

Original Article

## Assessment of Disease Severity in Psoriasis Patients Attending in a Tertiary Care Hospital

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### Abstract:

**Background:** Psoriasis is an immune mediated inflammatory skin disease affecting approximately 2%-3% of the world's population, a worldwide disease, varies in its clinical profile and epidemiology in different regions of the world. Recurrence of the disease is high and severity of psoriasis ranges clinically from mild, moderate and severe. Psoriasis area and severity index (PASI) is a commonly used tool to assess the disease severity of patients.

**Objective:** The purpose of this study was to assess the disease severity of psoriasis patients in a tertiary care hospital.

**Methodology:** This cross-sectional study was conducted in the Department of Laboratory Medicine and Department of Dermatology and Venereology, BSMMU. Duration of the study was from March 2019 to February 2020. Diagnosed patient with psoriasis who fulfills the inclusion and exclusion criteria was selected as study population. After taking written consent proper history and clinical examination was done. The parameters included were age at onset of disease, age at first treatment, current age, sex, type of disease and distribution of lesions. After data collection and processing all statistical analysis was done by SPSS software version 26. p value <0.05 was considered as significant.

**Result:** The mean age was found 35.15±13.63 with the range of 18-70 years. Female are more common than male. Male and female ratio was 1:1.2. Mean age of onset of disease was 32.15±12.28 with the range of 13-70 years. Mean duration of disease was 2.65±2.76. Regarding severity of psoriasis according to PASI score, 45 (56.3%) patients had mild psoriasis (PASI ≤10) and 35 (43.8%) had moderate to severe psoriasis (PASI >10).

**Conclusion:** Psoriasis is a common dermatological disease accounting 2.9% of all dermatology patients in our country. The disease is more frequent in the third decade of life and has a male predominance in our region. Treatment compliance has been found to be poor. In the current study, we observed mild psoriasis is a predominant pattern assessed by PASI score.

**Keywords:** Psoriasis, PASI score.

### Introduction:

Psoriasis is one of the most common, chronic and recurrent inflammatory skin disease characterized by hyperproliferation of epidermal cells.<sup>1</sup> World Health Organization (WHO) considered psoriasis as a global health problem.<sup>2</sup> A systematic worldwide review found the prevalence of psoriasis ranged from 0.51 to 11.43percent in adults.<sup>3</sup> In India range varies from 0.44% to 2.8percent.<sup>4</sup> Psoriasis causes embarrassment, lack of

self-esteem, anxiety and increased prevalence of depression. 7 percent reported a wish to be dead and 5.5 percent reported active suicidal tendency found in a study of 127 psoriasis patients. Psoriasis decrease quality of life and the age of onset of psoriasis can be at any age. However a bimodal distribution of age of onset has been described. Age 15-20 years is the mean age for the first presentation of the disease with a second peak occurring at 55-60 years.<sup>5</sup> The characteristics of psoriasis

are its long clinical course punctuated by remission and relapse.<sup>6</sup> Family history and environmental risk factors such as diet, obesity, smoking, stress and alcohol consumption have been recognized as the risk factors.<sup>7</sup>

In the pathogenesis of psoriasis, several factors such as genetic, environmental, immune defect and hormonal factors take part.<sup>8</sup> Multiple mechanisms such as hyper-reactivity of T-lymphocytes and dendritic cells, accelerated epidermal turnover, epidermal hyper proliferation, reduced keratinocytes differentiation, over expression of angiogenesis and oxidative stress are involved in its pathogenesis.<sup>9</sup> Psoriasis involves the skin, scalp, nails and seldom the joints.<sup>10</sup> Psoriatic skin lesions are characterized by circumscribed, erythematous, dry, scaly plaques of various sizes. A silvery white lamellar scale is usually covered the lesion. The eruption is mainly symmetrical. About 50% of the patients are suffering from developed nail changes.<sup>11</sup> Psoriasis can lead to psoriatic arthritis (34.7%) that causes joint deformity and disability.<sup>12</sup>

Psoriasis is a clinical diagnosis.<sup>10</sup> There are no biomarkers to diagnose the disease and to assess its severity. For this, clinical assessment tools are used to measure the disease severity. To assess the severity of psoriasis a wide variety of scoring system has been proposed. In research, Psoriasis Area and Severity Index (PASI) is the most commonly used clinical scoring system. Others tools are physician global assessment (PGA), body surface area (BSA). PASI was suggested as a more reliable assessment instrument than the PGA as PASI demonstrated substantial inter-rater reliability and moderate for PGA. PASI area score demonstrated the highest intra-rater reliability. BSA is not recommended for assessment of the clinical severity of psoriasis as BSA demonstrated high inter-rater variability.<sup>13</sup> PASI is recommended as the current gold standard for assessing the severity of psoriasis and for clinical trials.<sup>10, 14</sup> PASI is accepted by approving agencies such as European Medicines Agency.<sup>15</sup> Erythema, induration, scaling are the basic characteristics for assessing the severity of psoriasis in PASI scoring system. The score varies from 0 (not affected) to 72 (severely affected).<sup>10</sup> The PASI score interpretation was as follows: score less than or equal to 10 is classified as mild disease, whilst a score of greater than 10 is considered to be moderate to severe.<sup>15</sup> PASI is solely depends on clinical features. So, the aim of this study was to assess the severity of psoriasis by PASI score in a tertiary care hospital.

**Methodology**

This cross-sectional study was conducted in the Department of Laboratory Medicine and Department

of Dermatology and Venereology, BSMMU. Duration of the study was from March 2019 to February 2020. Inclusion criteria for patients' selection were 18 years and above, patients with both sexes and clinically Diagnosed cases of psoriasis. Exclusion criteria were Gout, psoriatic arthritis, renal disorder and diabetes mellitus. Here clinical variable was PASI score. Severity of psoriasis were done by PASI score. Patient with psoriasis who fulfills the inclusion and exclusion criteria was selected as study population. After taking informed written consent, proper history and clinical examination was done. The parameters included were age at onset of disease, age at first treatment, current age, sex, type of disease and distribution of lesions. After data collection and processing, all statistical analysis was done by SPSS software version 26. p value <0.05 was considered as significant.

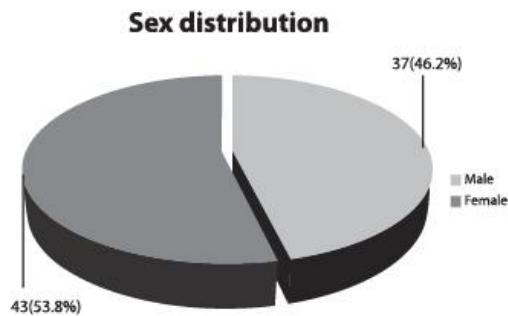
**Results**

In this study the maximum number of patients 38 (47.5%) were in the age group of 18-30 years followed by 18 (22.5%) in the age group 31-40 years. The mean age of the study group was 35.15 ±13.63 years, minimum age 18 and maximum 70 years (Table-I). Maximum patients were female 43 (53.8%) and rest 37 (46.2%) were male out of 80 psoriasis in this study. Male and female ratio was 1: 1.2 (Figure-1).

**Table-I: Age distribution of the study patients (n=80)**

Age group (years)	Frequency	Percentage (%)	Mean±SD
18-30	38	47.5	35.15±13.63
31-40	18	22.5	
41-50	16	20.0	
51-60	5	6.3	
61-70	3	3.8	
<b>Total</b>	<b>80</b>	<b>100.0</b>	

**Figure-1: Pie diagram showing the sex distribution of the study patients (n=80)**



**Table-II: Distribution of the study patients by age of onset (n=80) Age**

Age of onset (years)	Frequency	Percentage (%)	Mean±SD
13-20	18	22.5	32.15±12.28
21-30	21	26.3	
31-40	22	27.5	
41-50	13	16.3	
51-60	5	6.3	
61-70	1	1.3	
<b>Total</b>	<b>80</b>	<b>100.0</b>	

**Table-III: Distribution of the study patients by duration of disease (n=80)**

Duration of disease (years)	Frequency	Percentage (%)	Mean±SD
0-5	70	87.5	2.65±2.76
6-10	8	10.0	
11-15	2	2.5	
<b>Total</b>	<b>80</b>	<b>100.0</b>	

The distribution of the study patients by age of onset in this study found that maximum 22 (27.5%) patients had age of onset was in between 31-40 years followed by 21 (26.3%) had age of onset between 21-30 years, 18 (22.5%) patients had age of onset between 13-20, 13 (16.3%) patients had aged in between 41-50 years, 5 (6.3%) had age in between 51-60 years and 1(1.3%) patients had age of onset was in between 61-70 years. The mean±SD value was 32.15±12.28 (Table-II). The distribution of study patients by duration of disease found in this study that maximum 70(87.5%) had psoriasis for 0-5 years followed by 8 (10.0%) had for 6-10 years and 2(2.5%) had 11-15 years. Maximum number of patients had psoriasis for 0-5 years. The mean±SD value was 2.65±2.76 (Table-III).

**Table-IV: Distribution of the study patients by severity of psoriasis (n=80)**

Severity of psoriasis	Frequency	Percentage (%)	PASI Mean±SD
Mild disease (PASI ≤10)	45	56.3	5.99±1.71
Moderate to severe disease (PASI >10)	35	43.8	12.61±2.74
<b>Total</b>	<b>80</b>	<b>100.0</b>	

In this study, the distribution of the study patients by severity of psoriasis according to PASI score found that maximum 45 (56.3%) patients had mild psoriasis (PASI ≤ 10) and 35 (43.8%) had moderate to severe psoriasis (PASI > 10). Mean±SD value of PASI score in mild psoriasis was 5.99 ±1.71 and in moderate to severe psoriasis was 12.61±2.74 (Table-IV)

**Discussion**

Psoriasis is a chronic systemic disease affecting approximately 2%-3% of the world's population. It is gold standard to measure severity of psoriasis with PASI score and with that aim this study was undertaken. In our study, the mean±SD age was found 35.15±13.63 years with the range of 18-70 years. In one study it was reported that mean±SD age of psoriasis patients was 7.66±14.63, which was nearly consistent with our study.<sup>16</sup> The highest number of patients 38 (47.5%) was of 18-30 years.<sup>17</sup> In other study reported that mean±SD age was 39.82±15.16 and which was nearly compatible with this study. The mean±SD age of study patients was 43.26±10.62, which was some extent higher than this study.<sup>18</sup> The median age was in mild psoriasis 32.5 years (range 15-65 years), in moderate psoriasis was 36 years (range 20-80 years) and in severe psoriasis 31years (range 20-80 years) which was closely resembled to the present study.<sup>19</sup> In another study reported mean±SD age of patients was 35±15.5 which was agreeing with our study.<sup>20</sup>

In this study, it was found that, out of 80 patients, 43 (53.8%) patients were female and 37 (46.2%) patients were male with male and female ratio of 1:1.2. In study it was found that 41(68.33%) patients were female and 19 (31.67%) were male among 60 patients.<sup>19</sup> This study showed that female was predominant than male which was accordant with our study. It was found that among 38 patients with psoriasis 18 were female and 20 were male.<sup>21</sup> On the other hand, globally this ratio is considered as 1:1 (WHO, 2016).<sup>2</sup> Various factors can be considered reasonable for this difference in the sex ratio in this current study. Social aspects such as, the way men and women perceive their health, their different social roles and levels of tolerability could be considered as some of the important determinants for accessibility to health care facilities.

In our study mean±SD age of onset of disease was 32.15±12.28 and the commonest age group was 31-40 years of age with the range of 13-70 and mean±SD duration of disease was 2.65±2.76. In a study of Raghvan et al.<sup>6</sup> commonest age group of patients present with psoriasis was 41-50 years and the mean duration of disease was range between 3-8 years which was nearly consistent with our study. In a study of mean±SD age of onset of disease was found 37.85±9.13 which was nearly consistent with our study.<sup>22</sup>

According to PASI score in this study, maximum 45 (56.3%) patients were found in mild psoriasis and 35

(43.8%) had moderate to severe psoriasis. In a study of Kim et al.<sup>17</sup> found 70.45% patients had mild psoriasis and 29.55% had moderate to severe psoriasis patients among 176 psoriasis patients which was some extent nearly higher than our study. This may be due to in Bangladesh all medical cost is paid by patients himself / herself. So, when the symptoms worsen people came to the hospital. In contrast in developed countries medical expenditure is some extent free of cost. So, when a symptom is mild, patients go for medical advices.

#### Conclusion

Psoriasis is a serious non-communicable disease considered as a global problem now a day. The disease severity of psoriasis is measured by PASI which is done by clinical feature and vary from physician to physician. Therefore, subsequent evaluation by same physician is necessary. In the present study we found that mild disease severity of psoriasis is the predominant form of psoriasis. So, for the assessment of disease severity of psoriasis, PASI score can be used as important tools. Therefore, it will be greatly beneficial for assessing disease severity of psoriasis in our country.

#### Limitations of the study

The sample was taken purposively, so, there may be a chance of bias which can influence the result. The study population was selected from one tertiary care level hospital in Dhaka city; therefore, sample may not be representative of the selected population of the country.

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