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# VALIDATION OF PASE SCORE IN PSORIASIS: A STUDY IN A TERTIARY CARE HOSPITAL.

Dermatology

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## ABSTRACT

**Background:** Psoriatic arthritis is a chronic systemic inflammatory condition characterized by arthritis associated with psoriasis of the skin and nails with negative rheumatoid factor and absence of rheumatoid nodules. Early diagnosis will help prevent unhelpful examinations and therapies and help in treating the patient in early stages of the disease.

**Objective:** The objective was to compare the PASE (Psoriatic Arthritis Screening and Evaluation score) with the PASI (Psoriatic area severity index) score, NAPSI (Nail psoriasis severity index) score, duration of disease and treatment.

**Materials and methods:** 111 patients coming to Dermatology OPD and clinically diagnosed as psoriasis were taken for the study after taking a written informed consent. PASE score was compared with the other scores (PASI, NAPSI) as well as the clinical examination findings of the patient as well as the treatment medication and duration.

**Results:** There was significant co-relation between the PASE score and the duration of disease and treatment. There was no significant co-relation between the PASE score with the PASI and NAPSI score.

**Conclusion:** There is a significant increase in the incidence and severity of psoriatic arthritis with the duration of disease. There is no co-relation with the severity of skin or nail lesions in psoriasis and the severity of arthritis.

## KEYWORDS

**Introduction:**

Psoriatic arthritis (PsA) is a chronic systemic inflammatory condition characterized by arthritis associated with psoriasis of the skin and nails with a negative rheumatoid factor and absence of rheumatoid nodules[1]. PsA can affect the axial skeleton, peripheral joints, entheses and the tenosynovial sheaths either in isolation or in combination. Psoriatic arthritis can even occur without skin involvement and is referred to as psoriatic arthritis sine psoriasis.

Aggressive treatment in early stages of psoriatic arthritis with disease-modifying anti rheumatic drug (DMARD) and anti-tumour necrosis factor-α (TNF- α) blocking agents when started early can prevent joint damage progression and thus reduce functional disability[2]. This necessitates the need for a screening test for psoriatic arthritis.

**Materials and methods:**

The patients coming to dermatology OPD (111 patients) and diagnosed clinically as psoriasis were taken for the study subsequent to a written an informed consent. An ethical committee clearance was obtained prior to the study. The clinical details of the patient were noted down and PASE, PASI and NAPSI scores were calculated.

PASE score is calculated by means of a questionnaire given to the patient. PASE has two scales- symptoms and function. The symptom scale has 7 items and the function scale has 8 items Box 1. Each item can be scored on a five-point scale (1 to 5) ranging from strongly disagree to strongly agree Box 2. Left unanswered gets a score of 0. PASE total score is calculated by summing the scores for all 15 items. The total score ranges from a minimum of 15 to a maximum of 75. Cut off score for score to diagnose the case as psoriatic arthritis is 40.

PASE score was compared with the other scores as well as the clinical examination findings of the patient as well as the treatment medication and duration.

The data was entered in SPSS 16 and was analyzed using t test and correlation tests

**Results:**

The total number of patients taken for the study was 111 out of which the gender prevalence was equal (55 males, 56 females). Maximum patients were in the age group of 40-60 years (57 patients).

Duration of the disease ranged from 7 days to 30 years. 37 of the patients had associated co-morbidities such as diabetes mellitus, hypertension, atopy and hypothyroidism. 11 of the patients had family history of psoriasis. 29 of the patients had a significant PASE score (>=40). The incidence of psoriatic arthritis was 32.19%.

There was no significant co-relation between the PASE score with the PASI and NAPSI score Table 1&2 (t tests, p value>0.05). Therefore, there is no co-relation between the severity of psoriatic arthritis and the severity of the skin or nail lesions.

There was significant co-relation between the PASE score and the duration of disease and treatment Table3 (t test, p value was 0.009 which is <0.05).

There was mild co-relation between the PASI and NAPSI scores Diagram 1 (co-relation test). This indicates that there is significant co-relation between the severity of the skin and nail lesions.

**Discussion:**

A multidisciplinary team of rheumatologists, dermatologists and patient focus groups designed the PASE questionnaire. A standard methodology of functional and health related instruments directed towards musculoskeletal disease was used to develop the questionnaire[3]. The PASE score was able to differentiate the symptoms of osteoarthritis and PsA in a study by Husini et al[3].

In a randomised controlled trial (PRISTINE trial), the PASE score was used to assess the treatment response to etarnecept in 2 different dosages[4]. The PASE scores correlated with the subjective global assessment of joint pain which indicates that PASE score can be used as tool to monitor treatment response in cases of PsA.

In a study on Korean patients by Hyang-Suk et al, a cut off score of 37 was suggested to diagnose the patient as having psoriatic arthritis instead of a score of 40[5]. In a study by Patrick et al, it was determined that the PASE score can help to differentiate PsA from non-PsA with a high specificity and sensitivity and the PASE score also had high test-retest reliability[6].

In our study the PASE score did not co-relate with the skin and nail scores of psoriasis. This was also corroborated clinically. Patients with even mild skin involvement had significant joint involvement [Figure 1&2].

This indicates the necessity of screening all patients of psoriasis for PsA irrespective of the severity of the skin or nail findings. Moreover, one third of the patients with psoriasis develop PsA.

The PASE score had a significant co-relation with the duration of the disease and treatment indicating the necessity of early diagnosis and treatment of PsA.

The PASE score is self-administered and brief. It does not cause any discomfort or risk to the patient. It increases the PsA detection and also helps to assess the response to treatment. Thus, it can be employed as a screening tool and to assess the response to treatment in psoriatic arthritis.

**Limitations:**

PASE is a subjective test. PASE score can be compared with the CASPAR criteria to overcome this limitation and to further validate the PASE score. But PASE score can only be used as a screening test and cannot replace a complete musculoskeletal evaluation.

**Conclusion:**

All patients clinically diagnosed as psoriasis should be screened for psoriatic arthritis. The PASE score can be used as a screening tool for psoriatic arthritis. It can also be used as an index to measure treatment response to psoriatic arthritis.

**Legends:**

Box 1: Questionnaire for PASE score.
Box 2: Scoring scale.

Table 1: Comparison of PASE score with PASI score: t test.
Table 2: Comparison of PASE score with NAPSI score: t test.
Table 3: Comparison of PASE score with the duration of the disease and treatment.

Diagram 1: Comparison of PASI and NAPSI scores: Correlation test.

Figure 1: Patients clinically diagnosed as psoriasis showing distal interphalangeal type of psoriatic arthropathy. Note the swollen joints
Figure 2: The severity of the skin lesions of psoriasis is not related to the severity of psoriatic arthritis. Here we see a patient having mild plaque type of psoriasis showing asymmetrical oligoarthropathy. A patient with severe pustular psoriasis shows distal interphalangeal arthropathy.

**Box 1: Questionnaire for PASE score**

1. I feel tired during most of the day.
2. My joints hurt.
3. My back hurts.
4. My joints become swollen.
5. My joints feel "hot."
6. Occasionally, my entire finger or toe becomes swollen, making it look like a "sausage."
7. I have noticed that the pain in my joints moves from one joint to another. For example, my wrist will hurt for a few days, then my knee will hurt, and so on.
8. I feel that my joint problems have affected my ability to work.
9. My joint problems have affected my ability to care for myself (for example, getting dressed or brushing my teeth).
10. I have had trouble wearing my watch or wearing rings on my fingers.
11. I have had trouble getting into or out of a car.
12. I am unable to be as active as I used to be.
13. I feel stiff for more than 2 hours after waking up in the morning.
14. The morning is the worst time of day for me.
15 It takes me a few minutes to get moving as well as I can, at any time of the day.

**Box 2: Scoring scale for PASE score**

| Five point scoring system | Points |
|---|---|
| Strongly agree | 5 |
| Agree | 4 |
| Neutral | 3 |
| Disagree | 2 |
| Strongly disagree | 1 |

**Table 1: Comparison of PASE score with PASI score: t test**

| SUMMARY | | Hyp Mean Diff | 0 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Groups* | *Count* | *Mean* | *Variance* | *Cohen d* | | | | | |
| Group 1 | 82 | 5.808537 | 237.6292 | | | | | | |
| Group 2 | 30 | 5.923333 | 150.6743 | | | | | | |
| Pooled | | | 214.7047 | 0.007834 | | | | | |
| T TEST: Equal Variances | | Alpha | 0.05 | | | | | | |
| | *std err* | *t-stat* | *df* | *p-value* | *t-crit* | *lower* | *upper* | *sig* | *effect r* |
| One Tail | 3.126527 | 0.036717 | 110 | **0.485389** | 1.658824 | | | no | 0.003501 |
| Two Tail | 3.126527 | 0.036717 | 110 | 0.970777 | 1.981765 | -6.31084 | 6.081247 | no | 0.003501 |
| T TEST: Unequal Variances | | Alpha | 0.05 | | | | | | |
| | *std err* | *t-stat* | *df* | *p-value* | *t-crit* | *lower* | *upper* | *sig* | *effect r* |
| One Tail | 2.814319 | 0.04079 | 64.43932 | 0.483795 | 1.669013 | | | no | 0.005081 |
| Two Tail | 2.814319 | 0.04079 | 64.43932 | 0.967589 | 1.99773 | -5.73705 | 5.507452 | no | 0.005081 |

**Table 2: Comparison of PASE score with NAPSI score: t test.**

| SUMMARY | | Hyp Mean Diff | 0 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Groups* | *Count* | *Mean* | *Variance* | *Cohen d* | | | | | |
| Group 1 | 82 | 15.42683 | 467.1119 | | | | | | |
| Group 2 | 30 | 20.68667 | 390.2833 | | | | | | |
| Pooled | | | 446.8571 | 0.248822 | | | | | |

| T TEST: Equal Variances | | Alpha | 0.05 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *std err* | *t-stat* | *df* | *p-value* | *t-crit* | *lower* | *upper* | *sig* | *effect r* |
| One Tail | 4.510511 | 1.166129 | 110 | **0.123042** | 1.658824 | | | no | 0.110505 |
| Two Tail | 4.510511 | 1.166129 | 110 | 0.246084 | 1.981765 | -14.1986 | 3.678937 | no | 0.110505 |
| T TEST: Unequal Variances | | Alpha | 0.05 | | | | | | |
| | *std err* | *t-stat* | *df* | *p-value* | *t-crit* | *lower* | *upper* | *sig* | *effect r* |
| One Tail | 4.325035 | 1.216138 | 56.10553 | 0.114512 | 1.672522 | | | no | 0.160262 |
| Two Tail | 4.325035 | 1.216138 | 56.10553 | 0.229024 | 2.003241 | -13.9239 | 3.404249 | no | 0.160262 |

**Table 3: Comparison of PASE score with the duration of the disease and treatment.**

| **SUMMARY** | | **Hyp Mean Diff** | **0** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Groups* | *Count* | *Mean* | *Variance* | *Cohen d* | | | | | |
| Group 1 | 82 | 3.186789 | 24.00808 | | | | | | |
| Group 2 | 30 | 5.8972 | 40.16101 | | | | | | |
| Pooled | | | 28.26658 | 0.509798 | | | | | |
| T TEST: Equal Variances | | Alpha | 0.05 | | | | | | |
| | *std err* | *t-stat* | *df* | *p-value* | *t-crit* | *lower* | *upper* | *sig* | *effect r* |
| One Tail | 1.134431 | 2.389225 | 110 | **0.009293** | 1.658824 | | | yes | 0.222113 |
| Two Tail | 1.134431 | 2.389225 | 110 | 0.018586 | 1.981765 | -4.95859 | -0.46224 | yes | 0.222113 |
| T TEST: Unequal Variances | | Alpha | 0.05 | | | | | | |
| | *std err* | *t-stat* | *df* | *p-value* | *t-crit* | *lower* | *upper* | *sig* | *effect r* |
| One Tail | 1.277295 | 2.121993 | 42.34687 | 0.019865 | 1.681952 | | | yes | 0.310021 |
| Two Tail | 1.277295 | 2.121993 | 42.34687 | 0.03973 | 2.018082 | -5.2881 | -0.13273 | yes | 0.310021 |

**Diagram 1: Comparison of PASI and NAPSI scores: Correlation test.**

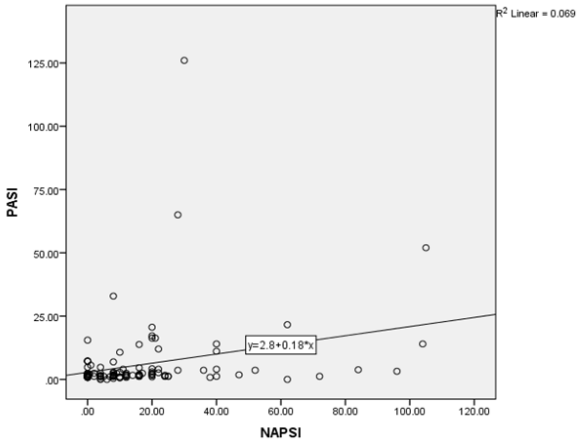



**Figure 1: Patients clinically diagnosed as psoriasis showing distal interphalangeal type of psoriatic arthropathy. Note the swollen joints.**

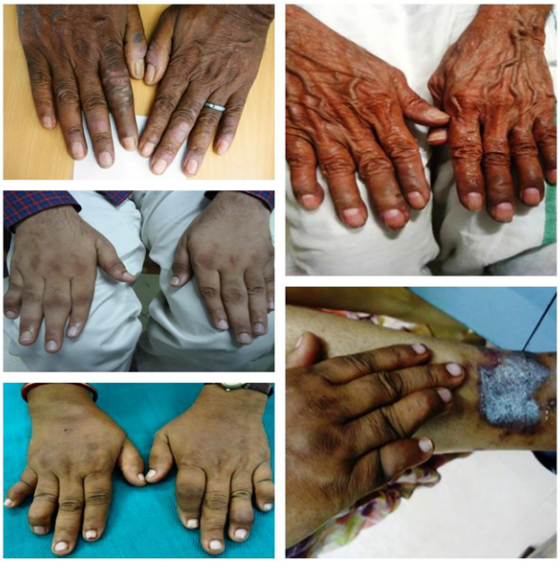
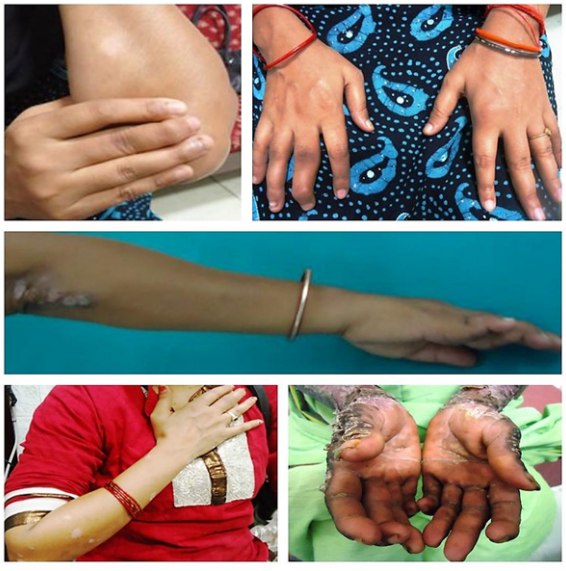


**Figure 2: The severity of the skin lesions of psoriasis is not related to the severity of psoriatic arthritis. Here we see a patient having mild plaque type of psoriasis showing asymmetrical oligoarthropathy. A patient with severe pustular psoriasis shows distal interphalangeal arthropathy**

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