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The Perspective Of Psoriasis In Bangladesh: Revealing Epidemiological Insights, Disease Severity, And The Impact On Quality Of Life From A Tertiary Hospital In Chittagong

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Abstract
Background: *Psoriasis, an autoimmune disorder affecting the skin and joints, poses a significant global health concern, particularly in Bangladesh. The impact extends beyond physical symptoms, affecting mental and emotional well-being. Limited research in Bangladesh hampers a comprehensive understanding of psoriasis epidemiology, clinical profiles, and quality of life implications. This study aimed to address these gaps, emphasizing their impact on an individual's quality of life.*
Methods and materials: *A cross-sectional observational study was conducted from January 2022 to October 2023 at Central Skin & Social Hygiene Center, a single Specialized Health Center in Chittagong, Bangladesh recruited 156 clinically and histopathologically diagnosed psoriasis patients. Data included socio-demographics, clinical profiles, Psoriasis Area and Severity Index (PASI) scores, and Dermatology Life Quality Index (DLQI) scores.*
Results: *Among 156 enrolled patients, 147 completed the study, the mean age was 34.29 years, with ages ranging from 17 to 70 years. The male-to-female ratio of 1.77:1. The significant gender disparity in PASI scores ($p = 0.035$), indicates that hormones may play a role in the condition being studied. The majority (76.87%) of participants had mild psoriasis, and stress (30.61%) was a prevalent aggravating factor. Plaque psoriasis predominated (84.35%), followed by guttate (5.44%). A strong positive correlation ($r = 0.7615$, $p < 0.001$) between PASI and DLQI scores emphasized the impact of disease severity on quality of life. ANOVA results revealed a statistically significant difference in mean DLQI scores among the severity groups ($F = 38.92$, $p < 0.001$).*
Conclusion: *This study contributes comprehensive insights into psoriasis in Bangladesh, emphasizing psychosocial dimensions, gender influences, and the strong correlation between disease severity and impaired quality of life. These findings inform tailored management approaches and support strategies for psoriasis patients in the region.*
Keywords: *Psoriasis, Dermatology, Quality of life, Psoriasis Area and Severity Index (PASI), Dermatology Life Quality Index (DLQI)*

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I. Introduction

Psoriasis, an autoimmune disorder with manifestations primarily on the skin and joints, represents a substantial health concern globally and holds particular significance in the context of Bangladesh [1]. This chronic condition not only poses physical challenges but also significantly impacts the mental and emotional well-being of affected individuals [2]. The burden of psoriasis extends beyond the visible symptoms, affecting the overall quality of life, and presents unique challenges that necessitate a comprehensive investigation [3,4]. In Bangladesh, limited research has been conducted to thoroughly understand the epidemiology, clinical profile, and impact on the quality of life of individuals living with psoriasis. Existing evidence suggests a heightened prevalence of mental health disorders among psoriasis patients, emphasizing the need for a detailed exploration of the psychosocial dimensions of the condition [5]. Furthermore, the association of psoriasis with sleep disorders raises additional concerns about the holistic well-being of affected individuals [6]. This chronic and inflammatory condition, primarily impacting the skin and joints, presents a multisystemic inflammatory challenge that affects

a range of 0.1% to 1.5% of the world population [7]. Notably, patients with psoriasis in Bangladesh experience a notable decline in their quality of life, as indicated by elevated rates of depression, anxiety, and alcohol abuse compared to the general population [8]. A study found that psoriasis patients had an increased risk for depression (HR 1.39), anxiety (HR 1.31), and suicidal thoughts (HR 1.44), highlighting the substantial mental health ramifications associated with psoriasis [9]. Individuals with psoriasis commonly experience comorbidities such as hypertension, diabetes, coronary artery disease, dyslipidemia, obesity, and metabolic syndrome [10,11]. Furthermore, the burden extends to sleep disorders, with psoriasis patients in Bangladesh grappling with reduced sleep quality, increased susceptibility to obstructive sleep apnea syndrome, and heightened severity of restless legs syndrome symptoms [6,12]. These factors collectively contribute to the overarching impact on mental and physical well-being. In Bangladesh, while the prevalence of psoriasis is acknowledged, there remains a notable gap in the depth of understanding concerning its epidemiology, clinical characteristics, and the holistic burden it imposes on affected individuals. Current research on psoriasis in Bangladesh has primarily focused on clinical manifestations, with limited exploration into the psychosocial dimensions and overall quality of life implications for patients. The available literature often lacks comprehensive insights into the specific challenges faced by individuals with psoriasis in the cultural and healthcare context of Bangladesh. Moreover, existing studies have predominantly concentrated on prevalent comorbidities associated with psoriasis, such as hypertension, diabetes, and metabolic syndrome. However, a nuanced understanding of the interplay between these comorbidities and the unique socio-demographic factors in the Bangladeshi population remains an area requiring further investigation. Our study aimed to comprehensively analyze psoriasis in Bangladesh, addressing knowledge gaps and understanding its impact on individuals' quality of life. The insights gained will inform healthcare professionals, policymakers, and researchers, facilitating improved management and support for psoriasis patients in the region.

II. Methods & Materials

This cross-sectional observational study was conducted to evaluate the clinical profile, quality of life, and disease severity in psoriasis patients at Central Skin & Social Hygiene Center, a specialized health center in Chittagong, Bangladesh, from July 2022 to June 2023. All patients diagnosed with psoriasis, confirmed both clinically and histopathologically, were included, while those with comorbidities such as malignancies, renal diseases, infectious diseases, anemia, and pregnancy were excluded. Data collection involved gathering socio-demographic information (age, gender, occupation, and marital status) and a detailed clinical history, including onset, duration, family history, and aggravating factors. Anthropometric measurements were taken, and BMI was calculated. Disease severity was assessed using the Psoriasis Area and Severity Index (PASI), with scores stratified into mild (<10), moderate (11-20), and severe (>20) categories. The Dermatology Life Quality Index (DLQI) was employed to assess the impact of psoriasis on patients' quality of life. Data analysis was performed using STATA (Version 17.0). Descriptive statistics summarized socio-demographic characteristics, clinical profiles, PASI scores, and DLQI scores. Categorical variables were compared using Chi-square tests, while continuous variables were analyzed using t-tests or non-parametric tests. Pearson correlation and linear regression analyses explored the relationships between disease severity and quality of life. One-way ANOVA and post-hoc analysis was applied to assess the impact of disease severity on quality of life, with significance set at $p<0.05$.

III. Results

The study included 147 psoriasis patients, with a mean age of 34.29±10.05 years, predominantly under 40 years old (77.03%). Gender analysis revealed that males were more likely to have severe psoriasis (PASI≥10) compared to females (p=0.035). Occupational analysis showed no significant association with PASI scores. Clinical characteristics such as the mean age of psoriasis onset and family history were not significantly different between the severity groups. The presence of comorbidities was more frequent in patients with severe psoriasis, but this was not statistically significant (p=0.162). Obesity and the presence of aggravating factors like stress and sunburn did not show significant associations with PASI scores. However, itching was significantly more common in patients with severe psoriasis (p=0.002), indicating a possible correlation between symptom severity and PASI scores. Anthropometric measurements, including weight and BMI, showed no significant differences between patients with PASI<10 and those with PASI≥10 [Table I].

Table I: Association between Socio-demographic characteristics clinical profile and PASI score of the patient psoriasis (n = 147)

Variables	n (%)	PASI < 10	PASI ≥ 10	p-value
Age (years)				
< 40	114 (77.03)	88 (77.88)	26 (76.47)	0.863
≥ 40	34 (22.97)	25 (22.12)	8 (23.53)	
Mean age	34.29±10.05	33.79±9.37	35.94±12.05	0.137
Gender				

Male	94 (63.95)	70 (61.95)	24 (70.59)	0.035*
Female	53 (36.05)	43 (38.05)	10 (29.41)	
Occupation				
Student	23 (15.65)	15 (13.27)	8 (23.53)	0.413
Farmer	4 (2.72)	3 (2.65)	1 (2.94)	
Businessman	18 (12.24)	15 (13.27)	3 (8.82)	
Housewife	30 (20.41)	26 (23.01)	4 (11.76)	
Service	72 (48.98)	54 (47.79)	18 (52.94)	
Clinical Profile				
Psoriasis onset (mean age)	28.49±10.86	28.46±10.41	28.58±12.40	0.480
Family history				
Yes	11 (7.48)	9 (7.96)	5 (5.88)	0.686
No	136 (92.52)	104 (92.04)	32 (94.12)	
Comorbidities				
Presence	29 (19.73)	20 (17.70)	9 (26.47)	0.162
Absence	118 (80.27)	108 (95.58)	25 (73.53)	
Diabetes Mellitus (DM)	4 (2.72)	-	-	-
Hypertension (HTN)	4 (2.72)	-	-	-
Obesity	25 (16.89)	18 (15.93)	7 (20.00)	0.574
Aggravating Factors				
Presence	94 (63.95)	70 (61.95)	24 (70.59)	0.358
Absence	53 (36.05)	43 (38.05)	10 (29.41)	
Drugs	1 (0.68)	-	-	
Stress	45 (30.61)	37 (32.74)	8 (23.53)	0.307
Sunburn	31 (21.09)	21 (18.58)	10 (29.41)	
Trauma	6 (4.08)	-	-	
Anthropometric Measurements				
Weight (kg)	64.31±13.20	64.65±13.14	63.17±13.53	0.284
BMI (kg/m²)	25.96±4.91	25.86±4.89	26.32±5.03	0.315
BMI Categories				
≤ 30 kg/m²	123 (83.11)	95 (84.07)	28 (80.00)	0.574
> 30 kg/m²	25 (16.89)	18 (15.93)	7 (20.00)	
Symptoms				
Itch	62 (42.18)	40 (35.40)	22 (64.71)	0.002*
Pain	4 (2.72)	3 (2.65)	1 (2.94)	0.928

Among the 147 patients with psoriasis, the majority were diagnosed with plaque psoriasis, accounting for 84.35% of cases. Other types included guttate psoriasis (5.44%), flexural psoriasis (4.08%), localized pustular psoriasis (3.40%), palmoplantar psoriasis (2.04%), and erythrodermic psoriasis (0.68%). This distribution highlights that plaque psoriasis is the predominant type among the study population, with other forms being relatively uncommon [Table II].

Table II: Types of psoriasis (n = 147)

Types of psoriasis	n=147	%
Plaque	124	84.35%
Guttate psoriasis	8	5.44%
Erythrodermic	1	0.68%
Flexural	6	4.08%
Localized Pustular	5	3.40%
Palmoplantar	3	2.04%

The anatomical distribution of psoriasis lesions among the 147 patients revealed that the most commonly affected sites were the upper limbs (89.86%) and head and neck (88.51%). These sites were more frequently involved in patients with severe disease (PASI≥10), with 97.14% of these patients having lesions in the head and neck, upper limbs, trunk, and lower limbs. Trunk involvement was present in 81.76% of the total patients, while lower limb involvement was noted in 87.16%. Nail involvement and joint disease were less common, observed in 7.48% and 4.76% of patients, respectively. Additionally, lesions at special sites were more prevalent in patients with severe psoriasis (29.41%) compared to those with PASI<10 (16.81%) [Table III].

Table III: Anatomical Distribution of Psoriasis Lesions

Affected site	N=147 (%)	PASI<10 (n=113)	PASI≥10 (n=34)
Head and neck	131 (88.51)	97 (85.84)	34 (97.14)
Upper limp	133 (89.86)	99 (87.61)	34 (97.14)
Trunk	121 (81.76)	87 (76.99)	34 (97.14)
Lower limp	129 (87.16)	95 (84.07)	34 (97.14)
Nail involvement	11 (7.48)	8 (7.08)	3 (8.82)
Joint disease	7 (4.76)	5 (4.42)	2 (5.88)

Special site	29 (19.73)	19 (16.81)	10(29.41)

The scatter plot illustrating the relationship between PASI scores and DLQI scores shows a strong positive correlation ($r = 0.7615$, $p < 0.001$), indicating that higher psoriasis severity, as measured by PASI, is significantly associated with a greater impact on patients' quality of life. This suggests that as the severity of psoriasis increases, the quality of life of affected individuals tends to deteriorate markedly [Figure I].

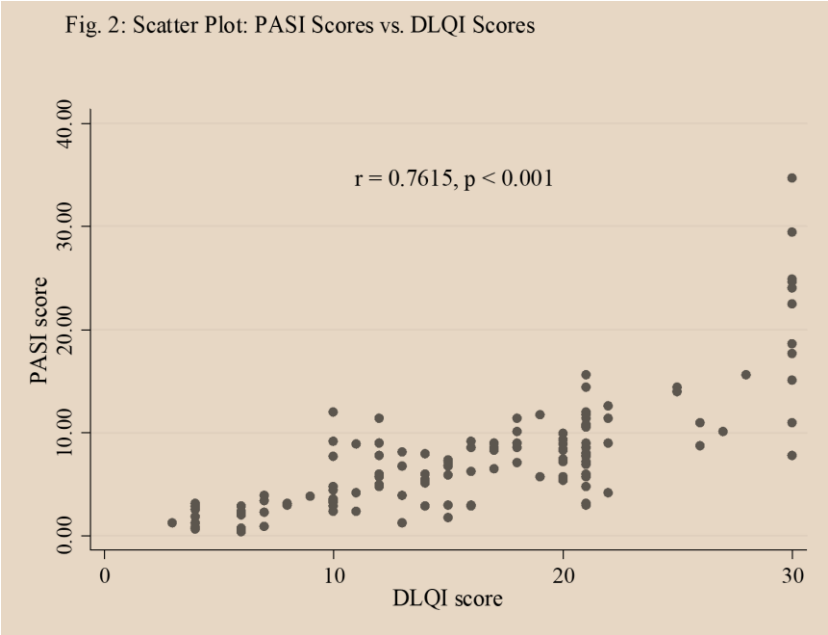

Figure I: Correlation between PASI and DLQI scores

The analysis of the impact of disease severity, as measured by PASI scores, on the quality of life (DLQI scores) revealed a significant correlation ($p < 0.001$). Patients with mild psoriasis (PASI 1-10) had a mean DLQI score of 14.50±5.93, indicating a moderate impact on quality of life. In contrast, those with moderate (PASI 11-20) and severe (PASI 21-72) psoriasis had considerably higher DLQI scores, with means of 22.29±4.89 and 30.00±0.00, respectively, reflecting a substantial deterioration in quality of life as disease severity increased [Table IV].

Table IV: Impact of Disease Severity (PASI Scores) on Quality of Life (DLQI Scores)

PASI Scores	DLQI Scores (Mean ± SD)	N=147	%	p-value
Mild (1-10)	14.50±5.93	113	76.87	<0.001
Moderate (11-20)	22.29±4.89	28	19.05	
Severe (21-72)	30.00±00	6	04.08	
PASI denotes Psoriasis Area and Severity Index and **DLQI** denotes Dermatology Life Quality Index				

IV. Discussion

This study offers a detailed analysis of the relationships between socio-demographic characteristics, clinical profiles, and Psoriasis Area and Severity Index (PASI) scores in 147 psoriasis patients. These insights are vital for developing personalized management strategies. Age did not show a significant association with PASI scores, suggesting that psoriasis severity in our cohort is not age-dependent, consistent with findings from Korea [13]. However, a gender disparity was observed, with a significantly higher proportion of males having PASI scores above 10 compared to females, highlighting potential biological or hormonal influences, as supported by recent data from Turkey [14]. While Western studies generally report equal prevalence of psoriasis among men and women, several Asian studies have noted a male predominance [13,15–18]. Our study similarly found a male-to-female ratio of 1.77:1, though this ratio varied when compared to other Asian populations. The reasons behind this male predominance in our cohort remain unclear and warrant further investigation. The mean age of our patients (34.29 years) was comparable to that reported in South Korea but lower than in studies from Japan and China [19]. Occupation did not significantly correlate with PASI scores, indicating that factors like stress or occupational exposure may play a more significant role than the occupation itself. In our study, 57.82% of patients experienced psoriasis onset before the age of 40, a finding slightly lower than that of a Chinese study but higher than in Korea [13]. The age of onset did not significantly affect PASI scores, suggesting that it may not be a major

determinant of disease severity in our cohort. A small proportion (7.48%) of patients reported a positive family history of psoriasis, lower than figures reported in Korea and Italy [13,20]. Comorbidities, including diabetes mellitus (DM), hypertension (HTN), and obesity, were present in 19.73% of patients, yet these did not significantly correlate with PASI scores, reflecting the complex nature of psoriasis and its varied manifestations [21]. Aggravating factors were present in 63.95% of patients, with stress (30.61%) being the most common, followed by sunburn (21.09%) and trauma (4.08%). These factors, particularly stress, are well-known triggers for psoriasis, and managing them is critical for effective treatment [22,23]. The mean BMI of the cohort was 25.96±4.91 kg/m², with no significant difference between patients with mild to moderate psoriasis (PASI < 10) and those with severe psoriasis (PASI ≥ 10) [21]. This suggests that BMI may not be directly related to psoriasis severity in this population [13].

Plaque psoriasis was the most common type, affecting 84.35% of patients, consistent with global trends [13,15]. Guttate psoriasis, although less common (5.44%), was more prevalent in our cohort compared to other regions. The anatomical distribution of lesions was consistent across severity groups, with high involvement of the head and neck (88.51%), upper limbs (89.86%), trunk (81.76%), and lower limbs (87.16%), in line with observations in the USA and Canada [24]. Nail involvement (7.48%) and joint disease (4.76%) were less common but clinically significant, indicating the need for thorough evaluation regardless of PASI score [25]. Special sites, such as the face, genital area, and scalp, were more frequently affected in patients with PASI scores ≥ 10, suggesting a potential link between disease severity and involvement of these regions. This warrants further investigation. A robust positive correlation ($r = 0.7615$, $p < 0.001$) was observed between PASI and DLQI scores, indicating that greater disease severity is strongly associated with a decline in quality of life, consistent with existing literature [26–28]. Finally, the one-way ANOVA confirmed significant differences in DLQI scores across severity groups, with the highest scores observed in patients with severe psoriasis, emphasizing the profound impact of severe disease on quality of life [29].

V. Conclusion

This study underscores the complex interplay between socio-demographic factors, clinical profiles, and psoriasis severity in a Bangladeshi cohort. Our findings highlight a significant gender disparity in disease severity, with males more likely to have severe psoriasis. Despite variations in age, occupation, and comorbidities, these factors did not show strong associations with psoriasis severity, emphasizing the need for further research into the underlying mechanisms. The strong correlation between PASI scores and quality of life underscores the importance of holistic management approaches that address both the physical and psychological burdens of the disease. These insights contribute to a better understanding of psoriasis in Bangladesh and can guide the development of more effective, tailored treatment strategies.

VI. Limitation:

This study has some limitations that should be acknowledged. The cross-sectional design restricts our ability to establish causation, and the study's single-center nature may limit generalizability. Additionally, the reliance on self-reported data introduces the potential for recall bias. Future research employing longitudinal designs and multi-centre collaborations can address these limitations, further advancing our understanding of psoriasis dynamics.

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