A Study on Scalp Hair Health and Hair Care Practices among Malaysian Medical Students

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ABSTRACT

Introduction: Scalp care is essential because it determines the health and condition of the hair and prevents the diseases of scalp and hair. The objectives of our study were to correlate race and hair types, to determine the awareness of hair care among Malaysian medical students, and to distinguish the factors that affect the health of hair and scalp. Methodology: It was a cross-sectional study wherein validated questionnaires were given to 240 medical undergraduate students who belonged to three ethnic races of Malaysia, i.e., Chinese, Malay, and Malaysian Indians after their informed consent. The results were then analyzed using percentage statistics. Results: Chinese students had comparatively healthier scalp without dandruff. Most Chinese and Indians had silky type of hair while Malay had dry, rough hair. Chinese and Indians colored their hair and used various styling methods; while among the Malays, this percentage was very less. Regarding hair care practices, males used only shampoo and females used shampoo and conditioner for hair wash. Students also faced dietary and examination-related stress. Conclusion: Results indicate that there exist morphological differences in hair among the studied population. Since most students color their hair and employ various hairstyling methods, they should be educated regarding best hair care practices to improve their scalp hair condition and health.

Key words: Hair care, hair care products, hair coloring, hairstyling, scalp hair

INTRODUCTION

Appearance and morphology of the hair is regarded as one of the divergent traits of human population. Hair has a distinct specialized anatomical structure. Hair fibers consist of three morphological components namely, the cuticle, the cortex, and the medulla. Layers of cuticle cells form the outer sheath of the hair fiber and are mainly responsible for the cosmetic properties of hair. The cuticle forms a protective barrier for the hair against the outside environment. Mechanical properties of the hair are attributed to the cortex, which forms the bulk of the fiber. Hair is important trace evidence commonly encountered in almost all criminal cases. Forensic anthropologists routinely compare the morphological characteristics of the hair samples to determine a transfer. However, many questions such as how can populations be analyzed and possibly distinguished based on the morphology and appearance of their hair still remain unanswered.

Malaysia is a place rich in ethnological diversity, and its population comprises of three major ethnic groups including Malay, Chinese, and Indians, and other groups with diverse cultural backgrounds. In recent years, literature has approved that ethnicity and race are important factors to consider in the clinical presentation, management, and treatment of skin and hair disorders. Taking care of scalp is essential because it determines the health and condition of the hair and also prevents the diseases of scalp and hair. In this study, we have tried to identify and focus on few factors that might affect scalp health such as environment, nutrition, and individual factors and factors which determine the health...
of hair such as personal hygiene, use of hair care products, and frequency of hairdressing and styling. Hence, the objectives of our study were to correlate race and hair types, to determine the awareness of hair care among Malaysian medical students, to distinguish the factors that affect the health of hair and scalp, and to find out ways to improve the scalp condition and hair care practices.

METHODOLOGY

Sample size

We did a cross-sectional study based on random sampling method for which ethical clearance was obtained from the Institutional Ethics Committee (IEC 820/2015) before the study, and the students gave their informed consent before taking part in this study. A total of 240 medical undergraduate students comprising of 120 male students and 120 female students aged 17–19 years were chosen randomly to participate in the study. These students belonged to three different Malaysian ethnic races, i.e., Malay (80 students), Chinese (80 students), and Malaysian Indians (80 students), and their participation was purely on voluntary basis. The period of study was 5 months. Students who did not wish to take part in the study, students with diseases of scalp, wounds of scalp, and students who had complaints of permanent hair loss were excluded from the study.

Data collection

Questionnaires were used in the study. This questionnaire constituted of 15 close-ended questions which were framed based on the objectives of our study and included questions on scalp and hair condition, hair care practices, and hairstyling methods of students. It also included student’s demographic data. The questionnaire was then validated by academic faculty and ethics committee. This questionnaire was then distributed to the students in their classroom, and they were instructed to fill in their responses. These responses were then analyzed.

Data analysis

All the data which were obtained after evaluating the questionnaires were segregated according to the ethnic race and gender. The procured data were compiled, organized, and analyzed by using percentage statistics. The results obtained were represented as graphs using Microsoft Excel 2013.

RESULTS

Our first observation was regarding the scalp condition of students. We found that Chinese students had comparatively healthier scalp (75% male, 92.5% female) without dandruff when compared to Malay and Indian students [Graph 1]. To compare their hair texture, we grouped the hair texture into four types: (1) silky hair, (2) dry and rough hair, (3) oily hair, and (4) hair with split ends and breakages. Among males, most Chinese (57.5%) and Indians (55%) had silky type of hair while Malay males had dry, rough hair (45%) and oily hair (45%). Only 10% of Indian male had oily hair while split ends and breakages were seen mostly in Malay males (10%). Among the females, generally silky hair was predominant (Chinese 35%, Malay 35%, Indians 32.5%). Dry and rough hair was seen more in Malay females (45%), and hair with split ends and breakages was seen mostly in Indian females (25%) followed by Chinese (17.5%) and Malay (10%) [Graph 2]. This shows that Chinese mostly own silky hair while Malay showed a higher percentage of rough and dry hair while Indians had a mix of silky and dry hair. Graying of hair was seen in a very less percentage of students, and it was seen mostly among female students [Graph 3]. In recent years, the trend mostly seen among teenagers is hair coloring and hairstyling. When we checked this trend among our study population, we found that among Chinese, 40% males and 52.5% females colored their hair. Among Malay, only females (22.5%) colored their hair. Among Indians also, this trend of coloring hair was slightly less for males as 12.5% males and 57.5% females colored their hair [Graph 4]. When these students were asked regarding their hair condition, male students felt that hair coloring did not worsen their hair condition (68%) while female students felt that it did affect their hair condition (75%). Hairstyling such as straightening and curling were mostly done by female students, and among them, Indians (50%) and Chinese (37.5%) predominantly did hair straightening and 10% Indians and 17.5% Chinese did hair curling. It was seen that most Malay females did not do any hairstyling.
METHODS (57.5%) [Graph 5]. When these students were asked regarding their hair condition, Chinese (66.7%) and Malay females (53%) feel that hairstyling worsened their hair condition while Indian females felt that it did not worsen their hair condition (52%). When asked regarding the frequency with which students changed their pillow covers, it was seen that majority of them changed their pillow covers once in a month (about 60%) while a few changed the covers twice a month (about 25%) and rest once in every 6 months. Our next important observation was regarding hair care practices. Among males, most of them washed their hairs twice a day (65.8%), and the rest (34.2%) washed their hair once a day. Among females, Chinese (65%) and Malay (50%) washed their hairs once in a day while Indian females mostly washed their hair once in 2 days (65%) [Graph 6]. Regarding hair care products used by the students, we found that most male students use only shampoo while very few also use shampoo and conditioner. Among females, most of them used shampoo and conditioner for hair wash. We also observed that Indian males (10%) and females (25%) used coconut oil along with shampoo while students of other two races did not use coconut oil [Graph 7]. We asked students if they face any type of stress to see if this relates to hair loss and hair condition. We found that most of the students face examination-related stress and most Chinese and Malay students also face dietary stress [Graph 8].

DISCUSSION

Our present study focused on studying the differences in hair morphology, hair care methods, and usage of hair care products among Malaysian students who belong to three main ethnic races, i.e., Malay, Chinese, and Malaysian Indians. During our literature review, we found that not many population studies have been done in this regard which highlights the morphological differences in hair. Literature has acknowledged that race and ethnicity are important factors to consider in the clinical presentation, management, and treatment of hair disorders. Research on the analysis of the morphological features of hair had been started in the early 1800s. However, till date, there is no systematic method used for isolating groups of people based on morphological features of their hair.

Hair care and styling have gained a lot of importance in recent years, especially among teenagers. It has been seen that modern day styling methods and use of different hair care products have resulted in hair loss and also cause hair damage. The process of chipping of the hair cuticle, which results from abrasion of hair due to grooming devices or chemicals, is a major factor in hair damage. Hair texture is related to the scalp condition. In our study, we found that the scalp condition was healthy without dandruff among the Chinese compared to Indians and Malay. This might be the reason for good hair condition of the Chinese with less split ends and breakages. It was also noted that the scalp
condition of males was healthier compared to the females. This might be due to the fact that most of the males usually washed their hairs twice in a day or at least once in a day. However, among females, this frequency varied as many of them washed their hairs once in 2 days or once in a day. Skin problems can readily occur in the scalp because the awareness regarding the importance of scalp care is low when compared with the face. It was found that the graying of hair was least among Malay students although their scalp condition was not very healthy. This evidences the fact that graying of hair is caused by the loss of the pigment-forming melanocytes from the hair follicles⁴ and genetic factors or even climatic factors might influence the graying of hair rather than the scalp or hair condition.

We observed in our study that girls have distinctive hair care and styling practices. These practices have been implicated as risk factors for scalp and hair dermatoses.⁵ It has been proven that straighteners and dyes may cause allergic or irritant dermatitis, chemical burns, scarring alopecia, and increased hair breakage.⁷⁻⁹ We found in our study that most of the Malay females do not employ any hairstyling techniques while most of the Indian and Chinese female did various hairstyling methods such as straightening and curling. These students also opined that hairstyling methods did worsen their hair condition to some extent. Another observation was regarding the trends of hair dye usage among these students. It was seen that mostly the Indian and Chinese female used hair coloring products while the least percentage of usage was seen among the Malays. Hair dyeing products can cause various adverse effects.¹⁰ In addition, association of dye usage with cancer and some other systemic disease has also been suggested.¹¹,¹² Patel et al. in their study had observed adverse reactions in 42% individuals such as headache, itching, hair loss, and pigmentation.¹³ These results indicate that these students have insufficient knowledge regarding hair dye products and mainly give importance to appearance.

Shampoo has the effect of extracting hair surface lipid matter, and repeated shampooing could result in damaging structures at the hair surface.¹⁴ These hair care products contain many ingredients with various effects on the hair. It was seen in our study that males used usually only shampoo while females used both shampoo and conditioner. It was noted that coconut oil was used by only Indian students. Coconut oil has protective effect on hair damage in grooming process. The ability of coconut oil to penetrate into hair cuticle and cortex seems to be responsible for this effect.¹⁵ Although the literature supports the usage of coconut oil, in the current study, there was no marked difference in the hair and scalp health among oil users and nonusers.

Studies in the recent decade have shown that stress causes a range of diseases.¹⁶,¹⁷ Researchers have opined that there exists a positive association between cortisol levels in hair and different kinds of stress.¹⁸,¹⁹ In our study, we found that students faced examination-related stress, and most Chinese and Malay students also faced dietary stress. This might also relate to their hair texture and condition. It should be noted that this finding was based on student’s perception and is self-reported and may not be equivalent to the actual stress measured using biomarkers because it is found that the level of perceived stress was negatively correlated with hair melanization.²⁰

On the basis of our data, we believe that it is necessary to educate students about the risks associated with hairstyling.
methods. They should be made aware that although these enhance their external appearance, they have negative influence on their hair and overall health condition. They should be advised that rather than focusing on increasing the frequency of shampooing, the use of mild shampoos for hair wash and frequent hair wash would be ideal for improving their scalp condition.

Limitations of this study include that the study took into record student’s perceptions, and hence the hair care practices and styles may be related to some other variable other than scalp and hair condition. Another limitation is that the students were not clinically examined so the reported scalp/hair condition was not confirmed. This study included sample from one institution and may not be generalizable to entire population. A larger sample size would have permitted more in-depth analyses.

CONCLUSION

Hair morphology studies may be considered as one line of evidence in answering few forensic and archaeological questions. Results indicate that there exist morphological differences in hair among the studied population. Therefore, researchers should be encouraged to conduct similar studies for different ethnic groups living in different parts of the world. Students should also be educated regarding best hair care practices to improve their scalp hair condition and health.

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Conflicts of interest

There are no conflicts of interest.

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