



The iceberg phenomenon of alopecia associated public health ramifications on the quality of life among adults in India

Vaibhav Kumar MDS, FRSPH^{1,2}  | Debraj Shome MD, FRCS (Glasgow), FACS, MBA³  |
Swarali Y. Atre BDS² | Aradhana Nagarsekar MDS⁴ | Ridhima Gaunkar MDS⁵ |
Rinky Kapoor MD⁶ | Komal Doshi MDS³

¹Clinical Research Coordinator, The Esthetic Clinics, Mumbai, India

²Department of Public Health Dentistry, Terna Dental College, Navi Mumbai, India

³Department of Facial Plastic Surgery and Facial Cosmetic Surgery, The Esthetic Clinics, Mumbai, India

⁴Department of Prosthodontics, Goa Dental College and Hospital, Goa, India

⁵Department of Public Health Dentistry, Goa Dental College and Hospital, Goa, India

⁶Department of Dermatology, Cosmetic Dermatology, and Dermato-Surgery, The Esthetic Clinics, Mumbai, India

Correspondence

Debraj Shome, MD, FRCS (Glasgow), FACS, MBA Facial Plastic and Facial Cosmetic Surgeon, Director, The Esthetic Clinics, Mumbai, India.
Email: debraj.shome@theestheticclinic.com

Abstract

Background: Psychosocial implications and effect on the quality of life of individuals due to alopecia are underestimated. This article aims at highlighting its public health ramifications by assessing the quality of life and various factors influencing it.

Methods: A descriptive cross-sectional study was conducted among 800 adult patients visiting four dermatological clinics in Mumbai, Delhi, Kolkata and Bangalore. Dermatology Life Quality Index (DLQI) scale and the Hair-Specific Skindex-29 (HSS-29) scale were used. Demographic characteristics affecting alopecia were noted and Hamilton–Norwood and Ludwig's classification was used for baldness classification in males and females respectively. SPSS software analyzed the data. Descriptive analysis through frequency distribution was calculated. χ^2 test was computed. Unpaired *t*-test compared the responses of males and females. *p*-values < 0.05 were considered significant.

Results: The mean DQLI score were 14.57 ± 4.15 in females and 13.15 ± 3.18 in males. The mean HSS-29 score for women (87.81 ± 15.65) was significantly more than for men (77.81 ± 13.28). The HSS-29 index is further categorized into three domains. The “symptom” domain score for women was 19.89 ± 4.13 as opposed to 13.34 ± 2.86 of males. The “function” domain was more in males (34.71 ± 7.31) than females (32.74 ± 3.45). Women (35.18 ± 3.17) scored higher than men (29.76 ± 8.83) in the “emotion” domain.

Conclusion: The psychosocial impact of alopecia was greater in women than men. The mental health relevance and public health concern of alopecia need to be recognized and an inter-disciplinary approach should be adopted for its resolution.

KEYWORDS

alopecia, depression, hair loss, psychological implications, quality of life, stress

1 | INTRODUCTION

Alopecia can tear one's life asunder. For centuries, hair has been perceived as the crown of glory symbolizing youth. Nearly every culture and society across the globe associate luscious healthy-looking hair with

beauty and good health. Though a physical phenomenon in itself, alopecia or hair loss can potentially have a psychological impact in the form of stress, anxiety, depression, loss of confidence, low esteem, suicidal ideation, and social phobia.¹ This was substantiated by the incidence reported in Madhurai, India wherein depression due to baldness had been the

reason behind an individual taking the grave step of putting an end to his life.²

Alopecia is prevalent and long-established in our society. Approximately 50% of men and women irrespective of their age are affected by it.³ It can be scarring or nonscarring type of alopecia occurring as a result of several factors such as physical, chemical, hormonal factors, auto-immune and inflammatory diseases, congenital diseases, infections, and neoplasms.⁴ Stress and anxiety are considered factors that trigger alopecia.⁵ Ironically, prior studies have also reported stress levels in patients with alopecia to be similar to those with patients suffering from chronic and severe life-threatening diseases.³ Consequently, these individuals are stuck in a vicious cycle of stress, anxiety, and hair loss.

The social and psychological significance of hair, especially scalp hair, is greater than its biological importance. It serves as an essential part of an individuals' "body image" which can be defined as the perception of esthetics or sexual attractiveness of one's own body. Several individuals associate scalp hair to their individuality and self-identity. Hair loss has the potential to turn every day of their life into a "bad hair day." Several studies have established an association between dermatological disorders affecting the mental health of the patients thereby increasing the prevalence of psychiatric disorders among them.^{6,7} A comparative study by Kacaret al.,⁸ has even reported self-stigmatization to be greater in patients with alopecia than those with mental disorders. A study evaluating the psychological features of men and women with androgenic alopecia found their personalities to be elusive. It was also noted that as a consequence of hair loss, men reportedly became more anxious or aggressive while more women suffered from depression due to hair loss affecting their physical appearance.⁹

The World Health Organization had taken cognizance of the "black dog" a metamorphic term coined for depression. Depression is frightening and debilitating but is largely preventable and treatable on timely recognizing it and seeking help.¹⁰ Several studies have emphasized the psychological impact of alopecia especially among women since they tend

to be more esthetic oriented.¹¹ Regardless of these, the influence of alopecia on the quality of life and mental health remains underestimated and unexplored. Several factors such as age, gender, the severity of hair loss, occupation, and marital status determine the psychological impact of alopecia.

On a thorough literature search, a dearth of articles was identified focusing on the assessment of the impact of alopecia on the quality of life for both men and women. Today, alopecia can be aptly depicted by the Iceberg Phenomenon in which the tip of the iceberg that is visible to the clinicians and general public constitute of only the symptoms of alopecia and thus, labeling it to be just an esthetic concern. However, what lies underneath the line of clinical horizon are its ramifications on the mental well-being and quality of life of the individual which remain unresolved (Figure 1).

The study attempts to highlight the public health ramifications of alopecia by assessing the quality of life amongst the adult population of India utilizing a standardized methodology while assessing various factors influencing it.

2 | METHODS

The current study following a descriptive cross-sectional study design was conducted in accordance with the STROBE guidelines issued for cross-sectional studies.¹² The duration of this study was of 3 months from January 2020 to March 2020. The approval for this study was obtained from the Institutional Review Board. It was conducted among the patients visiting the outpatient department at four dermatological clinics located in four geographically and culturally different cities of Mumbai, Kolkata, Bangalore, and Delhi in India. Ethics approval was taken from the Institutional Review Board and written informed consent was obtained from the participants of the study.

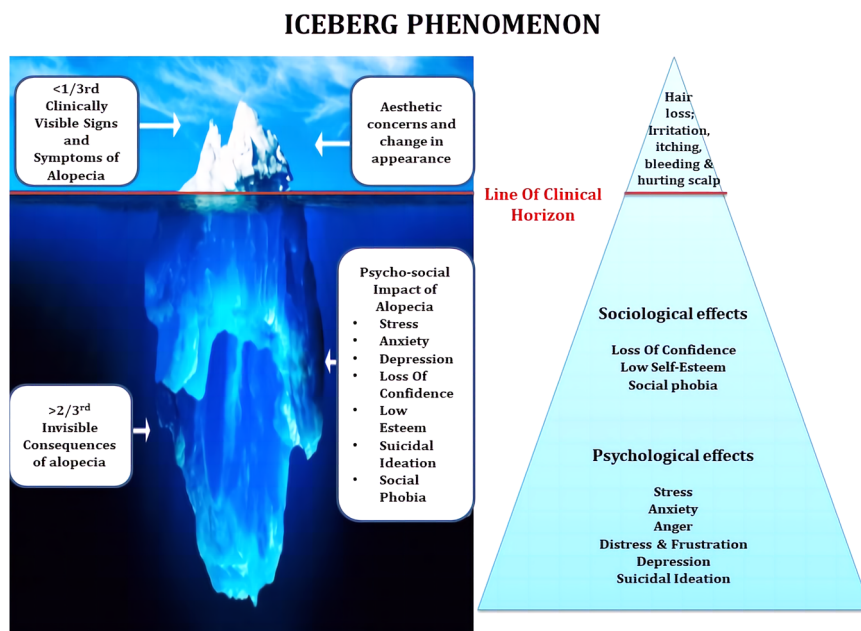


FIGURE 1 Iceberg phenomenon depicting the impact of alopecia

A pilot study was carried out among 30 patients to check for the flaws and feasibility of the study. On the basis of the pilot study, the sample size was determined via the G* Power statistic software to be 731 which was further rounded off to 800 and was calculated using the following formula:

$$n = z^2 pq / d^2 z = 1.96, \text{ at } 95\% \text{ confidence level;} \\ p = 63; q = 100 - p = 37; d = \text{allowable error} = 3.5\%.$$

Convenience sampling technique was employed to obtain the required sample. The inclusion criteria for the study was: (1) Male patients with male patterned baldness (classified according to Grade I–VII of the Hamilton–Norwood classification) and female patients suffering from female pattern baldness (classified using Ludwig's scale ranging from Stage I to III); (2) patients above 18 years of age; and (3) patients willing to participate in the study and ready to give written informed consent. The exclusion criteria were: (1) patients who were suffering from any dermatological disease other than alopecia and (2) patients who were unwilling to give an informed consent.

The study tools used to measure the quality of life were Dermatology Life Quality Index (DLQI) scale and the Hair-Specific Skindex-29 (HSS-29) scale which exhibit good content validity, internal consistency and test-retest reliability.^{13,14} The DLQI questionnaire was used to assess the problems related to hair and scalp in the past week and comprised of 10 close-ended questions with four alternative responses ranging from “not at all/not relevant” scored 0 to “very much” scored 3. The maximum score was 30 and minimum was 0. HSS-29 is a self-administered instrument that makes it possible to evaluate hair related quality of life (HRQOL) in patients with alopecia. It comprises of 29 close-ended questions divided into three domains: symptom (7 items), function (12 items), and the emotion domain (10 items) with each question having a response scale ranging from 1 (never) to 5 (all the time). The score for each domain is obtained by converting the sum of all the responses into a linear scale ranging from 29 (HRQOL showed no effect) to 145 (HRQOL had maximum effect). The scores obtained from both the scales were used for calculating the mean scores in males and females. For convenient representation and description, these responses were tabulated after segregating them into “Yes” and “No.” In the DLQI questionnaire, responses of “not at all” and “not relevant” were categorized under “No” while “very much,” “a lot,” and “a little” were categorized under “Yes.” Similarly, responses of “never” and “rarely” in the HSS-29 questionnaire were included into “No” while “Sometimes,” “Often,” and “All the time” were considered as “Yes.”

The data obtained from these questionnaires was coded and entered into Statistical Package for Social Sciences (SPSS) (SPSS Inc, version 17, IBM) software.¹⁵ Normality of the data was assessed before analysis using Shapiro–Wilk's test. A priori analysis was carried out setting α at 5% and β at 20%. Thus, the power of the study ($1 - \beta$) is 80%. Descriptive analysis through frequency distribution was calculated and χ^2 test was applied. Unpaired *t*-test was

computed to compare the responses of males and females. *p*-values of less than 0.05 were considered significant.

3 | RESULTS

Eight hundred patients responded to the study, out of which 442 were males and 358 were females. Their demographic characteristics are specified in Table 1. On the basis of Hamilton–Norwood's classification, the most common type of hair loss in males is Grade 3 followed by Grade 2 whereas the in women the most common type of hair loss was Type I according to Ludwig's classification. Both these values were found to be statistically significant with $p = 0.025$ and $p = 0.032$, respectively (Table 2).

The mean DQLI score for females is 14.57 ± 4.15 and for males is 13.15 ± 3.18 which was found to be statistically significant (0.015). The mean HSS-29 score for women (87.81 ± 15.65) was more than men (77.81 ± 13.28) which was found to be statistically significant ($p < 0.0001$). The HSS-29 index is further categorized into three domains. The “symptom” domain score for women was 19.89 ± 4.13 as opposed to 13.34 ± 2.86 of males. The “function” domain was more in males (34.71 ± 7.31) than females (32.74 ± 3.45). Women (35.18 ± 3.17) scored higher than men (29.76 ± 8.83) in the “emotion” domain (Table 3).

Table 4 depicts the responses of male and female participants to various questions of the DQLI. On overall, alopecia affected the daily life of females more than males as in terms of them feeling more embarrassed and alopecia interfering with their work and personal relationships. According to Table 4, in the majority of patients symptoms of alopecia were absent. The social life, sex life, and overall quality of life were compromised in the majority of the respondents both males and females with females being affected more than men.

4 | DISCUSSION

The loss of hair including thinning, loss of volume or and baldness has a profound effect on the psychological and social sphere of one's life since our society has set stereotypical standards around an individual's beauty and outward appearance it can unduly affect their self-esteem, emotional capacity and mental well-being. Upon thorough literature search, several studies acknowledged, alopecia to be the leading cause of psychiatric issues.

Korabel et al.⁶ in their study have stated 30%–60% of dermatological patients suffer from some sort of psychiatric disorder. Koo et al.⁷ too found a higher prevalence of psychiatric disorders in patients with alopecia when compared with the general population.

Schmitt et al.¹¹ reported the perception of alopecia to be independently associated with a greater prevalence of symptoms of depression, primarily in adult women up to the fifth decade of life while also stressing upon the fact that to ascertain the association

TABLE 1 Sociodemographic characteristics of study participants

Sr. No.	Demographic variables	Males n = 442 (%)	Females n = 358 (%)	Total N = 800 (%)	p-value
1.	Age (in years)				
	18–20	76 (9.5)	24 (6.6)	100 (12.5)	0.079
	21–30	169 (21.1)	167 (20.9)	336 (42)	
	31–40	98 (12.3)	82 (10.2)	180 (22.5)	
	41–50	75 (9.4)	73 (9.1)	148 (18.5)	
	Above 50	24 (3)	12 (1.5)	36 (4.5)	
2.	Marital status				
	Married	173 (21.6)	175 (21.9)	348 (43.5)	0.035*
	Unmarried	269 (33.6)	183 (22.9)	452 (56.5)	
3.	Urban/rural				
	Urban	276 (34.5)	308 (38.5)	584 (73)	0.033*
	Rural	166 (20.8)	50 (6.2)	216 (27)	
4.	Level of education				
	Professional degree	26 (3.2)	33 (4.1)	59 (7.3)	0.085
	Graduate/post-graduate	112 (14)	116 (14.5)	228 (28.5)	
	Intermediate/post high school diploma	276 (34.5)	167 (20.9)	443 (55.4)	
	High school certificate	22 (2.8)	35 (4.3)	57 (7.1)	
	Middle school certificate	0 (0)	2 (0.3)	2 (0.3)	
	Primary school certificate	6 (0.8)	2 (0.2)	8 (1)	
	Illiterate	0 (0)	3 (0.4)	3 (0.4)	
5.	Occupation				
	Professional	59 (7.4)	48 (6)	107 (13.4)	0.085
	Semi-Professional	198 (24.7)	95 (11.9)	293 (36.6)	
	Clerical/Shop/Farm	87 (10.9)	68 (8.5)	155 (19.4)	
	Skilled worker	46 (5.7)	10 (1.3)	56 (7)	
	Semi-skilled worker	1 (0.1)	2 (0.3)	3 (0.4)	
	Unskilled worker	0 (0)	0 (0)	0 (0)	
	Unemployed	51 (6.4)	135 (16.8)	186 (23.2)	
6.	Socioeconomic status [#]				
	I – Upper	87 (10.9)	81 (10.1)	168 (21)	0.022*
	II – Upper Middle	134 (16.7)	110 (13.8)	244 (30.5)	
	III – Lower Middle	121 (15.1)	55 (6.9)	176 (22)	
	IV – Upper Lower	94 (11.7)	106 (13.3)	200 (25)	
	V – Lower	6 (0.75)	6(0.75)	12 (1.5)	
7.	Duration of hair fall (in years)				
	0–5	275 (34.4)	221 (27.6)	496 (62)	0.030
	5–10	113 (14.1)	107 (13.4)	220 (27.5)	
	10–15	42 (5.2)	18(2.3)	60 (7.5)	
	15–20	12 (1.5)	12 (1.5)	24 (3)	

TABLE 1 (Continued)

Sr. No.	Demographic variables	Males n = 442 (%)	Females n = 358 (%)	Total N = 800 (%)	p-value
8.	Family history of alopecia				0.001
	Negative	185 (23.1)	143 (17.9)	328 (41)	
	Positive	257 (32.1)	215 (26.9)	472 (59)	
9.	History of alcohol consumption				0.074
	Present	178 (22.3)	90 (11.2)	268 (33.5)	
	Absent	264 (33)	268 (33.5)	532 (66.5)	

#Kuppuswamy Socioeconomic Scale 2020.

*Indicates Statistical Significance ($p < 0.05$).

TABLE 2 Grades and type of hair loss

Grades of hair loss	Age groups (in years)					Total N (%)	p-value*
	18–20 n	21–30 n	31–40 n	41–50 n	>50 n		
Grade 1	14	6	1	0	1	22 (2.8)	0.025
Grade 2	30	21	0	0	0	51 (6.4)	
Grade 2a	8	37	0	0	0	45 (5.6)	
Grade 3	4	32	4	21	7	68 (8.5)	
Grade 3a	4	40	9	15	6	74 (9.2)	
Grade 3 Vertex	7	19	38	12	3	79 (9.9)	
Grade 4	0	5	22	11	0	38 (4.8)	
Grade 4a	1	0	9	0	3	13 (1.6)	
Grade 5	3	2	7	6	1	19 (2.4)	
Grade 5a	5	1	6	2	0	14 (1.8)	
Grade 6	0	6	0	0	0	6 (0.7)	
Grade 7	0	0	2	8	3	13 (1.6)	
Total N (%)	76 (9.5)	169 (21.1)	98 (12.3)	75 (9.4)	24 (3)	442 (55.3)	
Type of hair loss							
Type 1	17	114	41	55	4	231 (28.8)	0.032
Type 2	5	52	38	18	7	120 (15)	
Type 3	2	1	3	0	1	7 (0.9)	
Total N (%)	24 (3)	167 (20.9)	82 (10.2)	73 (9.1)	12 (1.5)	358 (44.7)	

* χ^2 test applied, $p < 0.05$ is statistically significant.

between these observations a specific study design and a larger sample size would be more adequate. As reported in a study by Hunt et al.,¹⁶ the public health and mental health relevance of alopecia remains to be unexplored and underrated and the impact of alopecia on a married woman's life was significant.

Hair loss is associated with youth, men suffering from hair loss are often concerned about looking older and are more dissatisfied with their appearance than those who do not suffer from alopecia as reported by Girman et al.¹⁷ Though often mistaken to be primarily a

male disease, women are equally affected by it with devastating consequences in their day-to-day life. The American Hair Loss Association has even recognized it as a serious life-altering condition that can no longer be ignored by the medical community and society especially in women.¹⁸ Balding or thinning hair can be more traumatic for women in a society and culture where a bald man may be socially acceptable but a bald woman is not with her hair being symbolic of her femininity. In a study by Hunt and McHale,¹⁹ 40% of women had marital problems and 63% had career-related problems as a

TABLE 3 DQLI and HSS 29 score

Score	Gender	Mean \pm SD	Median	Maximum	Minimum	Range	<i>p</i> -value*
DQLI	Male	14.57 \pm 4.15	14.00	24	15	9	0.015*
	Female	13.15 \pm 3.18	13.00	22	7	15	
HSS-29 score	Male	77.81 \pm 13.28	76	125	56	69	<0.0001*
	Female	87.81 \pm 15.65	86	114	49	65	
Symptom	Male	13.34 \pm 2.86	13	23	10	13	<0.0001*
	Female	19.89 \pm 4.13	22	31	7	24	
Function	Male	34.71 \pm 7.31	35	42	20	22	<0.0001*
	Female	32.74 \pm 3.45	32	47	15	32	
Emotion	Male	29.76 \pm 8.83	30	38	25	13	<0.0001*
	Female	35.18 \pm 3.17	35	46	20	26	

Abbreviations: DLQI, Dermatology Life Quality Index; HSS 29, Hair-Specific Skindex-29.

*Unpaired t-test applied, *p* < 0.05 is statistically significant.

consequence of alopecia. A previous study conducted by Gupta et al.²⁰ assessed the quality of life of patients with androgenic alopecia (AA) reporting a DLQI mean score of 13.52 \pm 3.15 and HSS-29 mean score of 75.62 \pm 13.78. Another study by Bade²¹ conducted among male patients with AA observed an HSS-29 mean score of 83.05 \pm 15.68 and DQLI of 13.5 \pm 4.4. The HSS-29 obtained in the current study is in contrast with their findings²¹ but similar to a study conducted by Bade et al. Another study corroborating the increasingly felt need to conceal or treat alopecia is the study carried out by Montgomery et al.²² among patients with alopecia reporting 46% opting to wear wigs to conceal their hair loss. The study also noted the negative impacts of wearing wigs to be the constant worry of people noticing the artificial hair or the wig falling off.²²

In spite of prior studies having proven psycho-social ramifications of alopecia, the health professionals seem to be not completely aware of the potential impact of hair loss on the patient's quality of life.²³⁻²⁶ The studies so quoted have findings in congruence to the current study, wherein the women reported statistically significant higher mean DQLI (14.57 \pm 4.15 > 13.15 \pm 3.18) and HSS-29 (87.81 \pm 15.65 > 77.81 \pm 13.28) scores than men. They were also emotionally more impacted than men with the majority of them feeling ashamed, embarrassed, frustrated, humiliated, or annoyed due to their alopecia and the HSS-29 mean scores for "emotion" domain being 35.18 \pm 3.17 as compared with 29.76 \pm 8.83 of men.

The current study reported alopecia interfering with the sex life of 72% women as compared with 63% men. For 73% of women as compared with 61% of men alopecia posed a problem for the people they love. Alopecia, however, took a toll on the professional life of both men as well as women. The current study has been conducted only among patients of AA as opposed to the current study focusing on alopecia in general. There is increased and perpetual influence of social media, fashion, public image, and strive for achieving the set beauty standards in the recent years which could have evoked feelings of insecurity and self-deprecation among patients of alopecia. The majority of the participants

preferring to stay home (71% females and 63% males) and blaming alopecia for having affected their social life (88% females and 81% males) is indicative of the influence of these factors.^{27,28}

A link between genetic and hereditary characteristics and hair loss has been established in previously conducted twin studies. Similar to the findings of Bade²¹ (51%), the present study too noted a positive familial history of alopecia in the majority of the participants (59%). A noteworthy finding has been the diverse socioeconomic status, age groups, and education of the respondents. This is indicative of the increased awareness and felt need for the treatment of alopecia among all strata of the population.

Since the current study design is cross-sectional in nature, it may be innately subjected to response-related bias. Since the people's self-perception may vary and their outlook towards Alopecia and its impact on their emotional and social well-being could differ in the extent of severity the study may also face social desirability bias, considering that the study is primarily subjective.

With alopecia being labeled as a "Cosmetic Concern" and having not recognized its implications on mental health and quality of life, the treatment modalities so available seem restricted in terms of sensitivity and economy.²⁹⁻³⁰ In several countries, including India, getting hairloss treatment or seeking cure for alopecia is still considered as an 'elective procedure', with a considerable surcharge (such as Goods and Services tax) levied by the government on such treatments/procedures. Untreated alopecia can be reminiscent of past distress related episodes - chemotherapy induced alopecia as well as alopecia secondary to Poly Cystic Ovarian Syndrome.³¹⁻³²

What is not on the head, i.e. hair, cascades into affecting what is there inside the head - confidence, body image and self-esteem. Governments across the globe should have a compassionate and empathetic stance towards this construct; and the first step towards this would be classifying those with hair loss as patients and not as consumers, which would inturn organically annihilate the levying of these taxes on non-surgical and surgical alopecia related treatments.

TABLE 4 DQLI questions and symptoms of alopecia

Sr. no.	Questions	Responses of females n = 358 (%)		Responses of males n = 442 (%)	
		Yes	No	Yes	No
1	Over the last week, how itchy, sore, painful, or stinging has your skin been?	42	58	47	53
2	Over the last week, how embarrassed or self-conscious have you been because of your skin?	64	36	61	39
3	Over the last week, how much has your skin interfered with you going shopping or looking after your home or garden?	37	63	33	67
4	Over the last week, how much has your skin influenced the clothes you wear?	12	88	7	93
5	Over the last week, how much has your skin interfered your social or leisure activities?	57	43	55	45
6	Over the last week, how much has your skin made it difficult to do any sports?	23	77	34	66
7	Over the last week, has your skin prevented you from working or studying?	54	56	52	48
8	Over the last week, how much has your skin created problems with your partner or close friends or relatives?	48	52	45	55
9	Over the last week, how much has your skin caused any sexual difficulties?	61	39	47	53
10	Over the last week, how much of a problem has the treatment of your skin been for example making your home messy or taking up time?	58	42	55	45
Symptoms of alopecia					
1.	My scalp hurts	32	68	33	67
2.	My alopecia affects how well I sleep	14	86	18	82
3.	I worry that my alopecia may be serious	59	41	61	39
4.	My alopecia makes it hard to work or do hobbies	54	46	56	44
5.	My alopecia affects my social life	88	12	81	19
6.	My alopecia makes me feel depressed	69	31	67	33
7.	My scalp burns or stings	23	77	28	72
8.	I tend to stay at home because of my alopecia	71	29	63	37
9.	I worry about getting scars because of my alopecia	42	58	40	60
10.	My scalp itches	38	62	41	59
11.	My alopecia affects how close I can be with those I love	65	35	64	36
12.	I am ashamed of my alopecia	84	16	62	38
13.	I worry that my alopecia may get worse	76	24	75	25
14.	I tend to do things by myself because of my alopecia	45	55	50	50
15.	I am angry about my alopecia	51	49	52	48
16.	Water bothers my scalp (bathing, washing hands)	33	67	28	72
17.	My alopecia makes showing affection difficult	57	43	41	59
18.	My scalp is irritated	27	73	24	76
19.	My alopecia affects my interactions with others	52	48	54	46
20.	I am embarrassed by my alopecia	69	31	66	44
21.	My alopecia is a problem for the people I love	73	27	61	39
22.	I am frustrated by my alopecia	80	20	62	38
23.	My scalp is sensitive	6	94	11	89

(Continues)

TABLE 4 (Continued)

Sr. no.	Questions	Responses of females n = 358 (%)		Responses of males n = 442 (%)	
		Yes	No	Yes	No
24.	My alopecia affects my desire to be with people	58	42	62	38
25.	I am humiliated by my alopecia	74	26	66	34
26.	My scalp bleeds	4	95	2	98
27.	I am annoyed by my alopecia	89	11	71	29
28.	My alopecia interferes with my sex life	72	28	63	37
29.	My alopecia makes me tired	44	66	37	63

It is the need of the hour to recognize the gravity of this issue of alopecia grappling a large population across the globe to stimulate necessary private, public, and government initiatives towards awareness about its psycho-social impact and mental wellness.

5 | CONCLUSION

Interdisciplinary approach needs to be adopted to ensure equitable and affordable treatment of these patients suffering from alopecia and related mental disorders. The current study is unparalleled as it compares the perceptions of males and females with a multifactorial approach to alopecia.

ACKNOWLEDGMENT

The research is not supported by any grant. None of the authors have a financial interest in any of the products, devices, or drugs mentioned in this article.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

AUTHOR CONTRIBUTIONS

Vaibhav Kumar and Debraj Shome conceptualized the idea and implemented the research. Swarali Y. Atre, Vaibhav Kumar, and Aradhana Nagarsekar contributed to the research project: execution and manuscript development: review and critique. Ridhima Gaunkar statistically analyzed the data. Komal Doshi, Rinky Kapoor, and Vaibhav Kumar wrote the draft. All the authors have read and approved the final manuscript.

ORCID

Vaibhav Kumar  <https://orcid.org/0000-0003-2166-1740>

Debraj Shome  <https://orcid.org/0000-0003-2163-1170>

REFERENCES

- Cash TF. The psychology of hair loss and its implications for patient care. *Clin Dermatol*. 2001;19(2):161-166. doi:10.1016/S0738-081X(00)00127-9
- Veerappan D. Techie commits suicide in Madurai due to 'hair fall problem' | Madurai News - Times of India. The Times of India. Published 2018. Accessed January 6, 2021. <https://timesofindia.indiatimes.com/city/madurai/techie-commits-suicide-in-madurai-due-to-hair-fall-problem/articleshow/62325039.cms>
- Gokalp H. Psychosocial aspects of hair loss. *Hair and Scalp Disorders*. InTech Open; 2017. doi:10.5772/66156
- Mounsey A, Reed S. Diagnosing and treating hair loss. *Am Fam Physician*. 2009;80:356-362.
- Cartwright T, Endean N, Porter A. Illness perceptions, coping and quality of life in patients with alopecia. *Br J Dermatol*. 2009;160(5):1034-1039. doi:10.1111/j.1365-2133.2008.09014.x
- Korabel H, Dudek D, Jaworek A, Wojas-Pelc A. Psychodermatology: psychological and psychiatric aspects of aspects of dermatology. *Przegl Lek*. 2008;65(244):248.
- Koo JYM, Shellow WVR, Hallman CP, Edwards JE. Alopecia areata and increased prevalence of psychiatric disorders. *Int J Dermatol*. 1994;33:849-850. doi:10.1111/j.1365-4362.1994.tb01018.x
- Kacar SD, Soyucok, Ethem Bagcioglu E, et al. The perceived stigma in patients with alopecia and mental disorder: a comparative study. *Int J Trichology*. 2016;8(3):135-140.
- Camacho F, García-Hernández M. Psychological features of androgenetic alopecia. *J Eur Acad Dermatol Venereol*. 2002;16(5):476-480.
- World Health Organization (WHO). I Had a Black Dog, His Name Was Depression [Video]. 2012. Accessed January 12, 2021. <https://www.youtube.com/watch?v=XiCrnlQGYc%26feature=youtu.be>
- Schmitt JV, Ribeiro CF, Souza FH, de M, de, Siqueira EBD, Bebbler FRL. Hair loss perception and symptoms of depression in female outpatients attending a general dermatology clinic. *An Bras Dermatol*. 2012;87(3):412-417. doi:10.1590/s0365-05962012000300010
- Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *J Clin Epidemiol*. 2008;61(4):344-349. doi:10.1097/EDE.0b013e3181577654
- Guerra-Tapia A, Buendía-Eisman A, Ferrando J. Validation of a cross-cultural adaptation of the Hair Specific Skindex-29 Scale to Spanish. *Actas Dermosifiliogr*. 2018;109(5):424-431. doi:10.1016/j.adengl.2018.04.013
- FINLAY AY, KHAN GK. Dermatology Life Quality Index (DLQI): a simple practical measure for routine clinical use. *Clin Exp Dermatol*. 1994;19(3):210-216. doi:10.1111/j.1365-2230.1994.tb01167.x
- SPSS Inc. SPSS Statistics for Windows. Published online, 2017.
- Hunt N, McHale S. The psychological impact of alopecia. *BMJ*. 2007; 20(6):362-364.

17. Girman CJ, Rhodes T, Lilly FR, et al. Effects of self-perceived hair loss in a community sample of men. *Dermatology*. 1998;197:223-229. doi:10.1159/000018001
18. Association American Hair Loss. Women's Hair Loss. American Hair Loss Association. Accessed January 8, 2021. https://www.americanhairloss.org/women_hair_loss/introduction.html
19. Hunt N, McHale S. Understanding alopecia. *Sheldon*. 2004.
20. Gupta S, Goyal I, Mahendra A. Quality of life assessment in patients with androgenetic alopecia. *Int J Trichology*. 2019;11(4):147-152. doi:10.4103/ijt.ijt_6_19
21. Bade DR. Impact of androgenic alopecia on the quality of life in male subjects: results of an observational study from tertiary care hospital. *J Med Sci Clin Res*. 2016;04(10):12900-12907. doi:10.18535/jmscr/v4i10.05
22. Montgomery K, White C, Thompson A. A mixed-methods survey of social anxiety, anxiety, depression, and wig use in alopecia. *BMJ Open*. 2017;7(4):1-6. doi:10.1136/bmjopen-2016-015468
23. Gordon KA, Tosti A. Alopecia: evaluation and treatment. *Clin Cosmet Investig Dermatol*. 2011;4:101-106. doi:10.2147/ccid.s10182
24. Kapoor R, Shome D. Intradermal injections of a hair growth factor formulation for enhancement of human hair regrowth – safety and efficacy evaluation in a first-in-man pilot clinical study. *J Cosmet Laser Ther*. 2018;20:369-379.
25. Kapoor R, Shome D, Vadera S, Ram S. QR678 & QR678 Neo Vs PRP. A randomized, comparative, prospective study. *J Cosmet Dermatol*. 2020;19:1-9.
26. Shome D, Kapoor R, Vadera S, Doshi K, Patel G, Khan M. Evaluation of efficacy of intradermal injection therapy vs derma roller application for administration of QR678 Neo® hair regrowth formulation in the treatment of androgenetic alopecia – A prospective study. *J Cosmet Dermatol*. 2021;20:1-9.
27. Shome D, Kapoor R, Doshi K, Patel G, Vadera S, Kumar V. Effectiveness of QR678 Neo® with intralesional corticosteroid Vs intralesional corticosteroid alone in the treatment of alopecia areata – A randomized, comparative, prospective study. *J Cosmet Dermatol*. 2022;21:358-367.
28. Clinic A, Asper A, Mittal A. Evaluation of the safety and effectiveness of intradermal administration of QR678 Neo® hair growth factor formulation: A phase-IV, open-label, single-arm multi ethnicity clinical trial. *J Cosmet Dermatol*. 2021;1-10.
29. Shome D, Kapoor R, Doshi K, Patel G, Vadera S, Kumar V. QR 678® vs QR678® with 5% Minoxidil solution and oral Finasteride in the treatment of male androgenetic alopecia – A randomized, comparative, Prospective study. *J Cosmet Dermatol*. 2021;19:1-3.
30. Shome D, Kapoor R, Surana M, Vadera S, Shah R. Efficacy of QR678 Neo® hair growth factor formulation for the treatment of hair loss in Covid-19-induced persistent Telogen Effluvium—A prospective, clinical, single-blind study. *J Cosmet Dermatol*. 2021;00:1-8.
31. Kapoor R, Shome D, Doshi K, Patel G, Vadera S. Evaluation of efficacy of QR 678 and QR678 Neo hair growth factor formulation for the treatment of female pattern alopecia in patients with PCOS—A prospective study. *J Cosmet Dermatol*. 2020;19:1-10.
32. Kapoor R, Shome D, Doshi K, Vadera S, Patel G, Kumar V. Evaluation of efficacy of QR678® and QR678® Neo hair growth factor formulation in the treatment of persistent chemotherapy-induced alopecia caused due to cytotoxic chemotherapy—A prospective pilot study. *J Cosmet Dermatol*. 2020;19:1-10.

How to cite this article: Kumar V, Shome D, Atre SY, et al. The iceberg phenomenon of alopecia associated public health ramifications on the quality of life among adults in India. *Dermatological Reviews*. 2022;1-9. doi:10.1002/der2.109