Original article

A study on impact of Atopic Dermatitis on Health-related Quality of Life

*Biswas C[1], Das SR[2]

Abstract

Background: Atopic dermatitis (AD) is a common skin disease. Therefore, these study asses to the relationship between AD severity and patients' HRQoL.

Methodology: This descriptive cross-sectional study carried out to evaluate the impact of Atopic Dermatitis on Health-related Quality of Life from March 2021 to February 2022. Severity was assessed by SCORAD scale. Patients' HRQoL was assessed using the DLQI scale. Chi-square test was used to examine the relationship between two qualitative variables. ANOVA was used to analyze the differences in SCORAD and DQLI. Statistical Package for Social Science 22 was used.

Results: Total 500 patients were selected among them 67% were below 25 years, 56% were male, 43% patients were illiterate, 82% of patients suffered from atopic dermatitis below 10 years and 85.4% had AD in the face. More than half of the patients had positive family history. Based on SCORAD scales, 42% of the patients had moderate diseases, 38% had mild and 20% severe disease and significant differences between some important variables and severe disease groups. According to DLQI scores observation, it had found that atopic dermatitis very largely effects on physical, mental and social life. From all ten questions of the DLQI, patients with higher disease severity had higher mean scores compared to those with moderate and mild disease severity.

Conclusion: Higher AD severity is associated with poorer HRQoL in AD patients. There is necessity to pay more attention to the psychological and social aspects in the patient with AD.

Key words: **Atopic dermatitis, Scoring Atopic Dermatitis index, Dermatology Life Quality Index, Health related quality of life.**

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Introduction

Atopic dermatitis is a kind of dermatitis characterized as an inflammatory, relapsing, noncontagious and itchy skin disorder. Children often develop AD during their first year of life. The disease is characterized by the presence of dry and scaly patches on the skin of the scalp, forehead, and face, particularly the cheeks, flexor surfaces of arms, torso, etc. Atopic eczema is often prickling in nature. Children cannot sleep due to intense itching which causes skin infection. Atopic dermatitis is a chronic and complex immune mediated and inflammatory skin disorder with significant morbidity due to intense pruritus. Sometimes, atopic dermatitis is associated with frustrating condition of respondents due to chronic and relapsing course of the diseases.[1] The fundamental public health consequences of Atopic Dermatitis on health of general people was established by the 2010 Global Burden of Skin Disease project and validated by the Cochrane Skin Group in 2014. Among all chronic diseases the fourth leading cause of nonfatal disease burden are skin diseases. It was responsible for highest level of disability on population health.[2] Unhealthy skin conditions have an adverse effect on psychosocial health and it also hampered on daily activities of life. In atopic dermatitis, pruritus is a chronic and often an untreatable symptom, so it has a major impact on the quality of life, as it affects the quality of sleep and behavior along with their productivity.[3-5]

Common physical comorbidities such as allergic rhinitis and asthma, which leads to more psychiatric comorbidities including from anxiety, depression suicidal thought and tendency are associated with atopic dermatitis.[6] There were several potential theories to explain perfect relationship between Atopic dermatitis and psychiatric disorders. Firstly, inflammatory markers were change due to AD which contribute to psychiatric derangement. Secondly, there is a well-known link between sleep disturbance and depression in the

Author's affiliation

1. *Chinmay Biswas, Assistant Professor, Department of Skin and Venereal Diseases, Colonel Malek Medical College, Manikganj, Email: drchinmay52@gmail.com
2. Shila Rani Das, Associate Professor, Department of Community Medicine, Z H Sikder Women's Medical College

***Address of Correspondence: *Dr. Chinmay Biswas**, Assistant Professor, Department of Skin and Venereal Diseases, Colonel Malek Medical College, Manikganj, Email: drchinmay52@gmail.com

general population. A number of studies proved that sleep disturbances were more common in patients with AD than non-atopic patients, which causes depression. Thirdly, pruritus which is a major symptom of Atopic dermatitis is linked to depression and even suicidal ideation and the severity of itch is positively correlated with the severity of depression.7-10 Person with chronic health conditions become physically, socially, and spiritually unhealthy. Moreover, the negative impact of the chronic diseases on the QOL extends from the whole families. In case of chronic diseases, improving higher quality of life is a major goal of diseases management. The aim of this study was to assess the impact Atopic Dermatitis on Health-related Quality of Life

Methodology

This descriptive type cross-sectional study carried out in the outpatient department of skin and venereal diseases in Colonel Malek Medical College, Manikganj during the period of March 2021 to February 2022 with the objectives to evaluate the impact of Atopic Dermatitis on Health-related Quality of Life. After getting informed consents, 500 diagnosed patients' atopic dermatitis were selected from the OPD by purposive sampling method to fill up a questionnaire which was used to record their socio-demographic factors and assess their health-related quality of life. Sampling technique was purposive sampling.

Scoring Atopic Dermatitis index (SCORAD) is an objective clinical assessment tool developed by the European Task Force on Atopic Dermatitis in 1993,[11] and is used extensively to determine severity of eczema. More common severity are edema, erythema, excoriation, lichenification, oozing, and xerosis, as well as a visual analogue scale for pruritus and sleep disturbance. Scores ranging from 0–15 were classified as mild; 15–40, moderate; more than 40 as severe diseases, respectively. Patients' HRQoL was evaluated using the DLQI which has ten questions aimed at evaluating the impact of skin diseases on patients' HRQoL in the preceding week. The scoring of each question is as follows; Very much scored (3), A lot scored (2), A little scored (1), Not at all scored (0), Not relevant scored (0), Question 7, 'prevented work or studying' scored (3). Summing the score of each question to calculate DQLI. Maximum score of DQLI is 30 and a minimum of 0. Quality of life is impaired if score is high. Variation of score as following; (0 – 1) no effect at all on patient's life, (2 – 5) small effect on patient's life, (6 – 10) moderate effect on patient's life, (11 – 20) very large effect on patient's life and (21 – 30) extremely large effect on patient's life [12-14]. Descriptive statistics were used to summarize the demographic, SCORAD and DLQI data. The collected data was revised, coded and tabulated and submit to a Computer. Statistical Package for Social Science 22 were used to analysis data. Chi-square test was used to examine the relationship between two qualitative variables. ANOVA was used to analyze the differences in SCORAD and DQLI. The result was consider statistically significant when p-value < 0.05.

Result

This study was conducted on 500 patients. Among them, 67% of them were below 25 years of age and 33% of them were above 25 years. Male formed 56% and female 44% of the studied sample. About 43% patients were illiterate and 10% were graduate and their monthly family income more than 25000 Tk (Table 1). About 82% of patients suffered from atopic dermatitis below 10 years. Most of them had AD in the face (85.4%), followed by the flexor surface (72.8%) and to less extent in the extensor surfaces (45.7%). More than fifty percent of the patients had positive family history and 87% of them had recurrent history (Table 2). About 59% of patients had dry skin and 37% asthma and 29% Hay fever (Figure 1). According to the SCORAD scores, 42% of the patients had moderate diseases, 38% had mild and 20% severe disease (Figure 2). According to the statistical analysis, there were significant differences between Education, Family history, Family income & mild, moderate, and severe disease groups (Table 3). According to DLQI scores observation, it had found that atopic dermatitis very largely effects on physical, mental and social life (Table 4). Patient who had suffered from severe AD were highest mean DLQI score (15.3 ± 4.6), with the mean scores of the patients with moderate (12.3 ± 4.7) and mild (6.3 ± 3.2). This usually observed in individual questions, too. Patients with higher disease severity had higher mean scores of DQLI compared to those with moderate and mild disease severity (Table 5).

Table 1: Socio-demographic characteristics of the patients (n=500)

Variables	Frequency (n)	Percentage (%)
Age in years		
Less than 30	335	67%
More than 30	165	33%
Gender		
Male	280	56%
Female	220	44%
Educational status		
Illiterate	225	43%
Primary	130	26%
Secondary	105	21%
Graduate	50	10%
Marital status		
Married	192	38.4%
Unmarried	308	61.6%
Monthly income (in Taka)		
<25000 Tk	285	57%
>25000 Tk	215	43%
Occupation		
Housewife	60	12%
Student /illiterate	225	45%
Service	45	9%
Business	81	3%
Maid servant	15	2%
Farmer	145	29%
Total	**500**	**100%**

Table 2: Variables related to Atopic Dermatitis (n=500)

Variables	Frequency (n)	Percentages (%)
Duration of atopic dermatitis		
≤ 10 years	410	82%
≥10 years	90	18%
Site of infection (*multiple response)		
Face	427	85.4%
Flexor surface	364	72.8%
Extensor surface	229	45.7%
Family history		
Yes	345	69%
No	155	31%
Atopic Dermatitis recurring		
Yes	435	87%
No	65	13%
Total	**500**	**100%**

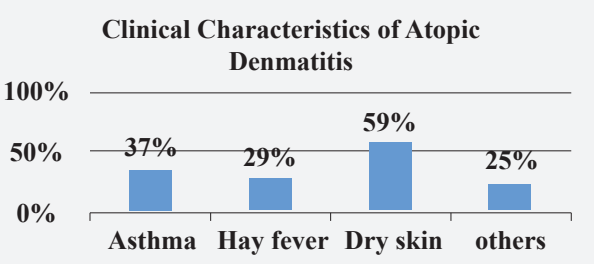

Figure 1: Clinical Characteristics of Atopic Dermatitis (AD) (*multiple response)

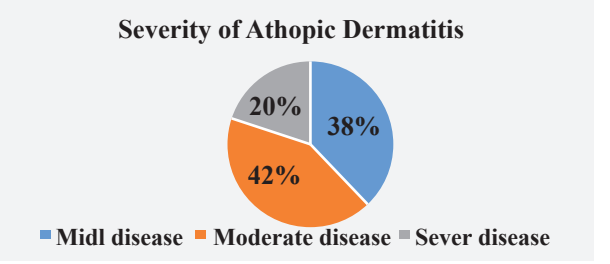

Figure 2: Severity of Atopic Dermatitis based on SCORAD scores (n=500)

Table 3: Relationships between Education, Family history, Family income & the severity of AD

Educational status	Severity of Atopic Dermatitis			p-value
	Mild	Moderate	Severe	
Illiterate	85.5 (0.0%)	94.5(55.6%)	45(44.4%)	
primary	41.8(22.7%)	46.2(77.3%)	22(0%)	
Secondary	47.5(100%)	52.5(0%)	25(0%)	
Graduate	15.2(100%)	16.8(0%)	8(0%)	
Family history				
Yes	131.1(10.1%)	144.9(60.9%)	69(29%)	0.000
No	58.9(100%)	65.1(0%)	31(0%)	
Family income (TK)				
>25000 TK	108.3(0.0%)	119.7(64.9%)	57(35.1%)	
>25000 TK	81.7(88.4%)	90.3(11.6%)	43(0.0%)	

**p-value was computed using Chi - square test

Table 4: Distribution of respondents according to DLQI scores

DLQI questions	No effect	Small effect	Moderate effect	Very large effect	Extremely large effect
Q1. Itchy, sore, painful, stinging skin	0	0	40	180	280
Q2. Embarrassed/self-conscious	0	0	410	90	0
Q3. Interfered with shopping, home, garden activities	0	70	320	110	0
Q4. Influenced clothes worn	0	300	80	120	0
Q5. Affected social/leisure activities	0	10	50	370	70
Q6. Affected sports participation	0	80	305	95	20
Q7. Prevented work/studying	0	80	270	110	40
Q8. Affected relationships	0	10	250	170	70
Q9. Sexual difficulties	0	-	310	100	90
Q10. Impact of treatment	0	230	90	110	70

Table 5: Relationships between the SCORAD and DLQI scores

DLQI (questions)	Mild	Moderate	Severe	p - value
Total score: mean (SD)	6.3(3.2)	12.3(4.7)	15.3(4.6)	0.000
Q1. Itchy, sore, painful, stinging skin	1.2 (0.3)	1.7 (0.8)	2.7 (0.7)	0.000
Q2. Embarrassed/self-conscious	1.1 (0.8)	1.6 (0.8)	1.6 (0.8)	0.000
Q3. Interfered with shopping, home, garden activities	0.6 (0.8)	1.2 (0.8)	1.8 (0.9)	0.000
Q4. Influenced clothes worn	0.9 (0.6)	1.5 (0.9)	1.8 (0.7)	0.000
Q5. Affected social/leisure activities	0.7 (0.5)	1.1 (0.7)	2.1(0.8)	0.000
Q6. Affected sports participation	1.1 (0.7)	1.5 (0.8)	2.1 (0.7)	0.000
Q7. Prevented work/studying	0.8 (0.7)	1.4 (0.8)	2.3 (0.9)	0.000
Q8. Affected relationships	0.4 (0.4)	0.8 (0.8)	1.6 (0.6)	0.000
Q9. Sexual difficulties	0.1 (0.3)	0.6 (0.7)	1.5 (0.7)	0.000
Q10. Impact of treatment	0.6 (0.7)	1.4 (0.9)	1.9 (0.8)	0.000

**p-value was computed using ANOVA

Discussion

It was a descriptive type of cross-sectional study and was conducted in the outpatient department of Skin and Venereal Diseases of Colonel Malek Medical College, Manikgonj, Dhaka during the period from March 2021 to February 2022. In total 500 respondents were selected for this study who were presented with skin diseases in the OPD of that hospital. In this study, 67% of them were below 25 years of age, 56% were male and about 43% patients were illiterate. Majority of the patients were married and their monthly family income more than 25000 Tk. About 82% of patients suffered from atopic dermatitis below 10 years and 85.4% had AD on the face followed by the flexor surface (72.8%) and extensor surfaces (45.7%). Greater part the patients had positive family history of atopy and 87% of them had recurrent history. About 39% of patients had dry skin and 37% asthma and 29% Hay fever which was more or less similar to other study where more than 50% had past atopic history such as allergic rhinitis or asthma, 70.5% had family history of AD/ allergic rhinitis/asthma), and 98% had AD recurring Atopic eczema[15]. According to the SCORAD scores, 42% of the patients had moderate diseases, 38% had mild and 20% severe disease and there were significant differences between sociodemographic characteristics and severity of disease which was dissimilar Bing-Jun Hsieh et al[15] study where 70, 72, and 58 patients were classified as having mild, moderate, and severe AD, respectively. There were no statistically significant differences was observed between demographic characteristics and mild, moderate, and severe disease groups. Regarding DLQI scores mean(SD) of the different AD groups, those who were suffered from severe AD had the highest mean DLQI score 15.3 (4.6), with the mean scores of the patients with moderate 12.3(4.7) and mild 6.3(3.2). This usually observed in individual questions too and this was similar to other study where higher DQLI scores were observed with the patients those who were suffered from severe form of AD[15].

Conclusion and Recommendation

Atopic dermatitis is a chronic dermatological condition that has great impact on the quality of life with severe impact on those who suffered more severe form of AD. Atopic Dermatitis has greater impact on social life. Comprehensive management needed with particular emphasis to improve physical, psychosocial aspects of life to achieve good clinical outcomes and to improve wellbeing. Health education programs must be organized for the patients as well as of their families to accept the physical and psychological challenges which they adopt due to AD.

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