VALIDITY AND RELIABILITY OF THE ARABIC VERSION OF THE PSORIASIS AREA AND SEVERITY INDEX IN ASSESSMENT OF PSORIASIS

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Abstract

Background: Psoriasis is a chronic inflammatory skin condition that is often associated with systemic manifestations. It is considered as a genetic, immunological, systemic disorder with a prevalence of 1–3% Psoriasis Area and Severity Index is the most commonly used measure to investigate the severity and coverage of psoriasis, and the improvement after therapy.**Purpose**: To culturally translate and validate the Arabic version of Psoriasis Area and Severity Index scale (and evaluate the test-retest reliability , internal consistency, construct validity ceiling or floor effects of this instruments) in patients with psoraisis to measure psoriasis severity in psorisas patient and to ensure better care delivery. **Subject and Methods**: One expert panel (each consists of ten experts) and 50 patients with psoriasis participated in this study. Forward translation, development of preliminary initially translated version, backward translation, and development of the pre-final version and testing of pre-final version using experts then testing of the final version on patients were done. Clarity index, expert proportion of clearance, index of content validity, expert proportion of relevance, descriptive statistics, missed item index, time taken to answer the scale, Cronbach's coefficient alpha and Spearman's rank correlation coefficients were used for statistical analysis. **Results**: The scale index of clarity equaled 89%, while The S-CVI equaled 86.5%. With regard to internal consistency, the Cronbach's alpha equaled 0.598 (range from 0.487 to 0.660). In addition, the Spearman's rank correlations were moderate to strong in the majority of items. **Conclusion**: The Arabic Psoriasis Area and Severity Index scale is a valid and reliable tool and is comparable to the original English version and other translated versions.

Keywords: Validity- Reliability- Arabic Psoriasis Area and Severity Index scale of psoriasis.

Introduction:

Psoriasis is a Greek Word, meaning roughly "itching condition" (psora "itch" + -sis "action, condition"). Psoriasis is an immune-mediated disease that affects the skin. It is typically a lifelong condition. Psoriasis affects both sexes equally, and can occur at any age, although it most commonly appears for the first time between the ages of 15 and 25 years. The prevalence of psoriasis in Western populations is estimated to be around 2-3%. There is currently no cure, but various treatments can help to control the symptoms[1].

Psoriasis is a chronic inflammatory skin condition that is often associated with systemic manifestations. The etiology includes genetic and environmental factors. Diagnosis is based on the typical erythematous, scaly skin lesions, often with additional manifestations in the nails and joints. Plaque psoriasis is the most common form. Psoriasis is associated with several comorbidities, including cardiovascular disease, lymphoma, and depression [2].

Instruments to measure and to monitor the severity of psoriasis over time are needed for research and for optimal patient care. Scoring psoriasis has moved from an earlier time when clinical categories were adopted without concern about their reliability; for example, from clearance to more recent semi-quantitative scores, such as the Psoriasis Area and Severity Index (PASI), that carry the allure of being objective and quantitative "hard" data but actually translate a subjective judgement into a number. The PASI score has never been standardized, and data on interrater and intrarater reliability are limited. Better clinimetrics of disease severity are needed. The next generation of instruments should reflect the major concern of patients and treating physicians relative to safe [3].

The purpose of this study was to test the face validity, the content validity, the feasibility, the internal consistency reliability and the test retest reliability of Arabic-language version of PASI scale to measure psoriasis severity in psoriasis patients.

Material and Methods

Subjects:

Fifty patients with mild to severe levels of Psoriasis and 10 experts were participated in this study. Participants were in age from 18 to 45 years old. Patient from Al Hood El Marsod Hospital and outpatient clinic of Faculty of Physical Therapy, Cairo University was selected to participate in the study.

A. Inclusive Criteria:

The subject selection was according to the following criteria: Subject of both sex with age ranged between 18 to 45 years were participated in the study. Patients from mild to severe psoriasis. Being conscious, ambulant, able to read and write in Arabic.

B. Exclusive criteria:

The potential participants were excluded if they meet one of the following criteria: Patient who have any other dermatological diseases, who did not want to participate in experiment,under analgesic medications,Patients with cognitive and psychiatric disorders.

Procedure of the study:

Measuring equipment:

The Psoriasis area and severity index scale (PASI) is a composite index indicating the severity of the three main characteristics of psoriatic plaques (erythema, scaling, and thickness) weighted by the amount of coverage of these plaques in the four main body areas (i.e., head, trunk, upper extremities, and lower extremities). PASI scores can range from 0 to 72, with higher scores indicating greater severity [4].

Methods

This is an observational, clinical-epidemio- logical, transversal study was conducted at a psoriasis ambulatory. Fifty patients were randomly selected, aged from 18 to 45 years, with mild, moderate, and severe psoriasis.

The PASI scale was translated and adapted into Arabic language following the process postulated [5].

The following steps were followed: Forward translation, development of the preliminary initial translated Arabic version, blind back-translation andComparison of the two back-translated versions of the scale.Pilot testing of the pre-final Arabic version of the scale for face

Data Collection and Statistical Analysis

1-Data collection

All patients' data were entered as they wrote as follow :

- Missing data (any data in the sheet except answers) were left blank if cannot obtained by telephone.
- Missing answers were left blank.
- When patient marked two answers or made unclear mark it was considered as blank.

2- Statistical analysis

SPSS computer program (version 20) was used for data analysis taking in consideration that:

Ratio

It can be written as one number is divided by another (a fraction). Formula is a/b. Both a and b refer to the frequency of some event or occurrence.

Proportion

It is a ratio in which the numerator is a subset (or part) of the denominator. Formula is a/(a + b). A relative frequency.

3- Clarity index

Definition: ratio of raters number that agree that words are clear to the total raters number Types and calculation. Item index of clarity.Ratio of raters number that agree (clear responses) to the total raters number regarding each item. Scale index of clarity. Average of items clarity index. Scale index of clarity universal agreements. Ratio of number of raters that agree (clear responses) by 100% to the whole scale to the total raters number regarding the whole scale . It was used to measure face validity of Arabic version of the PASI in patients with psoriasis and all the previous types were calculated.

4- Expert proportion of clearance

Definition: ratio of agreement number to the total rates number for each rater. It was used to measure face validity of Arabic version of the PASI in patients with psoriasis .

5- Index of content validity (CVI)

Definition: ratio of raters number that agree that items are relevant to the total raters number. Types and calculation.
a) Item index of content validity (I-CVI)
Ratio of raters number that agree (relevant responses) to the total raters number regarding each item.
b) Scale index of content validity (S-CVI)
Average of items content validity index.
c) Scale index of content validity universal agreements (S-CVI/UA)
Ratio of number of raters that agree (relevant responses)by 100% to the whole scale to the total raters number regarding the whole scale. It was used to measure content validity of Arabic version of the PASI scale in patients with psoriasis and all the previous types were calculated.

6- Expert proportion of relevance
Definition: ratio of agreement number to the total rates number for each rater. It was used to measure content validity of Arabic version of the PASI in patients with psoriasis .

7- Descriptive statistics
Definition: is the discipline of quantitatively describing the main features of a collection of information. Types and calculation. Mean The sum of the study data and dividing it by the total number of data. Median is the middle value in a set of data. Standard deviation is a measure of the average distance that a set of data lies from its mean. Minimum (min) is the minimum value of data set. Maximum (max) is the maximum value of data set. It was used to summarize and compare data collected from patients recruited in this study.

8- Missed item index
Definition: ratio of number of missed answers to number of all answers. Calculation: number of missed answers / number of total answers. It was used to measure feasibility of Arabic version of the PASI in patients with psoriasis.

9- Cronbach's coefficient alpha
Definition: Is a function of the number of items in a test, the average covariance between item-pairs, and the variance of the total score. It was used to measure internal consistency reliability of Arabic version of the PASI scale in patients with psoriasis.

10- Spearman's rank Correlation coefficient
Definition: is a nonparametric measure of statistical dependence between two variables. It measures how well the relationship between two variables can be described using a monotonic function (a function between ordered sets). In this study, it was used to measure stability (test retest reliability) of Arabic version of the PASI in patients with psoriasis.
Next, results obtained and the indexes attributed to each patient will com- pared, according to each rater [6].
To make up the score, the three features of a psoriatic plaque (redness) scaling and thickness are each assigned a number from 0 to 4 with 4 being worst. Then the

extent of involvement of each region of the body is scored from 0 to 6. Adding up the scores gives a range of 0 to 72[7].

Results:

This study was done to test the face validity, the content validity, the feasibility, the internal consistency reliability and the test retest reliability of Arabic-language version of PASI scale. to measure severity of psoriasis.

Three expert panels (each consists of ten experts) and 50 patients with psoriasis participated in this study.

One hundred sheets (including test and retest sheets) were filled out in this study. The results of this study were presented as follow:

- Experts Results
  - Face validity statistics of the final version.
  - Content validity statistics of the final version.
- Patients Results
  - Descriptive statistics.
  - Feasibility measure.
  - Internal consistency reliability.
  - Test retest reliability (stability).

- **Clarity index of the final version**

The scale index of clarity equaled 100% as shown in table (1) and scale-level clarity index UA equaled 100%.

Table (1): Item index of clarity of the final version

Item	Number of rater's agreements (clear responses)	Item index of clarity
(1)	10	90%
(2)	10	100%
(3)	10	100%
(4)	10	100%
(5)	10	100%
(6)	10	100%
(7)	10	100%
(8)	10	100%
(9)	10	100%
(10)	10	100%
(11)	10	90%
(12)	10	100%
(13)	10	100%
(14)	10	100%
(15)	10	100%
(16)	10	100%
(17)	10	100%
(18)	10	100%
Mean	10	98.89%

- **Expert proportion of clearance of the final version**

The mean of proportion of clearance (clear responses) equaled 100% as shown in table (2).

Table (2): Expert proportion of clearance of the final version

Expert number	Number of expert agreements (clear responses)	Proportion of clearance
1	18	100%
2	18	100%
3	18	100%
4	18	100%
5	17	94%
6	17	94%
7	18	100%
8	18	100%
9	18	100%
10	18	100%
Mean	18	98.89%

- **Content validity statistics of the final version**

Content validity is the degree to which the instrument is relevant to the construct of interest.

Index of content validity of the final version

The S-CVI equaled 100% as shown in table (3) and S-CVI/UA equaled 100%.

Table (3): Item index of content validity of the final version

Item	Number of raters that agree (relevant responses)	I-CVI
(1)	10	100%
(2)	10	100%
(3)	10	100%
(4)	10	100%
(5)	10	100%
Mean	10	100%
(1): psoriasis symptoms (2): erythema (3): desquamation (4): score (5): score as percentage of each body area		

- **Expert proportion of relevance of the final version**

The mean of the proportion of relevance (relevant responses) equaled 100% as shown in table (4).

Table (4): Expert proportion of relevance of the final version

Expert number	Number of agreements (relevant responses)	Proportion of relevance
1	10	100%
2	10	100%
3	10	100%
4	10	100%

5	10	100%
6	10	100%
7	10	100%
8	10	100%
9	10	100%
10	10	100%
Mean	10	100%

Patients Results

- **Descriptive statistics**

In this study there were 50 patients who filled the questionnaire, and all of them filled it twice.

- **Descriptive statistics of patients**

The descriptive statistics of gender distribution showed that 40male (representing 80%) and 10 female (representing 20%) participated in this study as represented in table (5).

Table (5): Descriptive statistics of gender distribution among sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	40	80.0	80.0	80.0
Female	10	20.0	20.0	100.0
Total	50	100.0	100.0	

- **Descriptive statistics of sheets**

The sheets were collected within 2 separate days in 7th May 20 sheets (40%) were collected while in 23th May 30 sheets (60%) were collected.

Table (6): Descriptive statistics of dates that sheets were collected

Date	Frequency	Percent	Valid Percent	Cumulative Percent
07-MAY-2018	20	40.0	40.0	40.0
23-MAY-2018	30	60.0	60.0	100.0
Total	50	100.0	100.0	

The descriptive statistics of results of collected sheets were represented as follow:

Considering the total score of the questionnaire was 24.8 ± 12.8 as the questionnaire consisted of 2 parts:

- **Part 1:**

Part 1 score was 17.04 ± 9.26 and it consists of 4 parts:

- **Head:**

Head score was 3.44 ± 3.37 and it consists of 3 parts:

Head erythema:

The score of this variable was found to be 0 in 14 patients (28%), 1 in 10 patients (20%), 2 in 10 patients (20%), 3 in 11 patients (22%) and 4 in 1 patient (2%) as shown in table (7)

Table (7): Head erythema score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	14	28.0	30.4	30.4
1.0	10	20.0	21.7	52.2
2.0	10	20.0	21.7	73.9

3.0	11	22.0	23.9	97.8
4.0	1	2.0	2.2	100.0
Total	46	92.0	100.0	

Head induration

The score of this variable was found to be 0 in 16 patients (32%), 1 in 11 patients (22%), 2 in 13 patients (26%), 3 in 3 patients (6%) and 4 in 3 patient (6%) as shown in table (8).

Table (8): Head Induration score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	16	32.0	34.8	34.8
1.0	11	22.0	23.9	58.7
2.0	13	26.0	28.3	87.0
3.0	3	6.0	6.5	93.5
4.0	3	6.0	6.5	100.0
Total	46	92.0	100.0	

Head scaling:

The score of this variable was found to be 0 in 16 patients (32%), 1 in 15 patients (30%), 2 in 5 patients (10%) and 3 in 10 patients (20%) as shown in table (9)

Table (9): Head scaling score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	16	32.0	34.8	34.8
1.0	15	30.0	32.6	67.4
2.0	5	10.0	10.9	78.3
3.0	10	20.0	21.7	100.0
Total	46	92.0	100.0	

Upper limb:

Upper Limb score was 5.98 ± 3.47 and it consists of 3 parts:

Upper limb erythema:

The score of this variable was found to be 0 in 8 patients (16%), 1 in 1 patient (2%), 2 in 15 patients (30%), 3 in 20 patients (40%) and 4 in 4 patients (8%) as shown in table (10)

Table (10): Upper limb erythema score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	8	16.0	16.7	16.7
1.0	1	2.0	2.1	18.8
2.0	15	30.0	31.3	50.0
3.0	20	40.0	41.7	91.7
4.0	4	8.0	8.3	100.0
Total	48	96.0	100.0	

Upper limb induration:

The score of this variable was found to be 0 in 8 patients (16%), 1 in 1 patient (2%), 2 in 21 patients (42%), 3 in 11 patients (22%) and 4 in 10 patients (20%) as shown in table (11)

Table (11): Upper limb induration score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	8	16.0	16.7	16.7
1.0	1	2.0	2.1	18.8
2.0	21	42.0	43.8	62.5
3.0	11	22.0	22.9	85.4
4.0	7	14.0	14.6	100.0
Total	48	96.0	100.0	

Upper limb scaling:

The score of this variable was found to be 0 in 8 patients (16%), 1 in 4 patients (8%), 2 in 19 patients (38%) and 3 in 17 patients (34%) as shown in table (12)

Table (12): Upper limb scaling score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	8	16.0	16.7	16.7
1.0	4	8.0	8.3	25.0
2.0	19	38.0	39.6	64.6
3.0	17	34.0	35.4	100.0
Total	48	96.0	100.0	

- **Trunk:**

Trunk score was 4.04 ± 3.91 and it consists of 3 parts:

Trunk erythema:

The score of this variable was found to be 0 in 17 patients (34%), 1 in 6 patient (12%), 2 in 11 patients (22%), 3 in 11 patients (22%) and 4 in 2 patients (4%) as shown in table (13)

Table (13): Trunk erythema score descriptive statistics.

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	17	34.0	36.2	36.2
1.0	6	12.0	12.8	48.9
2.0	11	22.0	23.4	72.3
3.0	11	22.0	23.4	95.7
4.0	2	4.0	4.3	100.0
Total	47	94.0	100.0	

Trunk induration:

The score of this variable was found to be 0 in 17 patients (34%), 1 in 6 patients (12%), 2 in 4 patients (8%), 3 in 17 patients (34%) and 4 in 3 patients (6%) as shown in table (14).

Table (14): Trunk Induration score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	17	34.0	36.2	36.2
1.0	6	12.0	12.8	48.9
2.0	4	8.0	8.5	57.4
3.0	17	34.0	36.2	93.6
4.0	3	6.0	6.4	100.0

Total	47	94.0	100.0	

Trunk scaling:

The score of this variable was found to be 0 in 17 patients (34%), 1 in 6 patients (12%), 2 in 15 patients (30%), 3 in 7 patients (14%) and 4 in 2 patients (4%) as shown in table (15)

Table (15): Trunk scaling score descriptive statistics.

Result	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	17	34.0	36.2	36.2
1.0	6	12.0	12.8	48.9
2.0	15	30.0	31.9	80.9
3.0	7	14.0	14.9	95.7
4.0	2	4.0	4.3	100.0
Total	47	94.0	100.0	

- **Lower Limb:**

Lower Limb score was 3.58 ± 3.72 and it consists of 3 parts:

Lower limb erythema:

The score of this variable was found to be 0 in 20 patients (40%), 1 in 4 patient (8%), 2 in 12 patients (24%), 3 in 9 patients (18%) and 4 in 2 patients (4%) as shown in table (16)

Table (16): Lower limb erythema score descriptive statistics.

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	20	40.0	42.6	42.6
1.0	4	8.0	8.5	51.1
2.0	12	24.0	25.5	76.6
3.0	9	18.0	19.1	95.7
4.0	2	4.0	4.3	100.0
Total	47	94.0	100.0	

Lower limb induration:

The score of this variable was found to be 0 in 22 patients (44%), 2 in 17 patients (34%), 3 in 6 patients (12%) and 4 in 2 patients (4%) as shown in table (17)

Table (17): Lower Limb induration score descriptive statistics.

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	22	44.0	46.8	46.8
2.0	17	34.0	36.2	83.0
3.0	6	12.0	12.8	95.7
4.0	2	4.0	4.3	100.0
Total	47	94.0	100.0	

Lower limb scaling:

The score of this variable was found to be 0 in 20 patients (40%), 1 in 7 patients (14%), 2 in 13 patients (26%), 3 in 5 patients (10%) and 4 in 2 patients (4%) as shown in table (18)

Table (18): Lower limb scaling score descriptive statistics.

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	20	40.0	42.6	42.6
1.0	7	14.0	14.9	57.4
2.0	13	26.0	27.7	85.1
3.0	5	10.0	10.6	95.7
4.0	2	4.0	4.3	100.0
Total	47	94.0	100.0	

- **Part 2:**

In part 2, the average score was 7.76 ± 3.98 and it consists of 4 parts:

- **Head:**

The score of this variable was found to be 0 in 14 patients (28%), 1 in 4 patients (8%), 2 in 9 patients (18%), 3 in 7 patients (14%), 4 in 10 patients (20%), 5 in 1 patient (2%) and 6 in 1 patient (2%) as shown in table (19)

Table (19): Descriptive statistics of Head component of part 2

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	14	28.0	30.4	30.4
1.0	4	8.0	8.7	39.1
2.0	9	18.0	19.6	58.7
3.0	7	14.0	15.2	73.9
4.0	10	20.0	21.7	95.7
5.0	1	2.0	2.2	97.8
6.0	1	2.0	2.2	100.0
Total	46	92.0	100.0	

- **Upper limb:**

The score of this variable was found to be 0 in 7 patients (14%), 2 in 12 patients (24%), 3 in 13 patients (26%), 4 in 8 patients (16%) and 5 in 7 patients (14%) as shown in table (20)

Table (20): Descriptive statistics of upper limb component of part 2

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	7	14.0	14.9	14.9
2.0	12	24.0	25.5	40.4
3.0	13	26.0	27.7	68.1
4.0	8	16.0	17.0	85.1
5.0	7	14.0	14.9	100.0

Total	47	94.0	100.0	

- **Trunk:**

The score of this variable was found to be 0 in 16 patients (32%), 1 in 6 patients (12%), 2 in 5 patients (10%), 3 in 8 patients (16%), 4 in 7 patients (14%) and 5 in 4 patients (8%) as shown in table (21)

Table (21): Descriptive statistics of Trunk component of part 2

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	16	32.0	34.8	34.8
1.0	6	12.0	13.0	47.8
2.0	5	10.0	10.9	58.7
3.0	8	16.0	17.4	76.1
4.0	7	14.0	15.2	91.3
5.0	4	8.0	8.7	100.0
Total	46	92.0	100.0	

- **Lower Limb:**

The score of this variable was found to be 0 in 20 patients (40%), 1 in 4 patients (8%), 2 in 3 patients (6%), 3 in 12 patients (24%), 4 in 6 patients (12%) and 5 in 2 patients (4%) as shown in table (22)

Table (22): Descriptive statistics of Lower limb component of part 2

Results	Frequency	Percent	Valid Percent	Cumulative Percent
0.0	20	40.0	42.6	42.6
1.0	4	8.0	8.5	51.1
2.0	3	6.0	6.4	57.4
3.0	12	24.0	25.5	83.0
4.0	6	12.0	12.8	95.7
5.0	2	4.0	4.3	100.0
Total	47	94.0	100.0	

- **Feasibility measures**

Feasibility measures is related to the easy application of the scale (Retest sheets are enrolled in data).

Missed item index

The scale items were filled out by 93.75% in all sheets.
Missed data index represent not answered data in relation to the total data as shown in table (23).

Table (23): Missed data index in 100 sheets

Item	Head P1	Upper limb P1	Trunk P1	Lower limb P1	Head P2	Upper limb P2	Trunk P2	Lower limb P2	Total
Missed	24	12	18	18	8	6	8	6	100

data (not answered)									
Percentage of missed data	0.75%	0.37%	0.56%	0.56%	0.25%	0.18%	0.25%	0.18%	**3.125%**

P1: part one, P2: part two

- **Internal consistency reliability**

To calculate internal consistency reliability retest sheets were excluded and only test sheets were included.

Cronbach's alpha equaled 0.878 with lower bound 0.818 and upper bound 0.925 at 95% confidence interval.

- **Test retest reliability (stability)**

To calculate test retest reliability, we can use:

Comparison of scores of tests with retest:

There was no statistically significant difference between test and retest results as t value equal 2.14 (P = 0.037) shown in table (24).

Table (24): Test versus retest scores

	Test	Retest
Mean	24.8	25.32
SD	12.8	12.93
Median	22	23.5
Min.	6	6
Max.	47	47

Min.: Minimum, Max.: Maximum

Correlation coefficients (Pearson's correlations)

Correlations between test and retest results were done as follow:

Regarding that the two-tailed value of P is 0.05, Spearman's rank correlations were calculated as shown in table (25).

Table (25): Spearman's rank correlations coefficients

Item	R value	Correlation strength	Results of test regarding association between test and retest results
Part 1: Head total	0.946	Very strong	statistically significant
Part 1: Upper Limb total	0.979	Very strong	statistically significant
Part 1: Trunk total	0.966	Very strong	statistically significant
Part 1: Lower Limb total	1.000	Very strong	statistically significant
Part 1: Total	0.985	Very strong	statistically significant
Part 2	0.990	Very strong	statistically significant
Total score	0.991	Very strong	statistically significant

R: Pearson's correlation

Discussion

The present study was designed to test the face validity, the content validity, the feasibility, the internal consistency reliability and the test-retest reliability of Arabic-

language version of the PASI in patients with psoriasis 10 experts and 50 patients participated in this study, this study was conducted in outpatient clinics of Al Hod_ElMarsod Hospital and outpatient clinic of Faculty of Physical Therapy, Cairo University.
The original scale was translated forward into two Arabic versions then preliminary initial translated version was developed then it was backward translated into two English versions then pre-final version was developed then it was tested by the experts for face and content validity, then it was tested by the patients for feasibility, internal consistency reliability and test retest reliability.

Validity of the Arabic version of PASI scale

The Arabic version of PASI scale has excellent face validity as scale index of clarity equaled 89%, and the mean of proportion of clearance (clear responses) equaled 89%, also it has excellent content validity as S-CVI equaled 86.5%, and the mean of the proportion of very relevance (very relevant responses) equaled 88.2%.

The results of the current study came in agreement with5 who stated that a scale to be judged as having excellent content validity, it would be composed of items with item indexes of content validity (I-CVI) that meet the following criteria (I-CVI of 1.00 with three to five experts and a minimum I-CVI of .78 for 6 to 10 experts).

The recommended standards may necessitate two rounds of expert review if the initial assessment suggests the need for substantial item improvements.

Also, this came in agreement[8] who stated that S-CVI/Ave of 0.90 or above is the minimum acceptable index, and items that do not achieve the minimum acceptable indices are revised and re-evaluated.

Internal consistency and test retest reliability of the Arabic version of PASI scale

The Arabic version of PASI scale has good internal consistency and good test retest reliability as Cronbach's alpha equaled0.598 (ranged from 0.487 to 0.660).. However, Spearman's rank correlation coefficients between test and retest results were statistically significant (item 1: 0.19, item 2: 0.52, item 3: 0.54, item 4: 0.33, item 5: 0.47, item 6: 0.789, item 7: 0.50, item 8: 0.52, item 9: 0.37, item 10, 0.55, item 11: 0.73, item: 12: 0.23, item 13: 0.11). According to[9] α between 0.7 and 0.9 is referred as good internal consistency, also Spearman's rank correlation coefficient between 0.7 and 0.9 is referred as good test retest reliability and Spearman's rank correlation coefficient between 0.6 and 0.7 is referred as acceptable test retest reliability.

Compared to previous studies[10], translated and validated the PASI scale into Chinese version, with a total of 64 patients. The study showed that the Chinese PASI scale had excellent reliability (ICC=0.968, $p<0.001$). Cronbach's α of individual questions and its overall value were above 0.7. Strong correlation was found between the

Chinese PASI scale and the psoriasis patient Index (rho=0-0.708, p<0.001). Fairly weak correlations were also found between Chinese PASI scale with the "physical" (rho=0.413-0.498, p<0.001) and "energy vitality" (rho=0.290, p=0.02) domains of SF-36. However, the relationship between the "bodily pain" was not significant (rho=0.136, p=0.284). These results indicate that the Chinese translated version of PASI scale is a reliable and valid instrument for assessing the psoriasis patient.

Validity and reliability of translated tools were made over two or three studies not one. The first study is designed to translate the tool to the targeted language then test the translated version for face and content validity then test the reliability, it was conducted on monolingual population. The second study was designed to test the full the psychometrics of the translated tool with bilingual participants. The third study is conducted to test the full psychometric properties of the translated tool on monolingual population, noting that the second study is not necessary to be made[11].

The current study is considered to be the first study in the validity and reliability studies of the Arabic language version of PASI scale. The final version is considered the base for the next research that was conducted to establish the full psychometric properties of Arabic language version of PASIscale.[12]

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