Quality of Life in Nepalese Patients with Non-Scarring Alopecia: A Cross-Sectional Observational Study at a Tertiary Center

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Abstract

Introduction: Alopecia is a dermatological condition characterized by the loss or reduction of hair. Alopecia areata and androgenetic alopecia are fairly common hair disorders. Hair loss causes a significant impact in person's life which may lead to loss of self-confidence and distorted body image.

Materials and Methods: All consenting patients with alopecia areata and androgenetic alopecia, presenting to the out-patient department from September 2020 to August 2021 were enrolled based on convenience sampling method in this observational study. Ethical clearance was obtained from the ethical review committee of same institute (IRC protocol no.9/2021). All patients completed the Nepali Dermatology Life Quality Index questionnaire. Statistical Package for Social Studies version 25 was used for statistical analysis. Mean scores between groups were compared with Mann-Whitney U test.

Results: Out of 142 patients, there were 79 (55.6%) males and 63 (44.4%)females. There were 48 (33.8%) patients of alopecia areatawhile ninety-four (66.2%) hadandrogenetic alopecia.The mean total of Dermatology Life Quality Index score was 8.16 (±6.126). Mean score of females was 9.16±5.858 which was significantly higher than that of males 7.37±6.258 ($p<0.05$) and the score of the androgenetic patients (9.45±6.094) was significantly higher than that of areata patients (5.65±5.417) ($p<0.001$). All sub-domains of the questionnaire were impaired more in female. Increasing duration of the disease and hair loss in any first degree relative increased the impairment in quality of life significantly.

Conclusion: The quality of life in females weremore affected as compared to males in both kinds of hair loss. However, patients with androgeneticalopecia had a greater impairment than patients with alopecia areata in our population.

Key words: Alopecia;Alopecia areata;Androgenetic;Hair loss;Quality of life

Introduction

Alopecia areata (AA) is a complex genetic, immune-mediated disease that targets anagen hair follicles.[1] It is a relatively common disease with lifetime prevalence of approximately 2%.[2] Androgenetic alopecia (AGA) is a polygenetic condition affecting up-to 30% of white men by the age of 30 years, 50% by 50 years, and 80% by 70 years, but the Asians and African males are found less affected.[3] In case of females this rate ranges from 6-38%.[4] Although the loss of hair is medically considered a minor condition, psycho-socially it has a great impact in a person's life. Several studies have found that the loss of hair causes, a significant impairment in self-confidence, distorted body image and social

disadvantage.[5, 6] We plan to find the impact of hair loss in the lives of Nepalese patients using a generic Dermatology Life Quality Index (DLQI) questionnaire.

Materials and Methods

We conducted a prospective observational study among the patients who visited the Civil Service Hospital, Kathmandu, with hair loss from September 2020 to August 2021. All patients with hair loss of age

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16 years and above were included in this study after the institution review committee approved the proposal (IRC protocol no. 9/2021). After a written consent, quality of life (QoL) assessment was performed using self-administered Nepali translated version of DLQI questionnaire. Investigators briefed all patients that all the 'skin problem' in questions was to be read / understood as 'hair problem'. The patients' data was recorded in a separate form. Patients giving history of any psychiatric co-morbidity were excluded. Forms with more than one unanswered question were excluded.

The DLQI, since its introduction by Finlay et al. in 1994, has been used in a wide variety of dermatological conditions including hair disorders to assess the impairment in quality of life and also to assess the outcome of therapy.[7, 8]

This patient filled questionnaire consists of 10 questions with four possible answers for each. These questions are based on the following aspects of living; 1. Symptoms, 2. Embarrassment or self-consciousness, 3. Shopping or household activities, 4. Clothes, 5. Social and leisure, 6. Sports, 7. Work or study, 8. Relationships, 9. Sexual difficulties, 10. Treatment. These questions represent six sub-domains of life viz. Symptoms and Feelings (Question 1 and 2), Daily Activities (Questions 3 and 4), Leisure (Questions 5 and 6), Work and School (Questions 7), Personal Relationships (Questions 8 and 9) and Treatment (Question 10). Each question is scored as "very much" (score 3), "a lot" (score 2), "a little" (score 1), and "not at all" (score 0), keeping in mind the problems faced by the patient over the last one week, due to the disease. The impairment in quality of life can be represented as the percentage loss. Interpretation is further simplified by banding the numeric score to qualitative scoring.

Table 1. DLQI score interpretation and banding

0 -1	No effect 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
21 - 30	Extremely large effect on patient's life

The clinical severity was evaluated using the Severity of Alopecia Tool (SALT II) scoring after Olsen et al.,[9] in AA and Norwood-Hamilton scale[10] in male AGA and Ludwig scale[11] in female AGA, which is also known as Female pattern hair loss (FPHL).[12] In SALT II scoring whole of the scalp is divided in hundred small segments, each representing a unit percentage. Addition of all the units with hair loss gives total score in percent hair loss. Norwood-Hamilton scale of male AGA has seven grades representing severity of hair loss. In addition, a vertex pattern and four A types are also described. Erich Ludwig in 1977 graded FPHL in three grades based on the rarefaction of hair over the crown of the scalp. The data thus obtained were compiled and entered in Excel. The analysis were performed for the frequency and percentages. The mean DLQI score was compared between different groups using Mann-Whitney U test. The Spearman's correlation was used to correlate the continuous and ordinal variables with the DLQI score. All analyses were performed by Statistical Package for Social Sciences (SPSS) V 25.

Results

A total of 142 patients were included in the final analysis which consisted of 79 (55.6%) males and 63 (44.4%) females. AA was diagnosed in 48 (33.8) patients whereas 94 (66.2%) had AGA. The mean age of the study population was 28.02±8.19 years (male 28.52±8.20, female 27.40±8.20). The mean total score was 8.16 (±6.126), indicating that the hair loss had moderate impairment on patient's quality of life. The score in each question and total score is shown below (Table 1). The reliability test for DLQI questionnaire for evaluating hair disorder was satisfactory with Cronbach's alpha of 0.83.

Looking at individual items, we found that the questions pertaining to embarrassment (50%), choice of clothes (41%) and social and leisure activities (34%) had higher impairment score and regarding the sexual difficulties had lowest score (5%). Females had significantly higher negative impact in overall assessment. Females were embarrassed more and their daily activities were more frequently interfered (Table 2). Patients with AGA had significant effect in their lives compared to patients with AA (p<0.001).

Table 2. Percent loss in QoL for each item and comparison of scores of each item between sexes and diagnoses.

Questions	Mean±SD (%)	Male mean	Female mean	Mann-Whitney U test (p value)	AA mean	AGA mean	Mann-Whitney U test (P value)
Q1 (Symptoms)	.77±.904 (25.66)	.63±.787	.94±1.014	.101	.42±.794	.95±.908	<.001
Q2 (Embarrassment/ self-conscious)	1.50±1.064 (50)	1.34±1.036	1.70±1.072	.046	1.31±1.095	1.60±1.040	.124
Q3 (Shopping/ household activities)	1.01±1.120 (33.66)	.80±1.079	1.27±1.125	.006	.69±.971	1.17±1.161	.017
Q4 (Clothes)	1.23±.1.159 (41)	1.10±1.069	1.40±1.251	.214	.90±1.016	1.40±1.194	.016
Q5 (Social/leisure activities)	1.04±1.051 (34.66)	.95±1.011	1.16±1.096	.261	.60±.893	1.27±1.059	<.001
Q6 (Sports)	.76±.914 (25.33)	.72±.891	.81±.948	.617	.67±.907	.81±.919	.322
Q7 (Work/Study)	.53±.987 (17.66)	.51±.998	.56±.980	.518	.35±.911	.62±1.017	.036

Q8 (Relationships)	.41±.755 (13.66)	.47±.830	.33±.648	.385	.23±.592	.50±.320	.023
Q9 (Sexual difficulties)	.15±.481 (5)	.19±.556	.11±.364	.522	.06±.320	.20±.540	.060
Q10 (Treatment)	.76±1.083 (25.33)	.66±.973	.89±1.109	.199	.42±.679	.94±1.144	.016
Total score	**8.16±6.126**	**7.37±6.258**	**9.16±5.854**	**.024**	**5.65±5.417**	**9.45±6.094**	**<.001**

Table 3. Percent loss in each sub-domain of DLQI and comparison of scores between sexes and diagnoses.

Sub-Domains of DLQI	Mean±SD (%)	Male Mean	Female Mean	Mann-Whitney U test (p value)	AA mean	AGA mean	Mann-Whitney U test (P value)
Symptoms and feelings	2.26±1.56 (37.66)	1.97±1.41	2.63±1.67	.014	1.72±1.46	2.54±1.54	.002
Daily activities	2.23±1.96 (37.16)	1.89±1.81	2.66±2.07	.028	1.58±1.69	2.57±2.01	.004
Leisure	1.80±1.66 (30)	1.67±1.60	1.96±1.74	.318	1.27±1.55	2.07±1.66	.002
Work and school	.52±.98 (17.33)	.50±.99	.55±.98	.518	.35±.91	.61±1.01	.036
Personal relationships	.56±1.04 (9.33)	.65±1.17	.44±.83	.338	.29±.82	.70±1.11	.009
Treatment	.76±1.03 (25.33)	.065±.97	.88±1.10	.119	.41±.67	.93±1.14	.016

The maximum impairment was found in the sub-domains of Symptoms and Feelings and Daily Activities (37%) and impairment in the aspects of Personal Relationships were found to be minimal (9.3%). When compared to males, females had higher impact in sub-domain 1 and 2 (Table 3). The comparison of the quality of life among AA patients and the AGA patients showed that the patients with AGA suffer significantly more than those with AA.

Table 4. Correlations between the total DLQI score and other variables of the study population.

Total score	Spearman's rho	P-value
Age	-.102	.225
Duration	.306	<.001
SALT score	.249	.088
AGA male grade	.202	.151
AGA female grade	-.301	.052

The total DLQI score was correlated with other patient parameters and was found that the longer duration of disease was significantly associated with greater impairment on QoL (rs=.306, p<.001). (Table 3)

Table 5. Comparison of the scores in dichotomous variables

Population characteristics		Number	Total DLQI score	Mann-Whitney test (P-value)
Education level attained	Below Bachelor's degree	13	7.69±5.588	.949
	Bachelor's degree and above	129	8.21±6.196	
Source of income	Present	64	7.62±6.816	.077
	Absent	78	8.60±5.502	
Type of AA	Recurrent	21	6.67±6.483	.550
	Primary	27	4.85±4.383	
Family history of alopecia	Present	70	9.84±5.820	<.001
	Absent	72	6.53±6.009	
Marital status	Married	60	7.43±5.907	.226
	Single	82	8.70±6.263	

The mean DLQI scores of different subgroups were compared and were found to be comparable, except that the presence of hair loss in other family members caused higher impairment in quality of life (Table 5).

Table 6. Summary of the DLQI score, age and duration in each of the two diagnoses compared between two sexes

	AA		P-value	AGA		P-value
	Male	Female		Male	Female	
Number	28	20		51	43	
DLQI score	4.79±4.541	6.85±6.377	.382	8.78±6.646	10.23±5.336	.068
Age mean (Years)	30.39±8.779	25.50±7.473	.047	27.49±7.768	28.28±8.455	.828
Duration mean (Months)	1.87±2.303	3.12±5.350	.772	42.64±48.311	31.67±24.295	.492

P-value after Mann-Whitney U test

The mean age of patients presenting with AA was found to be higher in males. The DLQI score of female patients with AGA was higher than that of males but the difference was not significant statistically (table 6).

Discussion

Hair is considered as a symbol of youth, vigor and beauty and untimely loss is associated with psychological impact which, in many, may be profound.5,6

In our study population, the mean DLQI score of 8.16 represented a moderate impairment in quality of life. AGA (9.45±6.09) patients were more severely affected than those with AA (5.65±5.41). In a similar study from China the mean score was 6.6. However, those with AA (8.16±7.56) had significantly higher impact as compared to AGA (5.51±5.03) in that study.13 The AA patients in our study had lower SALT score (Mean % 4.5±5.379), and this could be the reason for lower DLQI score. Similar scores (5.4±6.8) were also seen by Abedini et al.,14 with less than 25% alopecic area involvement.

Females are naturally more enamored with their hair and its loss either in patchy or diffuse form greatly troubles them. Similar inference was made with our finding of significantly high DLQI score in females than in males. Two different studies conducted in Chinese patients showed that females had a higher impairment in the QoL with mean scores of 10.23±5.336,13 and (8.94±5.65)15 which is similar to findings of our study. Women had higher impact in the two subdomains, namely Symptoms and Feelings and Daily Activities, when compared to males.

When the DLQI score was correlated with the other variables of the study population, only duration of the disease positively correlated with DLQI score in our study which was also found in study conducted in China. Longer duration had higher DLQI score in study by Zhang et al.,13 as well. Longer duration of disease, probably coupled with unsatisfactory outcome from the previous treatments might lead to greater impact in patient's life. Age, SALT score in AA, Hamilton grading in male AGA and Ludwig grade in female AGA and presence of recurrence were not correlated with the DLQI score.However, the negative rho in female AGA indicates higher impact with lower grade of the female AGA. Reid et al.,16 had also found that the clinical severity of hair loss did not correlate to the quality of life.

When the mean DLQI scores of the different subsets of the study population with educational level attained, employment status, recurrent or primary AA, family history, and marital status were compared, only the presence of family history seemed to cause greater psychological impact. Any first degree relative with hair loss similar to the patient would create negative perception about his/her hair loss in the patient.

Onset of AA seems to be earlier in females as compared to males. In both the disease conditions, females had a greater QoL impairment. Age and duration of the disease were similar in both sexes anddermatological conditions.

Conclusion

People with hair loss were significantly embarrassed or self-conscious about their problem. Patients with AGA had a greater impairment than patients with AA in our population. Similarly, females were affected more than males in the quality of life in both kinds of hair loss. People with longer disease duration had a greater impairment in quality of life as compared to a short duration.

Limitations

The DLQI instrument may not fully capture the multiple aspects of life pertaining to hair loss.

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