

STRESS RELATED HAIRLOSS IN MEDICAL STUDENTS

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ABSTRACT:

BACKGROUND: Stress is a psychological and physical disorder involving the feeling of incompetence, anger, uselessness and guilt.^[1] Hair has potent importance in feminine personality.^[2] Stress induces adaptive immunity leading to cytokines imbalance increasing the apoptosis of epithelial cell of hair.

OBJECTIVE: The objective of our study was to evaluate hair loss among medical students and its relationship to stress.

MATERIAL AND METHODS:

STUDY DESIGN: Cross sectional study

STUDY SETTING AND DURATION: 3 months, April 2017-June 2017

INCLUSION CRITERIA: All medical students of either gender of Allama Iqbal Medical College.

DATA COLLECTION AND ANALYSIS: The participants of our study were MBBS students of AIMC from all the five years. To form a representative sample of 300 our team approached 60 students from each class. The participants responded to the questionnaire based on two sections. Section I showed the level of hair loss and its relation to various factors. Section II of the questionnaire was based on perceived stress scale (0 = Never to 4 very often). Out of total score of 24, subjects with PSS scores ranging from 0-13 were considered low stress, score ranging from 14-26 were considered moderate stress and scores ranging from 27-40 were considered high perceived stress. Using SPSS version 23.0, we calculated the frequencies of type of hair loss, pattern of hair loss, duration of hair loss and stress. Then we compared the frequencies of hair loss and stress, applied chi square test.

RESULTS: Out of 300 students 257 students (85.67%) experienced hair loss while 43 students (14.33%) did not experience hair loss. Out of these 257 students 75 (25%) experienced mild hair loss, 146 (48.7%) experienced moderate hair loss whereas 36 (12%) experienced extreme hair loss. Cross tabulating the stress grade with hair loss showed that majority of hair fall victims had moderate to severe stress ($P < 0.05$).

CONCLUSIONS: The conclusion of my study was that hair fall is common among students of Allama Iqbal Medical College and there is significant association between stress and hair loss.

KEY WORDS: Hair loss, medical students, stress

INTRODUCTION:

Stress is a psychological and physical disorder involving the feeling of incompetence, anger, uselessness and guilt.^[1] Hair has potent importance in feminine personality.^[2] Stress induces adaptive immunity leading to cytokines imbalance increasing the apoptosis of epithelial cell of hair.^[3] Hair cycle is altered by chronic restraint stress inhibiting hair follicle growth.^[4]

According to NIH (correlation of cortisol with human hair) the association between hair cortisol concentration and perceived stress scale (PSS) score was positive.^[5] In physiological stress, well established biomarker

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is cortisol.^[6] In a study on 40 German student subjects who stated that they had experienced a significant mental burden had higher hair cortisol concentration than students who did not.^[7] Stress is common among students of higher education but is more prevalent among those getting professional education.^[8] Major cause of stress in public sector medical college was academic stress.^[9] According to an Arabic study prevalence of stress was highest among first year students (78.7%) followed by second year (70.8%) third year (68%) fourth year (43.2%) and final year (48.3%).^[10] Principal stressors are related to medical training rather than to personal problems.^[11] Female students are more likely to experience stress.^[12] A questioner on psychological stress revealed that 2/3 of 45 participants thought that stress, primarily emotional distress was influencing the manifestation and course of alopecia areata.^[13] According to psychodermatological study patients had worse form of alopecia areata i.e. Alopecia universalis provided a correlation of AA to stress in general.^[14] According to study on students during summer break and fall term students experience psychological stress when classes are in session.^[15] It has also been reported that grading scale categories lead to higher level of stress in students.^[16] According to comparative study of stress among students of medicine, engineering and nursing alopecia areata (partial loss of body hair) or alopecia universalis can also result from stress.^[17] Stressors might lead directly to hair loss or indirectly by stimulating abnormal behavior of hair plucking.^[18] On studying stress among students of university sultan Zain Al Abidine, majority of students who responded had teaching and learning as source of stress due to attending too many lectures every day.^[19] Stress also plays a major role in recurrence of hair fall attack and also could be major cause of primary hair fall.^[20]

OBJECTIVES:

The objective of our study is:

- To evaluate the incidence of hair loss among medical students and its relationship to stress.

MATERIAL AND METHODS:

STUDY DESIGN: Cross sectional study

STUDY SETTING: Allama Iqbal medical college, Lahore.

DURATION OF STUDY: Three months from April 2017 to June 2017.

SAMPLE SIZE: 300 (60 from each year)

SAMPLING TECHNIQUE: Non- probability convenient sampling.

SAMPLE SELECTION:

Inclusion criteria: All medical students of either gender of AIMC.

Exclusion criteria: Students who were not willing to fill the questionnaire.

DATA COLLECTION PROCEDURE:

The participants of our study were MBBS students of AIMC from all the five years. To form a representative sample of 300, our team approached 60 students from each class. Criteria was to take 40 females (66%) and 20 males (33%) from each class after giving the formal consent. The participants responded to the questionnaire based on two sections. Section I showed the level of hair loss and its relation to various factors. Section II of the questionnaire was based on perceived stress scale (0 = never to 4 very often). Out of total score of 40, subjects with PSS scores ranging from 0-13 were considered low stress, score ranging from 14-26 were considered moderate stress and scores ranging from 27-40 were considered high perceived stress.

DATA ANALYSIS PROCEDURE:

The study aimed at analyzing if academic stress is the cause of hair loss keeping into consideration the confounding factors, gender and year of study. Using SPSS version 23.0 we calculated the frequencies of type of hair loss, pattern of hair loss, duration of hair loss and stress. Then we compared the frequencies of hair loss and stress, applied chi square test.

RESULTS:

A study conducted on medical students of Allama Iqbal Medical College regarding the assessment of hair loss in relation to stress due

to academic burden. A total of 300 students participated in the study. We took 60 students from each year in which 40 (66%) were females and 20 (33%) were males mean age was 20.99 ± 1.847 years, mean stress score was 22.04 ± 4.254 and mean years of medical study was 3 ± 1.417 years (Table : 1).

Perceived stress score showed 127 (42.3%) had mild to moderate stress (score 0-20) and 173 (57.7%) had moderate to severe stress (score 21- 40). Of 300 students 257 students (85.67%) experienced hair loss while 43 students (14.33%) did not experience hair loss. (Table 2). Out of these 257 students 75 (25%) experienced mild hair loss, 146 (48.7%) experienced moderate hair loss whereas 36 (12%) experienced extreme hair loss. The majority of the students 112 (37.3%) responded that their hair broke off and 143 (47.7%) responded as loss of hair from root while only 21(7%) experienced both. Depending on pattern of hair loss 217 (72%) students had diffuse whereas 40(13%) students had patchy hair loss. In 121 students

hair loss was continuous throughout the year while in 136 students it increased with factors like stress (51%), environmental changes (30%), excessive styling (5%). Using chi square test no significant difference was seen in frequencies of hair fall on level of stress ($P = 0.750$).

Stress grades were also compared with the hair loss in two genders. 75% of the males showed positive association between stress and hair loss, whereas females showed 91% association. (Table 3) After scoring the perceived stress scale 14% of the first year and 12% of third year medical students lie in category of severe stress which was higher as compared to other years. Likewise, the rate of hair fall was also high in these years i.e. 50 out of 60 students in first year and 52 out of 60 students in second year. Habit of hair plucking was seen only in 13.9 % of the students out of which only 2.9 % do so under stress .Increase in the level of hair loss after entering the professional education is found in 45.8% of the medical students.

Table 1

	N	Mean	Std. Deviation
Age	300	20.9933	± 1.84698
Years of medical study	300	3.0000	± 1.41658
Total stress score	300	22.0433	± 4.25383

Table 2 Have you ever experienced hair loss * Perceived Stress Scale Cross tabulation

Have you ever experienced hair loss	Degree of stress			
	Mild stress	Moderate stress	Severe stress	Total
No hair loss	2 4.7%	35 81.4%	6 14.0%	43 100%
Yes	3 1.2%	215 83.7%	39 15.2%	257 100%
Total	5	250	45	300

Chi-Square Tests

	Value	P-Value
Pearson Chi-Square	2.742	0.254

Cross tabulation: Have you ever experienced hair loss * Gender

Have you ever Experienced hair loss	Gender		
	Male	Female	Total
No hair loss	25 58.1%	18 41.9%	43 100%
Yes	75 29.2%	182 70.8%	257 100%
Total	100	200	300

Chi-Square Tests

	Value	P-Value
Pearson Chi-Square	13.899	0.000

DISCUSSION:

Our study explored the prevalence of hair loss among medical students. According to this study majority of medical students experienced hair loss. This problem was seen in both male as well as in female medical students. But it was more common among female medical students which is also in accordance with the study of Wali H and Ghazal H.^[2]

Taking together the two studies on health effects of chronic stress and our Study showed the same results that stress is major causative agent of hair loss.^[4,5]

Our study showed that majority of student who experienced hair loss also had stress. To determine the level of their stress we used Perceived stress scale (PSS) which proved that a major number of students with problem of hair loss also had moderate to severe stress. This finding was also proved in a study on hair loss and hypothalamic pituitary axis.^[18]

According to comparative study of stress among the students of medicine, engineering, and nursing, stress can lead to complete and partial hair loss, that was also seen in our study. Seventy two percent of them suffered from diffuse whereas 13% had patchy hair loss.^[1] Stress can induce an abnormal behavior of hair plucking.^[18] But it is not verified in our study as only 13% of the medical students had habit of hair plucking and stress was not always the reason. Only 2.9% of the students used to do this under stress. According to the study on hair cortisol and perceived stress in students during

summer break and fall, stress is more prevalent among the students who are getting the professional education. According to a study on Coping strategies from stress, emotional stress is the major cause of hair loss in persons.^[15] These two things are also verified in our study in which we found that hair fall has increased in 142(45.8%) of the medical students after entering the professional education.

This study also confirmed a positive correlation between stress and hair loss. By using perceived stress scale we assessed that severe stress was present in first year students. After evaluating the score of perceived stress scale of first year students we found that 14% of the first year students had severe stress. Whereas the percentage of the medical students with severe stress in 2nd 3rd 4th and final year classes was 9%, 12%, 7% and 3% respectively. This finding is also verified in cross sectional study done at college of Saudi Arabia.^[10] It is also found in our study that majority of students from all the classes who responded to the PSS had moderate level of stress.

Taking together the various studies, it is proved that stress checks the growth of hair follicles. It disturbs the level of cytokines that damage the epithelial cells and also increase the level of cortisol in hair follicle that leads to the hair loss. Correlating these studies with our study, most of the students with hair loss also had stress. And as proved from above results, stress plays different roles to cause hair loss.^[3,4,5,6]

Taking all the observations into consideration

we are able to establish a strong association between the level of stress hair loss in our study.

CONCLUSION:

The conclusion of this study were:

- Hair fall is common among students of Allama Iqbal Medical College.
- There is significant association between stress and hair loss.
- More studies are needed at different interprovincial medical institutions to elicit more factors related to this topic.

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Value of a man depends upon his courage; his veracity depends upon his self-respect and his chastity depends upon his sense of honor.

Hazrat Ali (Karmulha Wajhay)