Public Health Section

Study on Hair Fall with Hair Related Problems among Males of Age 18-50 Years: Study on Chennai Based Population

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ABSTRACT

Introduction: Male pattern hair loss is often regarded as a relatively minor medical condition; however, may result in anxiety and depression in some men as it impacts self-image. Hair loss is a common cosmetically and psychosocially distressing condition, however this condition attracted the least attention and there are limited studies on its prevalence and its grade in the Indian subcontinent.

Aim: To determine the prevalence of hair fall and certain hair related problems among men of age 18-50 years and to identify the factors associated with them.

Materials and Methods: The present study was a community based cross-sectional study done over a period of two months. The study was conducted in both rural and urban populations of Thiruvallur district, namely Nazarethpet and Adyalampet which are the field practice areas of ACS Medical College and Hospital, Chennai, Tamil Nadu, India.

A total of 393 men selected by simple random sampling in the age group of 18-50 years, were included in the study after getting their informed consent. A customised interview schedule was used for data collection after it was pilot tested. The PHQ 9 questionnaire was applied to the participants following which the weight and height of the subjects were measured. The questions on the interview schedule were also verbally translated into the regional language of the study subjects which was Tamil.

Results: Prevalence of hair fall was found to be 60.3%, prevalence of dandruff was found to be 17.1% and the prevalence of baldness was found to be 50.4%. Prevalence of greying among men aged 18-35 years was found to be 37.97%. Of the participants, 59% claimed awareness of creams and medications as a treatment option for hair related problems. Awareness of hair transplantation was present among 55.5% of the study subjects.

Conclusion: The present study showed high prevalence rates of hair related problems and that the knowledge regarding treatment options for hair related problems is not adequate.

Keywords: Baldness, Dandruff, Depression, Greying

INTRODUCTION

Almost every society in the world associates luxurious hair with youth, beauty and good health. Male pattern hair loss or Androgenic Alopecia (AGA), is the most prevalent type of hair loss in men. It affects 30 to 50% of men by the age of 50 years [1]. Male pattern hair loss is often regarded as a relatively minor medical condition, but it may result in anxiety and depression in some men because it impacts self-image [1]. AGA is characterised by progressive thinning of the scalp hair and a reduction in hair density and diameter. Non-genetic causes have received little scientific attention, and data on environmental factors that may aggravate male AGA remain sparse [2]. Though hair loss is a common cosmetically and psychosocially distressing condition, it has not attracted much attention and there are limited studies on its prevalence and its grade in the Indian subcontinent. It is important to have further knowledge regarding its prevalence, grade of alopecia and its natural course for providing the appropriate management [3]. Dandruff is a common scalp disorder affecting almost half of the population at the pre-pubertal age and of any gender and ethnicity. Dandruff affects the aesthetic value and often causes itching [4]. Greying of hair, scientifically termed as "canities", is a physiological phenomenon and considered to be a part of chronological aging [5]. Definition of premature canities with respect to the Asian population is lacking. However, a cut-off at the age of 25 years was once considered from India [5]. Therefore, the current study was undertaken with the aim of determining the prevalence of hair fall and certain hair related problems among men of age group 18-50 years and to identify the associated factors.

MATERIALS AND METHODS

The present study was a community-based cross-sectional study done over a period of two months (from 28th September to 21st November 2015). The study was conducted in both rural and urban population of Thiruvallur district, namely Nazarethpet and Adyalampet which are the field practice areas of ACS Medical College and Hospital, Tamil Nadu, India. Men in the age group of 18-50 years were included in the study after getting their informed consent. Those not willing to participate and those not competent to answer the questions were excluded from the study. The simple random sampling method was utilised. The list of families and the list of male members are available for both the field practice areas (through family health survey records). These records were used as the sampling frame and 400 men were randomly selected from the sampling frame. Of the selected 400 men, seven were unavailable and hence a sample of 393 men was studied. Based on the literature review a Community-based study of healthy men aged 18-49 years showed the proportion of men with moderate to extensive hair loss (Type III or greater) was 42% [6]. The minimum sample size was calculated to be 340 and finally a sample of 393 was studied. An Institutional Ethics Committee Approval was obtained from ACS Medical College and Hospital for conducting the study. The interview schedule was then tested on 20 men as part of the pilot testing and minor modifications were made. Informed consent was obtained from all the participants, after which they were subjected to the Interview Schedule (which included the PHQ 9 questionnaire). In the end, the weight and height of the subjects was also measured. The

Interview Schedule was designed in a way to accommodate history regarding the suspected risk factors that were included in the study and there were also questions on awareness and use of certain hair related products and services. The questions on the interview schedule were also verbally translated into the regional language (Tamil) of the study subjects.

The main study variables were classified as follows:

Hair fall: Losing more than 100 hair strands a day, was considered as significant hair fall [7].

Dandruff: Dandruff is a common scalp disorder, characterised by presence of corneocytes that form clusters due to their high cohesive power, in the form of flaky white to yellowish scales, accompanied by itching [8].

Greying: Hair greying scientifically termed as canities, is a physiological phenomenon that occurs with chronological ageing, regardless of the gender or race. When greying begins before the usual age of onset, it is termed as premature greying of hair or premature canities. It is a poorly understood entity, be it the pathogenesis, clinical profile, or the assessment of extent/severity or treatment. Premature greying has been defined as the onset of greying of hair before the age of 20 years in Caucasians and before the age of 30 years in Africans. There are no studies published so far that define premature greying in the Asian population [9]. The prevalence was only calculated for subjects equal to or below the age of 35 and if they perceived their greying as significant.

Socioeconomic status: Subjects were classified into five groups based on the modified BG Prasad's 2014 classification (per capita income in rupees) [10].

- Class 1: Rs.5775 and above;
- Class 2: Rs.2887-Rs.5774;
- Class 3: Rs.1773-Rs.2886;
- Class 4: Rs.866-Rs.1772;
- Class 5: Below Rs.866.

Balding: Balding was categorised using the Hamilton Norwood scale [11]. Grade two and above were considered as balding.

Depression: Depression was categorised using the PHQ 9 questionnaire [12]. Scores of four and above were taken as depression.

Body mass index: A body mass index of more than 25 was taken as obesity [13].

STATISTICAL ANALYSIS

The present study was a Cross-sectional study, with both descriptive and analytical components. The descriptive component was used to find the prevalence of certain hair related problems among the rural and urban population, and 95% confidence interval (CI) was calculated for the prevalence rates. The analytical component was used to find the association of hair related problems with the suspected risk factors. Mantel-Haenszel test was used to calculate chi-square values and two tailed p-values were used to assess association. A 95% Confidence Interval (CI) of odds ratios were found using Epi Info version 7.1.2. A p-value of <0.05 was taken as statistically significant association.

RESULTS

Socio-demographic profile of the study subjects can be found in [Table/Fig-1].

Hair fall as a problem was reported by 237 (60.3%) of the study subjects and the 95% CI was between 55.46-65.14. Dandruff was seen in 67 (17.1%) of the study subjects and the 95% CI was 13.29-20.79. Baldness was seen among 198 (50.4%) of the subjects. Of the participants, 232 (59%) claimed awareness of creams and medications as a treatment option for hair related problems. Awareness of hair transplantation was present among 218 (55.5%)

Variables and classification of the variables	Number (n=393)	Percentage (%)
Age		
18-35 years	187	47.6
36-50 years	206	52.4
Occupation		
Employed	339	86.3
Unemployed	54	13.7
Religion		
Hindu	346	88
Cristian	31	7.9
Muslim	16	4.1
Marital Status		
Married	270	68.7
Unmarried	123	31.3
Educational Status		
Illiterate	28	7.1
Primary	124	31.6
Secondary	110	28
Graduate and Above	131	33.3
Socio-economic status		
Class I	96	24.4
Class II	149	37.9
Class III	103	26.2
Class IV	45	11.5
Class V	0	0

[Table/Fig-1]: Socio-demographic profile of the study subjects.

of the study subjects [Table/Fig-2]. Based on the Hamilton Norwood scale, it was seen that 195 (49.6%) of the subjects had no or Grade 1 baldness [Table/Fig-3].

It was seen that there was an association between hair fall and depression and the association was statistically significant (p-value=0.001). Hair fall was 1.66 times more common among socio-economic Class I and Class II when compared to Class III and Class IV and 1.66 times more common among subjects who did not have the habit of applying hair oil when compared to those who had the habit of applying hair oil and both the associations were statistically significant. Hair fall was also more among Vegetarians, Hypertensives, diabetics etc. However, none of these other associations was statistically significant [Table/Fig-4].

Variable	Number (n=393)	Percentage (%)	95% Confidence Interval (C.I.)
Hair fall	237	60.3	55.46-65.14
Dandruff	67	17.1	13.29-20.71
Baldness	198	50.4	45.46-55.34
Creams and medications available for treatment	232	59	54.14-63.86
Aware of hair transplantation	218	55.5	50.59-60.41

[Table/Fig-2]: Prevalence of hair fall, baldness, dandruff and greying and awareness of treatment options.

Grading of baldness	Number (n=393)	Percentage (%)
Normal including Grade 1	195	49.6
Grade 2	96	24.4
Grade 3	54	13.7
Grade 4	18	4.6
Grade 5	20	5.2
Grade 6	6	1.5
Grade 7	4	1.0

[Table/Fig-3]: Hamilton norwood scale.

Variables	Classification of Variables (Number of People In The Group)	Hair Fall (Out of 237)	Odd's Ratio (95% C.I. of Odd's Ration)	Mantel–Haenszel chi-square value	p-value**
Depression	Yes (22)	21	15.1 (2.01-1113.22)	10.52	0.001*
	No (371)	216			
Socio-economic Status	Class I and I I (245)	159	1.66 (1.09-2.51)	5.72	0.017*
	Class I II and IV (148)	78			
Hair Oil	No (91)	63	1.66 (1.004-2.73)	3.93	0.04*
	Yes (302)	174			
Hypertension	Yes (30)	23	2.29 (0.96-5.47)	3.62	0.057
	No (363)	214			
Diet	Veg (46)	32	1.58 (0.82-3.07)	1.86	0.17
	Mixed (347)	205			
Water Source	Metro Water (134)	82	1.06 (0.69-1.62)	0.067	0.70
	Bore Water (259)	155			
Helmet	Yes (111)	67	1.003 (0.64-1.57)	0.0002	0.99
	No (282)	170			
Diabetes Mellitus	Yes (35)	23	1.29 (0.62-2.67)	0.47	0.49
	No (358)	214			
B.M.I	Normal (235)	144	1.11 (0.73-1.67)	0.23	0.63
	Obese (158)	93			
Age	18-35 (187)	113	1.01 (0.61-1.51)	0.002	0.96
	36-50 (206)	124			

[Table/Fig-4]: Association between hair fall and certain suspected risk factors.
*Statistically significant; Values <0.05 was taken as statistically significant
**p-value was calculated using mantel haenszel test and two tailed values were used

Variables	Classification of The Variable (Number of People In The Group)	Dandruff (Out of 67)	Odd's Ratio (95%C.I)	Mantel–Haenszel chi square Value	p-Val-ue**
Diet	Vegetarian (46)	14	2.42 (1.21-4.85)	6.58	0.010*
	Mixed (347)	53			
Depression	Yes (22)	8	3.02 (1.21-7.52)	6.132	0.0132*
	No (371)	59			
Socio-economic status	Class I and II	49	1.80 (1.007-3.23)	3.997	0.045*
	Class III and IV	18			
Hypertension	Yes	8	1.87 (0.79-4.40)	2.119	0.145
	No	59			
Diabetes	Yes (35)	9	1.79 (0.79-4.01)	2.035	0.153
	No (358)	58			
Hair Oil	Yes (91)	18	1.27 (0.69-2.31)	0.624	0.429
	No (302)	49			
Water source	Metro (134)	25	1.185 (0.68-2.04)	0.371	0.54
	Bore (259)	42			
Helmet	Yes (111)	21	1.19 (0.67-2.11)	0.381	0.536
	No (282)	46			
Age	Young (187)	34	1.165 (0.68-1.97)	0.323	0.569
	Middle age (206)	33			
Bmi	Obese (158)	29	1.165 (0.68-1.98)	0.317	0.572
	Normal (235)	38			

[Table/Fig-5]: Association between dandruff and certain suspected risk factors.
*Statistically significant; Values <0.05 was taken as statistically significant
**p-value was calculated using mantel haenszel test and two tailed values were used

Dandruff was associated with vegetarian diet and this association was found to be statistically significant (p-value=0.010). There was also a statistically significant association between dandruff and depression (p-value=0.0132), higher socio-economic status (Class I and II) (p-value=0.045). Dandruff was also found to be more among hypertensives, diabetics. However, these associations were not statistically significant [Table/Fig-5].

Prevalence of greying was calculated only for the subjects below the age of 35 years. Of the 187 subjects below the age of 35 years, 71 reported as having significant greying and the prevalence was found to be 37.97%.

DISCUSSION

Hair fall though thought of as a cosmetic problem can cause a lot of psychological morbidity and there is a paucity of literature in the Indian sub-continent about this disfiguring and distressing condition. This study was a community based cross-sectional study on certain hair related problems and associated risk factors done on 393 men aged between 18-50 years. The total prevalence of hair fall was found to be 60.4% which was comparable to the results of similar studies done by Shankar K et al., (in India) and Tang P et al., (in Singapore) in which the prevalence was found to be 58% and 63 % respectively [3,14]. There was a statistically significant association between depression and hair fall (p=0.001) in line with the findings of a study done which concluded that stress may act as a primary inducer; an aggravating factor (in hair loss due to primary endocrine, toxic, metabolic, or immunological causes); or be a response to hair loss (contributing to aggravation and inducing a self-perpetuating vicious circle). Stress is likely a negative hair growth modulator with possibly profound effects in human [15]. Hair fall was found to be more (p=0.017) among higher socioeconomic status (Class I and Class II) which could be because of higher stress levels and other lifestyle-related factors and needs to be further researched upon.

There was also a significant association between not using hair oil and hair loss (p=0.04). The prevalence of baldness in the present study was found to be 50.4 % which was comparable to the results of a study done on Norwegian men using the Norwood/Hamilton hair patterns, participants rated themselves as Class II (25.5%), III (8.6%), IV (8. 8%) or V or worse (19.5%) [16]. The mild differences could be because of the different population types and that the Norwegian study was based on self-reporting. Dandruff was seen in 17.1% of the study subjects which was comparable to the results of a community-based study done in the French population where 16.6% of the population reported to have flaking of the scalp [17]. Of the participants, 59% claimed awareness of creams and medications as a treatment option for hair related problems. Awareness of hair transplantation was present among 55.5% of the study subjects. Though the percentages of awareness of treatment look high it is to be noted that almost half the population is not aware of treatment options insisting on the need for campaigns to raise awareness.

LIMITATION

There are some inherent shortcomings in a cross-sectional study and the same would hold true for the present study also. It was primarily to study the prevalence rates of the hair related problems and more robust analytical study designs such as cohort studies are needed to corroborate the associations found in the present study.

CONCLUSION

The present study has factually established the high prevalence of hair related problems among men of age group 18-50 years and has also identified some of the risk factors associated. This study has also shown that the awareness of treatment options among the common population is not adequate. It also clearly emphasises on the need for more focus on hair related problems in the Community. Health education material on the management of common hair related problems should be made available in the primary healthcare centres so that people can readily utilise the existing treatment

options without going through needless stress for a modifiable problem. Awareness campaigns could also be conducted in remote villages where there is limited access to healthcare facilities.

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