based on the item level content validity index score (i-CVI) (Table 1). During face validity evaluation, one expert suggested to change “arthritis” to “arthritis/rayuma” in item number 2. Another expert suggested to add “buong daliri” in item number 5 (Table 2). Appendix 2 shows the revised and final Filipino version.

One hundred fifteen participants were included in the study. The participants had a mean age of 37 and were mostly female. A majority had chronic plaque type psoriasis. (Table 3).

Most of the participants had a PEST score of 0 (25.21%) to 1 (23.47%) in the initial test and re-test (0-24.34% and 1-25.21%). Test-retest reliability showed a high and significant correlation (0.94) (Tables 4 & 5).

DISCUSSION

The participants invited to join this study had a mean age of 37, were mostly female, and had chronic plaque psoriasis. Most

Table 1. Test on the content validity of the forward translation.

Questions	Frequency (%)				i-CVI	Decision
	Not relevant	Somewhat relevant	Quite relevant	Highly relevant		
Q1 Nakaranas ka na ba ng pamamaga ng (mga) kasukasuan?	0	0	0	3 (100%)	100%	Accepted
Q2 Sinabi ba ng doktor sa iyo na ikaw ay may arthritis?	0	0	0	3 (100%)	100%	Accepted
Q3 Mayroon bang butas o uka sa iyong mga kuko sa kamay o paa?	0	0	1 (33.3%)	2 (66.6%)	100%	Accepted
Q4 Nagkaroon ba ng pananakit sa iyong sakong?	0	0	1 (33.3%)	2 (66.6%)	100%	Accepted
Q5 Nakaranas ka na ba ng pamamaga at pananakit sa iyong mga daliri sa kamay o paa nang walang dahilan?	0	0	0	3 (100%)	100%	Accepted
Overall	0	0	2 (13.33%)	13 (86.66%)	100%	Accepted

Table 2. Test on the face validity of the forward translation.

Questions	Major comments from the expert panel
Q1 Nakaranas ka na ba ng pamamaga ng (mga) kasukasuan?	No modification required
Q2 Sinabi ba ng doktor sa iyo na ikaw ay may arthritis?	One expert suggested to change "arthritis" to "arthritis/rayuma"
Q3 Mayroon bang butas o uka sa iyong mga kuko sa kamay o paa?	No modification required
Q4 Nagkaroon ba ng pananakit sa iyong sakong?	No modification required
Q5 Nakaranas ka na ba ng pamamaga at pananakit sa iyong mga daliri sa kamay o paa nang walang dahilan?	One expert suggested to add "buong daliri".

Table 3. Demographic data of participants.

Characteristics	Values (n=115)
Mean age ± SD, years	37.7 ± 11.7
Sex, frequency (%)	
Male	45 (39.13%)
Female	70 (60.86%)
Psoriasis type, frequency (%)	
Chronic plaque psoriasis	101 (87.82%)
Scalp	6 (5.22%)
Others	8 (6.96%)

of them had a PEST score of 0-1 on the initial test and retest. Test-retest reliability was high at 94%. The original version of PEST has a sensitivity of 0.94 and a specificity of 0.78.¹⁶

The Chinese version of PEST shows that individuals with psoriatic arthritis were older with a mean age of 42, mostly male, and had psoriasis longer. It had a 77.5% sensitivity and a 78.9% specificity. The results of the study showed that the Chinese version of PEST was sensitive and specific, which is consistent with previous studies in the European and American populations. The authors of the study concluded that the PEST is a useful tool in detecting psoriatic arthritis in Chinese psoriasis patients.¹⁷

Furthermore, a Brazilian version has demonstrated that males and low quality of life scores were associated with higher PEST scores. It had a sensitivity of 84.6% and a specificity of 63.3%.¹⁸ While the Persian version of PEST showed that individuals with psoriatic arthritis were older with a mean age of 46

Table 4. Actual responses of participants.

Score distribution	Initial test (n=115)	Re-test (n=115)
0	29 (25.21%)	28 (24.34%)
1	27 (23.47%)	29 (25.21%)
2	15 (13.04%)	14 (12.17%)
3	17 (14.78%)	17 (14.78%)
4	12 (10.43%)	10 (8.69%)
5	15 (13.04%)	17 (14.78%)

Table 5. Test-retest reliability.

Test-Retest Reliability	Spearman correlation = 0.94 (0.92 to 0.96)
	p-value<0.0001

and were mostly female. It had a sensitivity of 58% and a specificity of 96.4%. The Persian version of the PEST questionnaire has showed acceptable performance in the Iranian psoriatic population without a previously established diagnosis of psoriatic arthritis.¹⁹

A Thai version has found that psoriatic arthritis was associated with more than 10% body surface involvement. It had a sensitivity of 50% and a specificity of 82%.²⁰

Finally, our Filipino version yielded a high-reliability index of 0.94 and a validity index of 100%. The results were consistent with other translations. The Filipino version of PEST can be a good screening tool for early detection of psoriatic arthritis. With early detection, patients can be given therapeutic intervention early in order to prevent further disease progression which leads to irreversible and life-long deformities.

Despite the presented results, this study has certain limitations. The study was only limited to patients in Rizal Medical Center. It was not able to correlate the results with other parameters such as body surface area, daily quality of life index, duration of psoriasis and co-morbidities. For future researchers who aspire to further explore this topic, we recommend larger samples in different hospitals for wider applicability.

CONCLUSION

The Filipino Version of the Psoriasis Epidemiology Screening Tool or PEST was found to be reliable and valid. Larger samples in different hospitals to determine wider applicability are recommended.

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