WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

A Study on Health Issues of Scalp Hair Among Final Professional undergraduates in the Faculty of Indigenous Medicine

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ABSTRACT

Hair is an important aesthetic and psychological factor that contributes significantly to an individual's personality. In both males and females, hair plays a vital role in social perception and self-esteem. The condition of the scalp and hair can have considerable psychological impacts, where even minor changes such as early hair loss or greying may affect a person's quality of life. This study, conducted from September 2023 to January 2024, aimed to assess common scalp and hair health issues among final professional undergraduates (2017/18 batch) of the Faculty of Indigenous Medicine. A total of 103 students were selected using a random sampling method. Data were collected through a structured Google Form questionnaire and analyzed using Microsoft Excel, with results presented in graphs. The most frequently reported scalp and hair issues included hair fall, dandruff, split ends, damaged hair, dry scalp, and oily scalp. Among these, hair fall was the most prevalent, affecting 85% (n=87) of students, followed by dandruff (55%, n=57). Oily scalp was the least reported condition. Several students reported experiencing multiple hair issues simultaneously. Female students exhibited a higher prevalence of hair and scalp problems compared to males. Contributing factors identified included place of residence, sleep patterns, family history, frequency and timing of hair washing, type of water and cleansing agents used, and hair styling practices. The study found that family history had minimal influence, while hostel living conditions and inadequate sleep were associated with increased hair issues. Based on these findings, it is suggested that morning hair washing with warm water and appropriate cleansing agents may help in managing scalp hair issues effectively.

Keywords: Scalp hair issues, hair fall, dandruff, medical undergraduates, Indigenous Medicine, Khalitya, poor sleep, questionnaire survey

Introduction

Hair plays an important role in shaping an individual's appearance and personality, influencing social perception and self-confidence. In both males and females, healthy hair is often associated with beauty, vitality, and well-being. Beyond aesthetics, the condition of the scalp and hair has significant psychological implications. Even minor concerns like premature hair loss or graying can impact a person's self-esteem and overall quality of life (Neeru et al., 2020). Biologically, hair is a defining feature of mammals. In humans, it serves not only as a cosmetic attribute but also fulfills protective functions. Eyelashes and eyebrows guard the eyes from debris, while scalp hair protects the head from ultraviolet radiation, cold weather, and physical injury (Buffoli et al., 2014). Structurally, hair is composed of keratin and consists of two major parts: the follicle, embedded within the skin, and the shaft, which is visible above the skin surface. The follicle is supplied with blood vessels and is divided into three segments—infundibulum, isthmus, and the inferior segment—responsible for the nourishment and growth of hair (Lanjewar et al., 2020). The shaft itself comprises the cuticle, cortex, and medulla, with the cuticle primarily responsible for the hair's cosmetic appearance and protection (Nayak et al., 2017; Padule et al., 2022). From an Indigenous medical perspective, classical Ayurvedic texts describe hair differently. According to *Charaka Samhita*, hair is a by-product (*mala*) of *Asthi Dhatu* (bone tissue), while *Sharangadhara Samhita* identifies hair as an *Upadhatu* (secondary tissue) of *Majja Dhatu* (bone marrow) (Sharma & Desh, 2012; Neeru et al., 2019). Despite its biological and cultural importance, hair health is increasingly affected by various internal and external factors such as genetics, stress, environmental exposure, lifestyle, diet, and sleep patterns. Among university students, especially those in rigorous academic environments, hair and scalp issues such as hair fall, dandruff, dryness, split ends, and scalp oiliness are becoming more prevalent due to poor lifestyle habits and inconsistent self-care routines. In this context, the present study aims to assess the common scalp hair issues and their contributing factors among final-year undergraduates of the Faculty of Indigenous Medicine (FIM). Identifying these patterns may assist in developing early interventions and promoting better hair and scalp health awareness among students.

Literature Review

In Ayurveda, hair disorders are traditionally classified under three main conditions: Indralupta (localized hair loss, comparable to alopecia areata), Palitya (premature greying), and Khalitya (progressive hair loss or baldness) (Bouldin et al., 1999). These conditions are believed to arise due to imbalances in the Tridoshas -Vata, Pitta, and Kapha. Ayurvedic literature emphasizes not only treatment but also preventive care through holistic lifestyle practices. Regimens outlined in *Dinacharya* (daily routines) and *Ritucharya* (seasonal regimens) include hair care practices such as Moordhinitaila (head oil application), Nasya (nasal administration), and Snana (therapeutic bathing), which are aimed at maintaining scalp health and preventing hair disorders

(Murthy, 2005). In contrast, modern dermatology identifies common scalp hair problems such as hair loss, split ends, premature greying, dandruff, dry scalp, damaged hair**,** and hair breakage (Lanjewar et al., 2020). Scientific literature has increasingly acknowledged the role of ethnicity, genetics, and race in the manifestation and management of scalp and hair conditions. In addition to biological factors, modern studies also highlight the impact of lifestyle**,** environment**,** diet**,** stress**,** hair care products, and hair styling practices on hair health (Nayak et al., 2017).

Among university students, particularly those living away from home, scalp and hair problems may be more prevalent due to academic stress, inadequate sleep, poor dietary habits, shared hygiene products**,** and hostel living conditions. Despite this, limited research exists on the prevalence and causes of hair issues in undergraduate student populations, especially within traditional medicine faculties. Therefore, the present study was designed to address this gap by identifying common scalp hair problems and their associated factors among final-year undergraduates in the Faculty of Indigenous Medicine**.** The findings of this study aim to contribute to the existing body of knowledge and offer a baseline for future research in both modern and traditional systems of healthcare.

Methodology

This survey-based study was conducted from September 2023 to February 2024 with the aim of identifying common scalp hair problems and their associated causes among final professional undergraduate students at the Faculty of Indigenous Medicine (FIM)**.**

A preliminary literature review was conducted using online databases and resources, including the University Library**,** PubMed**,** and Google Scholar, to gather existing knowledge and understand the context of scalp hair issues from both modern and Ayurvedic perspectives.

Study designs and tool

The study followed a cross-sectional survey design using a structured, self-administered questionnaire**.** The questionnaire included both open- and closed-ended questions and was distributed via Google Forms. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection. Ethical approval for the study was granted by the Ethical Review Committee of the University of Colombo**.**

Target population

The study population consisted of final professional undergraduate students (2017/2018 batch) enrolled in the Faculty of Indigenous Medicine.

Sample size and sampling technique

A random sampling method was employed to select participants. The sample size was calculated using the standard formula:

$$s = X^2NP(1-P) \div [d^2(N-1) + X^2P(1-P)]$$

Where:

- s = required sample size
- X^2 = chi-square value for 1 degree of freedom at 95% confidence level (3.841)
- N = population size (140)
- P = population proportion (assumed to be 0.5)
- d = margin of error (0.05)

Based on the calculation, the minimum required sample size was 103 students, which was achieved in the study.

Data collection procedure

Data were collected using a Google Form shared with randomly selected participants. The form was designed and administered by the principal investigator, following ethical clearance. Collected data were analyzed using the Google Form analyzer, and further manual analysis was performed using Microsoft Excel and charting software to generate visual representations.

Inclusion and exclusion criteria

- Inclusion Criteria: Students who reported having one or more scalp hair issues.
- Exclusion Criteria: Students who did not provide informed consent or did not have any scalp hair issues.

Limitation

One key limitation identified was the potential for participants to provide inaccurate or false information**,** which may affect the reliability of self-reported data.

Results and Discussion

Descriptive statistics

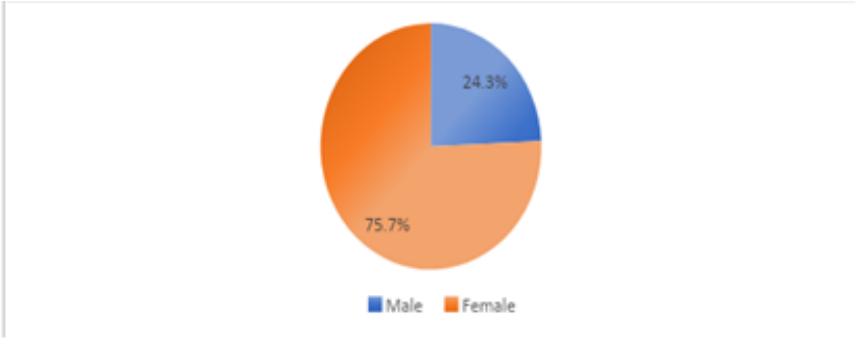

Figure 01- Gender wise distribution of the study population.

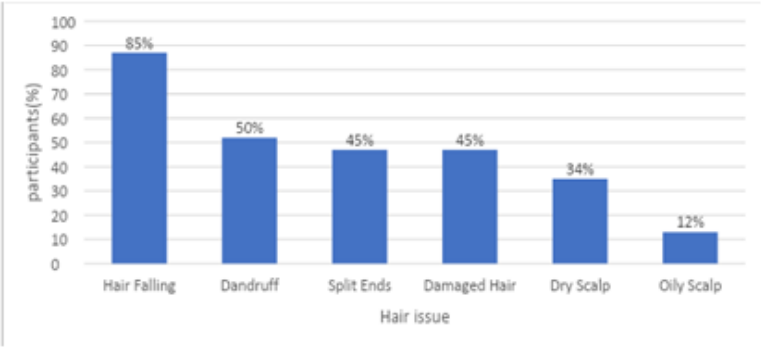

Figure 02 -Prevalence of common scalp hair issues in the study population. (certain student had more than one issue)

Figure 03- Gender wise distribution of common scalp hair problems.

Inferential statistics

Aetiologies of common scalp hair problems

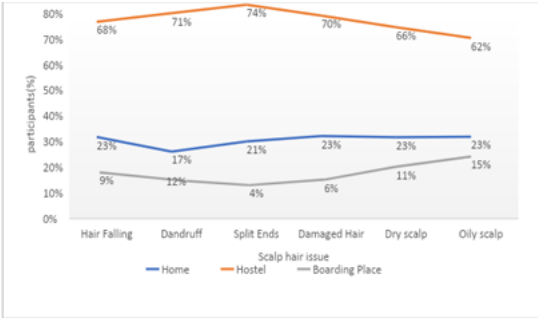

Figure 04- Effect of residing place on hair issues

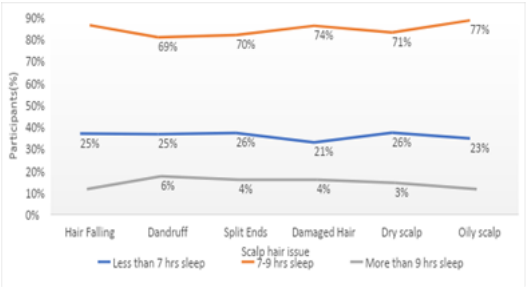

Figure 05- Effect of sleep pattern on hair issues

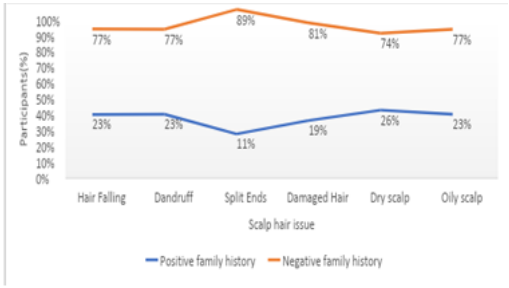

Figure 06- Effect of family history on hair issues

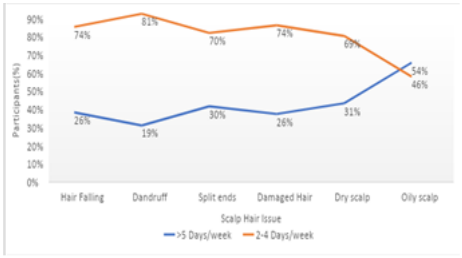

Figure 07- Effect of washing habits on hair issues

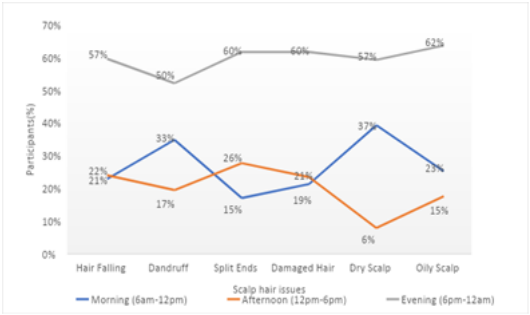

Figure 08- Effect of washing time on hair issues

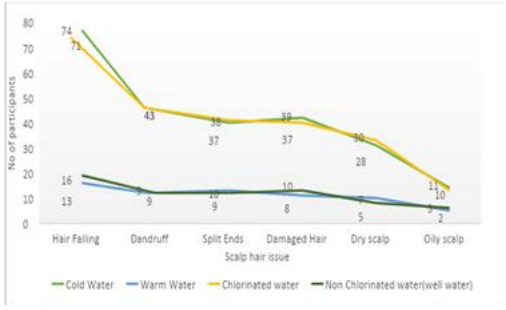

Figure 09- Effect of type of water on hair issues.

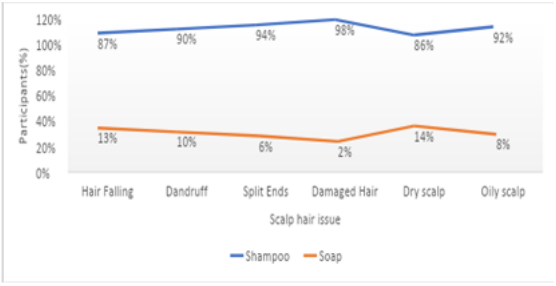

Figure 10- Effect of washing agent on hair issues.

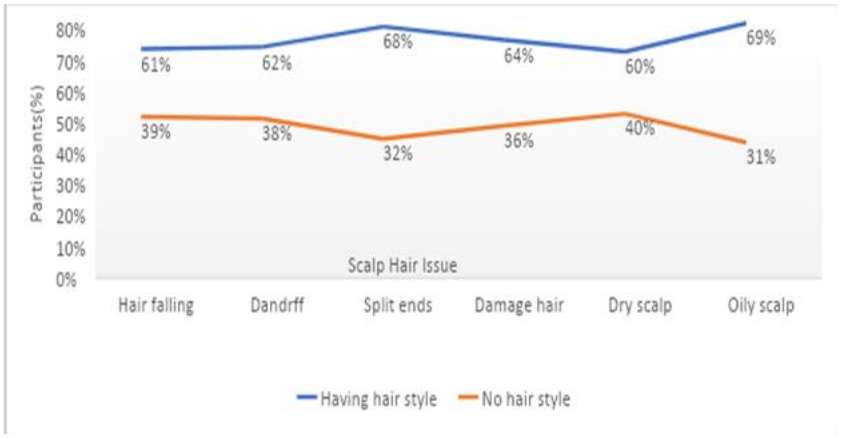

Figure 11-Effect of styling and fashion on hair issues.

This cross-sectional survey investigated the prevalence and potential causes of scalp hair problems among final-year undergraduates at the Faculty of Indigenous Medicine. A total of 103 students participated, with a majority being female (75.7%). The average age was 27 years (figure1).

Prevalence of scalp hair issues (figure 2)

The most frequently reported issue was hair fall**,** affecting 85% (n=87) of the population. This was followed by dandruff (55%)**,** split ends (46%)**,** damaged hair (46%)**,** and dry scalp (34%)**.** The least common issue was oily scalp (12%)**.** Notably, many students reported experiencing more than one issue simultaneously, suggesting overlapping etiologies and lifestyle factors.

These findings are consistent with existing literature, which identifies hair fall and dandruff as the most prevalent scalp complaints among young adults (Lanjewar et al., 2020). Stress, diet, hormonal imbalance, and improper hair care routines are recognized as contributing factors in both modern and traditional medical systems.

Gender and hair health (figure 3)

A higher frequency of scalp hair issues was observed in female students compared to males. A Chi-square test of independence was performed to examine the relationship between gender and the presence of hair fall among students. The association was statistically significant **(**$p < 0.05$**).** This suggests that gender has a statistically significant effect on the prevalence of hair fall, with female students reporting a higher frequency compared to males. This could be attributed to multiple factors such as longer hair**,** styling habits**,** hormonal fluctuations**,** and greater cosmetic product usage. Additionally, females may be more aware and sensitive to changes in their hair health, contributing to higher reporting rates.

Role of residence (figure 4)

The findings revealed that students residing in hostels reported a significantly higher frequency of scalp hair issues than those living in boarding houses or at home, as confirmed by the Chi-square test ($p < 0.05$). This may be due to overcrowding**,** shared hygiene items**,** stress**,** poor nutrition**,** and use of hard or chlorinated water. The transition from a home environment with natural water (e.g., well or spring) to hostel settings with chemically treated water may significantly affect scalp health.

Sleep patterns (figure 5)

A clear statically significant (under chi-square analysis) correlation was observed between sleep duration and hair health. Students who slept more than 9 hours reported the lowest prevalence of hair issues (except for oily scalp). Sleep is known to play a vital role in hormonal balance and tissue repair, both of which influence hair growth and scalp condition (Dasgupta, 2024).

Hair washing habits (figure 7,8)

There was a statistically significant association between hair washing frequency and scalp hair health. Students who washed their hair daily reported fewer scalp hair issues, suggesting that regular washing may have a protective effect. However, dry and oily scalp issues persisted among daily washers, possibly due to over-washing leading to scalp dryness or rebound oil production. Interestingly, dandruff was rare (19%) among daily hair washers**,** reinforcing the benefit of regular hygiene in preventing scalp flaking.

The time of hair wash also appeared to be influential significantly. Evening showers (6 p.m. – 12 a.m.) were associated with more hair problems, particularly oily scalp. This may relate to nighttime oil secretion or inadequate drying of the scalp before sleep.

Water type and temperature (figure 9)

Use of cold or chlorinated water was significantly linked to an increase in hair problems, especially hair fall. While cold water may stimulate blood circulation and help remove dirt, frequent exposure can dry the scalp and affect natural oil balance. Students should be advised to avoid extremely hot water as well, which can strip the scalp of protective oils.

Hair products and styling (figure 10, 11)

Shampoo use was scientifically associated with a high percentage (98%) of hair issues**,** suggesting that students may not be using appropriate products for their scalp type. The wrong choice of shampoo, harsh chemicals, or overuse could disrupt the scalp microbiome and cause irritation or dryness. Similarly, students who frequently styled their hair (tight tying, braiding, straightening, etc.) showed higher incidence of hair issues, possibly due to mechanical damage and tension on the follicles.

Genetic factors (figure 6)

Contrary to expectations, family history had minimal influence on hair issues in this study. This may be due to the relatively small sample size or the dominance of lifestyle-related triggers in this age group. Larger studies may better evaluate hereditary patterns.

Conclusion

Based on the findings of this survey, hair fall emerged as the most prevalent scalp hair issue among the study population, while oily scalp was the least reported concern. A significantly higher incidence of hair problems was observed among female students, which may be partly attributed to the higher proportion of female participants in the sample, as well as the increased hair length and styling practices typically associated with female grooming habits. Although family history was traditionally thought to play a major role in hair health, this study found it to have less influence compared to environmental and lifestyle-related factors. Notably, students residing in hostel environments, especially those experiencing inadequate sleep, reported more frequent scalp hair issues highlighting the impact of stress, dietary changes, sleep disruption, and hygiene conditions on hair health. Among hair care practices, the timing and method of washing, type of water, and cleansing agents used were found to contribute to scalp health outcomes. Based on these observations, it is recommended that students adopt a consistent hair care routine that includes bathing in warm water, using appropriate cleaning agents, and washing hair in the morning to help minimize scalp and hair-related issues. Overall, this study underscores the need for increased awareness among students about proper scalp care and the influence of lifestyle factors on hair health. Further research with a larger and more diverse sample size, along with clinical assessments, would help validate these findings and inform targeted preventive strategies.

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