

‘The prevalence of hair falling (Androgenic alopecia) among people in randomly selected areas of Bangladesh’



[A dissertation delivered at the Daffodil International University in Dhaka's Faculty of Allied Health and Sciences' Department of Pharmacy. The criteria for the Bachelor of Pharmacy degree were partially satisfied by this report.]

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APPROVAL

This project paper, survey on **‘The prevalence of hair falling (Androgenic alopecia) among people in randomly selected areas of Bangladesh’** submitted to the Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to its style and contents.

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Declaration

In partial fulfillment of the requirements for the degree of Bachelor of Pharmacy, I, **ABDULA AL ARAFAT**, hereby declare that this project was completed by me under the supervision of Dr. Sharifa Sultana, Associate Professor and Associate Head, Department of Pharmacy, Daffodil International University. No other institution or institute has desired the results presented in this research in order to provide a degree.

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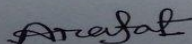
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Certificate

This is to confirm that the research results included in the thesis work are unique and have not previously been submitted in full for any degree or certificate from this university. The entirety of the current work was presented as a thesis for the goal of obtaining a Bachelor of Pharmacy degree.

Dr. Sharifa Sultana

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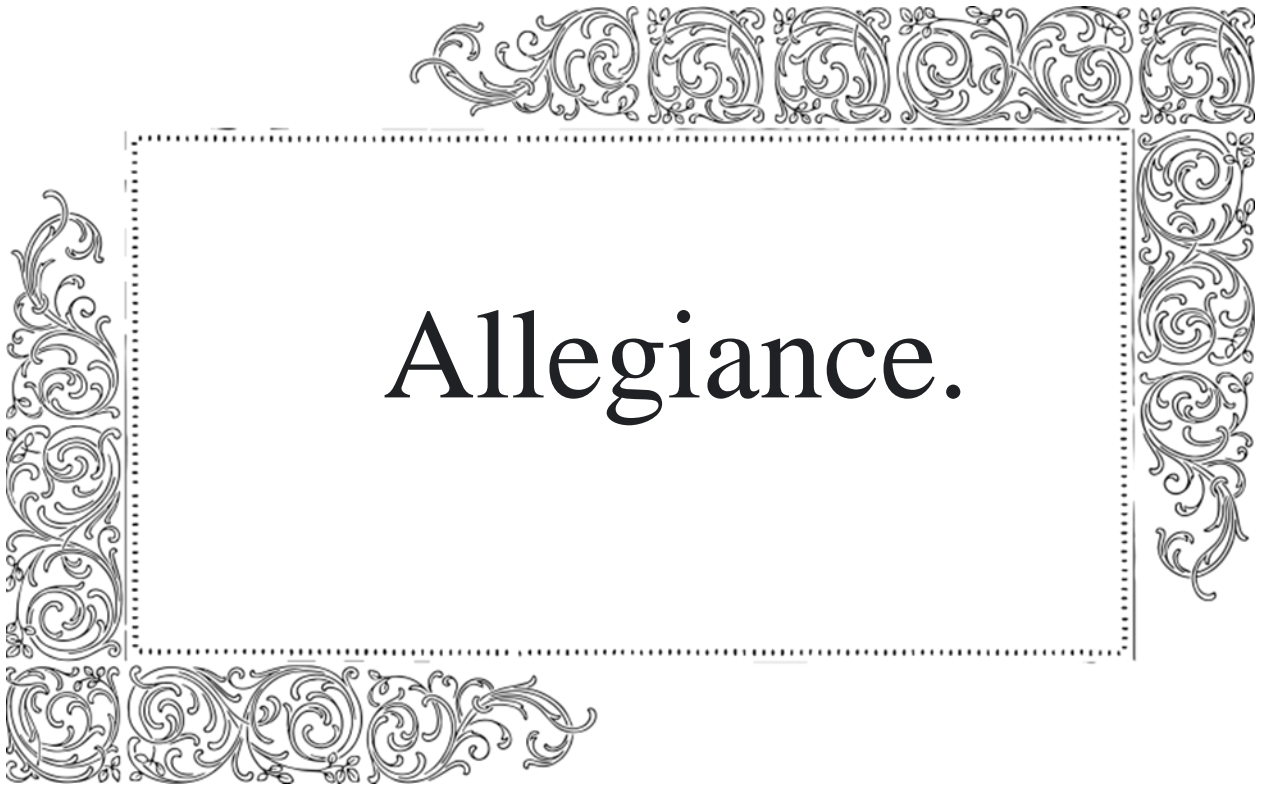
First and first, I would want to convey my deep thanks to Allah, the All-Mighty, for providing me the capacity to finish my project work and the chance to focus on this issue [Alhamdulillah].

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--ABDULA AL ARAFAT



**Parenting I'm,
The people that become constantly supportive of me in all aspects of my life.**

**My teacher,
the individuals who supported me during this process, and the committee that guided me.**

Abstract

A genetically programmed condition called androgenetic alopecia results from an overactive androgen response. This disorder, which affects up to 50% of both sexes, is defined by the gradual loss of scalp's terminal hair at any point after puberty. Both in men and females, it is distributed in a distinctive way. While women's frontal hairlines are often spared from diffuse hair loss at the crown and top of the head, which is frequently identified by a broader center part, men have hair loss that is most noticeable in the vertex and frontotemporal areas. This exercise looks at whether to include this ailment on the differential diagnosis and how to evaluate for it. This exercise emphasizes the function of the multidisciplinary team in patient care.

In this study found some demographic information where 58% male and 42% female are affected this kind problem .In this study I found around 60.5% people who are 25-30 years old that are firstly facing this problem. And the majority are affected because of their family history or gene problem.

Among 205 participants, they were 67.8% student and 26.8% job holder had experienced hair falling problem in their life history. The majority are students who facing this problem but they can not know what the actual problem is. That's why they use some medication without concern any doctor.

In this study I found that 35.1% people who use medication and 64.9% can not use medication. But I found that day by day the hair falling problem increased and could not decrease this problem. They change their diet, hairstyle, use regular shampoo, dry hair etc. But could not see any changes of the problem.

About 62% people who noticed that their hair falling increased day by day. About 45.9% people who are use medicine for a daily basis and 30.2% people are use medicine for weakly basic and only 9.3% who could not use any medication.

In my case study about 23.9% people who blamed their occupation for this problem and 36.1% who can't know, why this problem happened in their life. The majority of people who use biotin, they believe that it was helpful for their hair falling problem.

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Chapter 01

Introduction

1.1: Introduction



Up to 50% of males and females can experience pattern or androgenetic alopecia, a biologically bred condition caused by an overactive sensitivity to androgens. It is defined by a specific distribution in both boys and females and a gradual loss of scalp's terminal hair anytime after puberty. The vertex and frontotemporal areas are where hair loss is most noticeable in men, however in women the frontal hairline is often spared and diffuse apical hair loss is seen as a larger anterior section of the hair. [1] [2][3]

Androgenetic alopecia, as the name suggests has a clear genetic predisposition and is likely due to an excessive response to androgen.[4][5]

Pattern alopecia is a polygenic disorder with variable penetrance, and both maternal and paternal genes are involved. There is a familial predisposition to androgenetic alopecia with sons at a five to six time higher relative risk if their fathers were balding. [6][7]

Anagen, or the growth phase, is shortened in the typical hair growth cycle by androgen receptor activation. In androgenetic alopecia, excessive activation causes follicular shrinkage through a progressively shorter anagen phase, resulting in thinner and shorter hair follicles that may not even reach the epidermis in the end. In contrast to the typical 12:1 ratio, pathological specimens will have a lower 5:0 ratio of anagen to telogen hair. [8] [9]

1.2: Symptoms:

Although excessive hair loss is the primary sign of alopecia, it might be trickier to spot than you might expect.

The symptoms listed below might give some indications:

- **Spreading out.** If we separate our hair, we can start to notice our part becoming larger, which might be an indication of thinning hair.
- **Hairline is receding.** Perhaps an indication of thinning hair is if we find our hairline is higher than normal.
- **Itching or pain.** we could also feel discomfort or itching on your scalp if we have a skin issue that is the root of our hair loss.
- **Untied hair.** After using a brush or comb, inspect it. Are there more hair clumps than usual? If so, this may be an indication of hair loss.
- **Bald spots.** They might come in different sizes and develop over time.
- **Drain blockages.** Your shower or sink drains can be obstructed.

1.3: Causes

People typically lose 50 to 100 hairs a day. This usually isn't noticeable because new hair is growing in at the same time. Hair loss occurs when new hair doesn't replace the hair that has fallen out.

Hair loss is typically related to one or more of the following factors:

- **Family history (heredity):** The inherited disorder that develops with aging is the most typical cause of hair loss. Androgenic alopecia, male-pattern baldness, and female-pattern baldness are the names for this disorder. It typically happens gradually and in regular patterns, with men experiencing a receding hairline and bald spots and women experiencing thinning hair at the top of the head.
- **Hormonal changes and medical conditions:** Permanent or temporary hair loss can result from a number of circumstances, including hormonal changes brought on by pregnancy, childbirth, menopause, and thyroid issues. Medical problems include trichotillomania (trik-o-til-o-MAY-nee-uh), which causes compulsive hair pulling, and immune system-related alopecia areata (al-o-PEE-she-uh ar-e-A-tuh), which results in uneven hair loss.
- **Radiation therapy to the head:** The hair may not grow back the same as it was before.
- **A very stressful event:** Many people experience a general thinning of hair several months after a physical or emotional shock. This type of hair loss is temporary.
- **Hairstyles and treatments:** Excessive styling and tight-pulling hairstyles like pigtails and cornrows can result in traction alopecia, a type of hair loss. Permanent hair dye and hot oil treatments can both make hair brittle and fall out. Scarring could cause hair loss to become permanent.
- **Medications and supplements:** Hair loss can be a side effect of certain drugs, such as those used for cancer, arthritis, depression, heart problems, gout and high blood pressure.

1.4: Treatment

Topical minoxidil and finasteride, which both require at least a 4- to 6-month trial before observing improvement and must be taken continuously to sustain a response, are the two FDA-approved medications for pattern baldness. As a result, medication adherence is frequently not good. Moreover, the drug's first shedding phase may result from its administration. Together, they perform better. [10][11]

Topical minoxidil is sold without a diagnosis and available in a range of strengths, up to a 5% solution. More powerful strengths are more efficient. The most common side effects are itchiness and localized irritation, which cause peeling. The latter is typically brought on by alcohol or propylene glycol included in the drug's composition. A potassium channel blocker, minoxidil opens up blood vessels, providing more oxygen, blood, and nutrients to enter follicles and speeding the anagen phase.[12][13][14]

Finasteride is not an anti-androgen instead a type 2 inhibitor of 5 alpha-reductase. [12] It is more efficient in promoting hair regeneration at the vertex of the scalp than the frontal portion of the scalp and is given at 1 mg per day. Finasteride may cause ambiguous genitalia to develop in a male baby, making it unsuitable for women with reproductive potential (Category X) and its usefulness in treating female pattern baldness questionable. When PSA is hidden and found later, there is a higher likelihood of developing high-grade prostate cancer. Additionally, there have been reports of cases of continuously low libido and erectile dysfunction.

The FDA has not authorized any further medications for pattern baldness. Dutasteride is frequently prescribed to individuals whose attempts to take finasteride failed since it is 100 times more effective than type 1 enzyme and three times more potent than type II 5 alpha-reductase. The side effect profile is comparable to that of finasteride.[15][16][17]

Oral antiandrogens like spironolactone are often used on women. Spironolactone functions physiologically as a direct antagonist because it inhibits the interaction of the considerably more powerful DHT and free testosterone with the androgen receptor. Spironolactone is a very weak partial agonist to the androgen receptor. Moreover, it prevents the manufacture of androgens and

promotes the conversion of testosterone to estradiol.[28] Although cyproterone acetate is used globally, it is unavailable in the US. Anti-androgens work better when there are additional virilization indicators.

1.5: Literature Review

According to a Fortune Business Insights analysis, a major growth driver in the hair care industry is anticipated to be the increasing prevalence of hair issues in metropolitan areas, such as pollution and extreme climatic fluctuations.

In addition, a 2018 research that appeared in the Journal of Clinical and Diagnostic Research revealed that 60.3% of working-class men reported having issues with hair loss. In this succinct literature review, six current publications on hair loss and growth are highlighted.[18][19][20]

"Strategies for Improve Hair Binding: Keratin Fractions and the Effect of Cationic Substructures" are discussed in the current study. In this study, the authors looked into possibilities for hair repair and protection against damage brought on by permanent wave treatments using keratin extracts and hydrolysates from various sources, as well as their chemical changes and compositions.[21][22] 6-Mercaptonicotinamide pre-activation enhanced their binding to natural hair.

Chapter 02

Purpose of Study

Purpose of the study

To examine the frequency of androgenic alopecia among the random people of Bangladesh and it's relative to specific areas.

To evaluate the symptoms which can easily indicate presence of some hair falling problem of Bangladeshi people.

To find out the reason of actual problem.

To find out the particular group of people who have a relationship between his/her family history about this problem.

To find out the triggering factor of androgenic alopecia.

To find out the percentages of the people who have affected.

To investigate the extent of study who used to take medications.

To investigate the extent of study who used to take medication without consulting health care provider.

Chapter 03

Methodology

Methodology

A cross section survey using questionnaires is conducted among the people selected areas of Bangladesh. The study, which took place since January.

In a particular area in Bangladesh, a cross-sectional survey using questionnaires was performed among undergrads. Between January 2023 and March 2023, 205 people from the first and final years of the Bachelor degree & job holders are participated in the survey. The degree of students' hair falling was assessed after they completed a questionnaire outlining its symptoms. Moreover, problem contributing to hair falling were investigated.

They were given the questionnaires which were included about personal data, life-style, symptoms, using medication and etc. Which on give me some importance information about this problem and which is collected from the case study, google scholar, National library of medicine and online library.

Chapter 04

Result and

Discussion

Result and discussion

A total of 205 students & job holder had participated in this survey. Interviewers collected those data from online & different universities from the randomly selected area in Bangladesh. Data were collected from various department from different areas of Bangladesh.

4.1: Demographic information

i. This study was conducted among people and students who were currently studying or job holder in different areas of the country. The 67.8% of students and 26.8% of job holders. Majority persons are students.

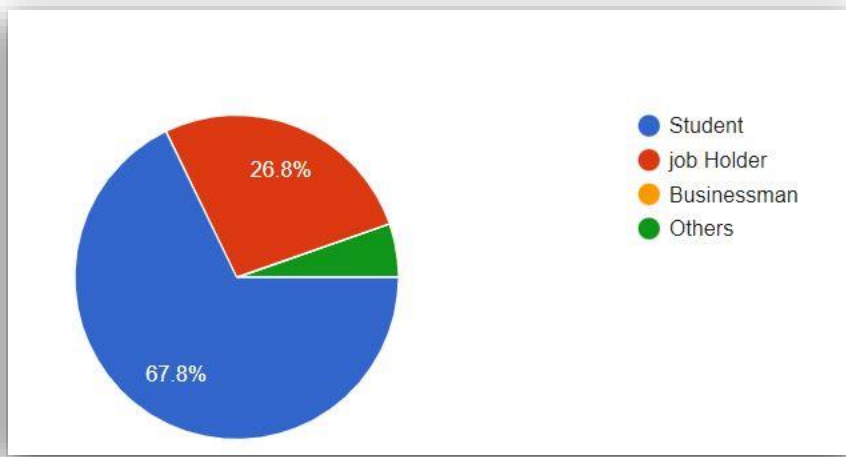


Figure 01: Level of people

ii. In this study, around 60.5% of people have 25-30 years old. 39% of persons have 20-25 years. Only a few percentages are other ages.

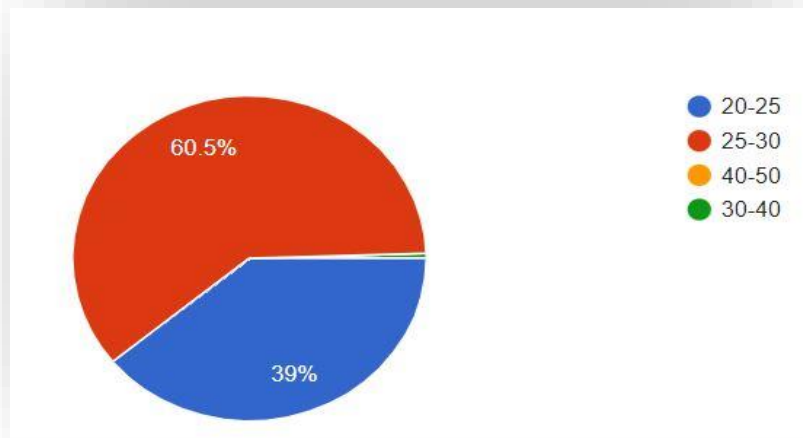


Figure 02: Age

iii. In the survey, about 58% of people are male and only 42% are female.

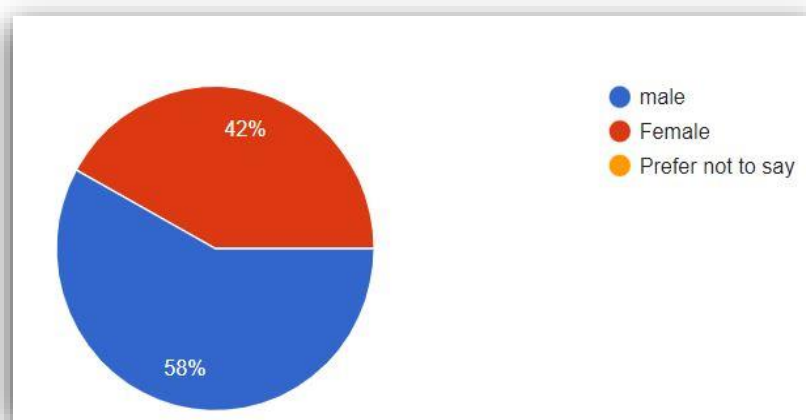


Figure 03: Gender

iv. There was a question asked to the people about their family of baldness or hair falling. In this survey, about 93.7% of people have a family history of baldness and only 6.30% are told negative.

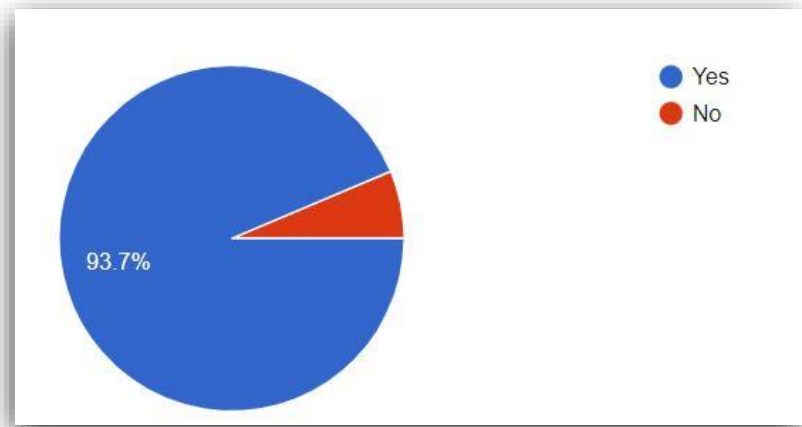


Figure 04: Family history of hair falling

4.2: Prevalence of survey

i. Among 205 participants, there were about 79.5% of people daily; 8.8% people seasonally ; 5.85% are weakly and also monthly had experienced hair falling in their life.

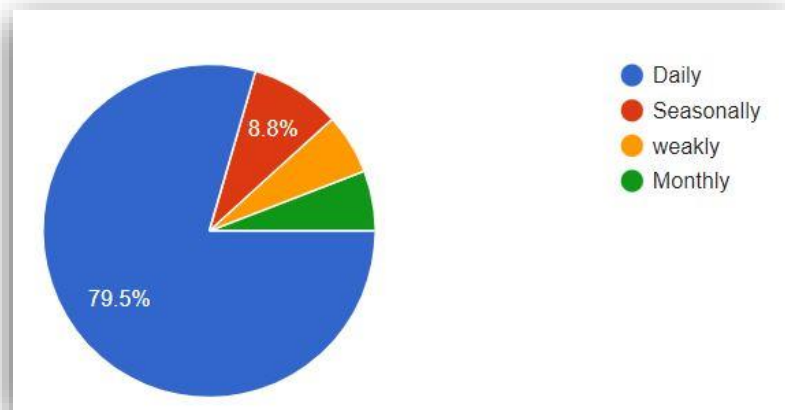


Figure 05: Experiences hair falling

ii. In this survey, I find that about 76.1% people who were affected a few amount of hair loss and more than 100pcs of hair loss are the lowest.

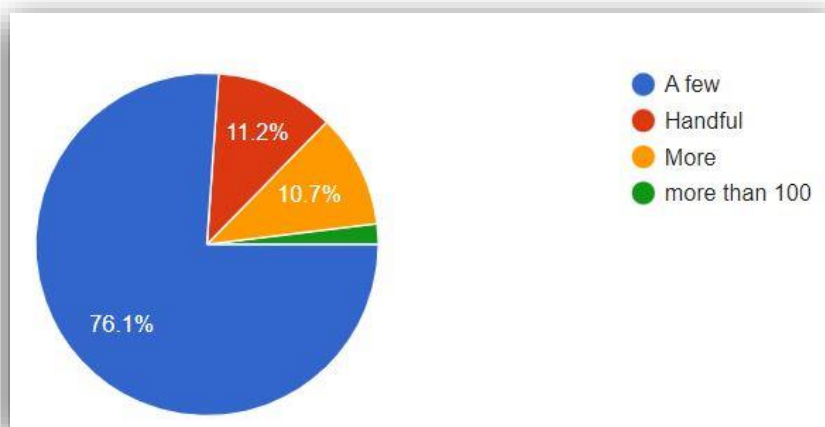


Figure 06: Amount of hair falling

4.3: Possible medication & Changing diet.

i. A majority participants could not use medication & they are 64.9%, but only 35.1% participants who are trying to use different medication.

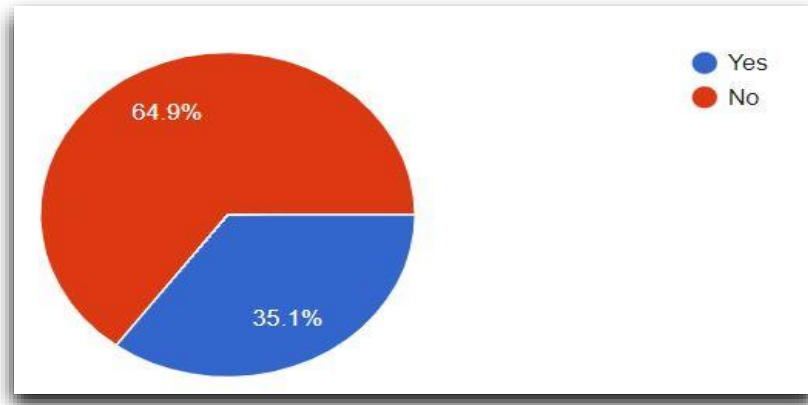


Figure 07: Participants who use any medication or not.

ii. In this survey, in all of the participant's majority use Biotin & that was 81%, biotin is the natural product that is good for hair problem. Different participants use different medicine like minoxidil, Finasteride, etc.

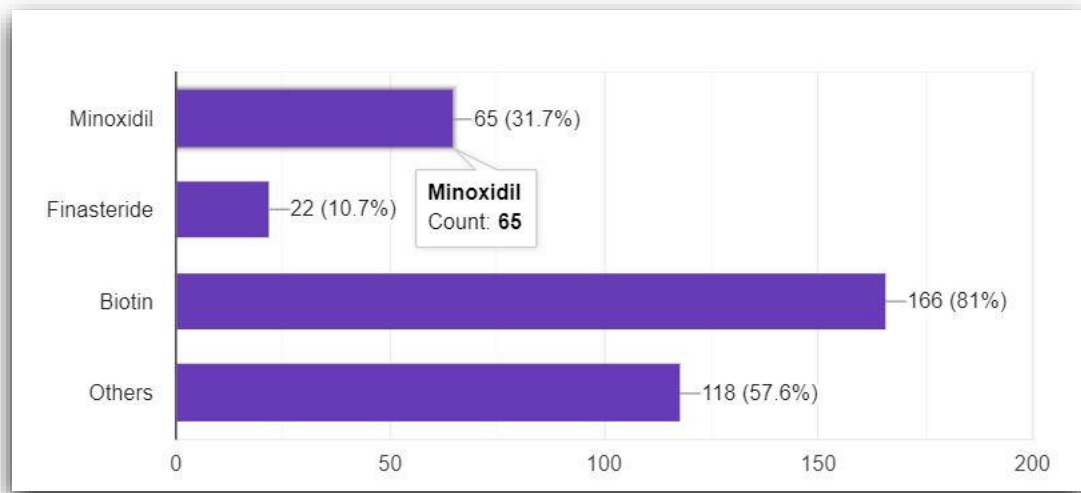


Figure 08: Usable medication

iii. About 45.9% participants use medication at a daily basis. 30.2% use medicine weekly, 14.6% directed by the doctor and 9.3 % could not know.

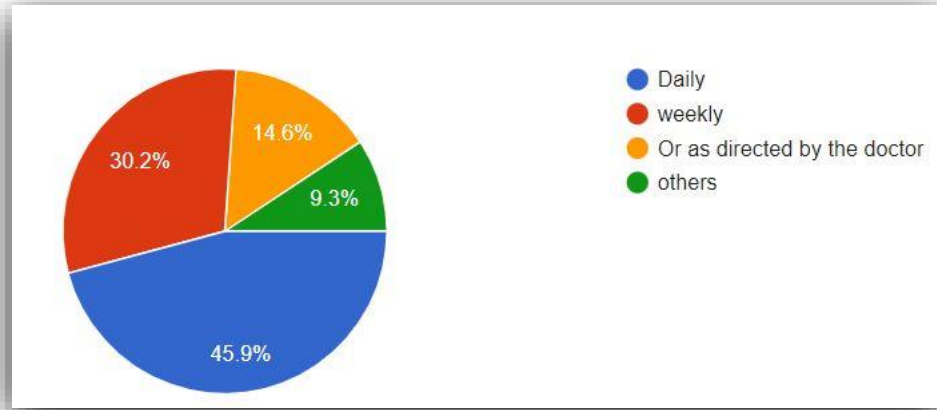


Figure09: Basis on routine for use medication

iv. In this survey, about 81.5% participants were changed their diet and only 18.5% participants cannot change their diet.

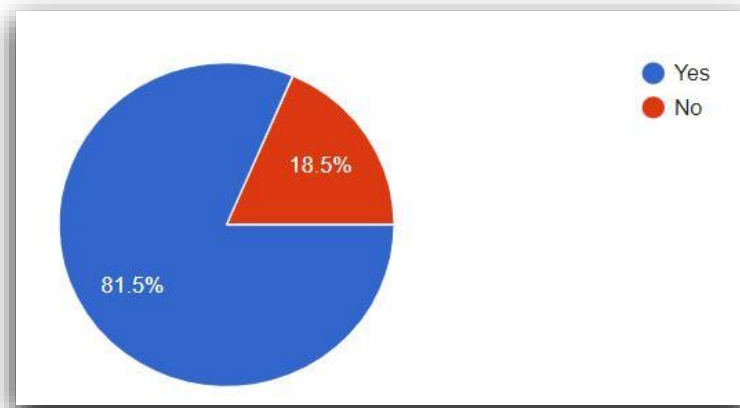


Figure 10: Changing diet

4.4: Hair care

i. About 64.9% participants are use shampoo for their hair care and only 24.9% who use hair oil and others are use conditioner.

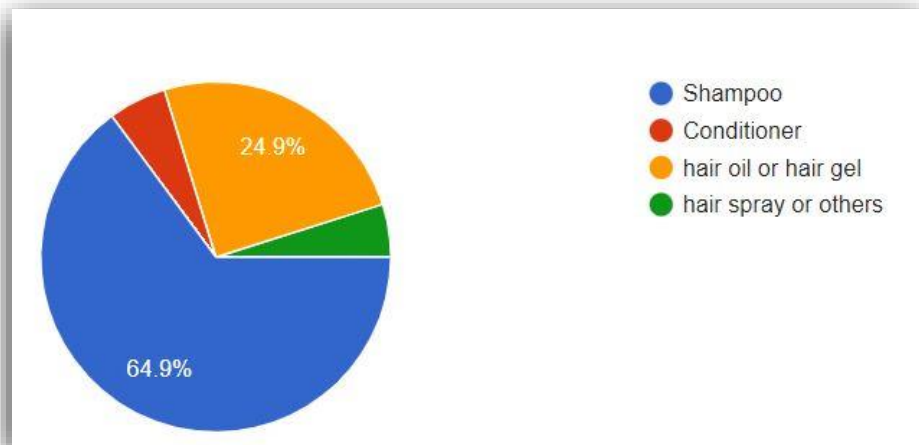


Figure 11: Care product

ii. To take care of their hair, they regularly brush and avoid heat styling of the hair .So, about 32.7% participants brush regularly and only 21% participants avoids heat styling.

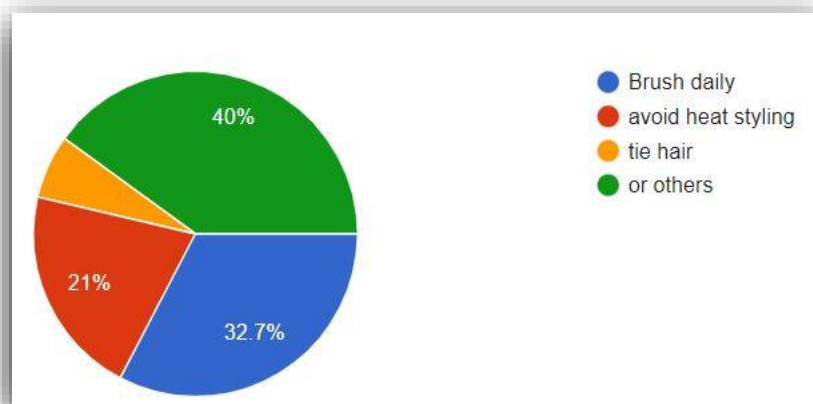


Figure12: Hair care

4.5: Possible outcome

i. After that, participants told their hair couldn't stop falling. About 62% participants told that their hair falling increased day by day and only 30.7% participants told, their hair falling are the same. A few participants told, there hair couldn't fall or stop falling.

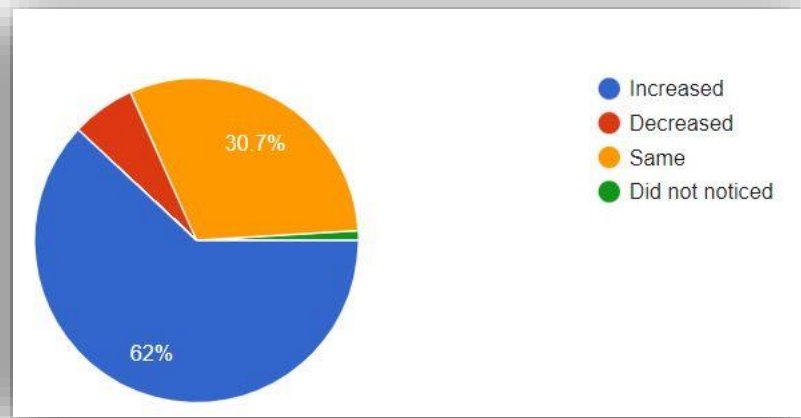


Figure13: Outcome

Chapter 05

Conclusion

Conclusion

In this study, I found or realize that whatever the reason for hair loss, consulting a dermatologist or primary care physician will assist in identifying underlying problems. Early treatment of hair loss increases the likelihood of success.

Changes to your nutrition, changes to how you take care of your hair, and medical procedures that can be administered topically or taken inside are all types of therapies.

There are treatments available that can help halt or cure hair loss, even if it is inherited. If at all feasible, discuss issues with doctor so they can rule out any major underlying health conditions that could be the root of your hair loss.

A symptom, not a diagnosis, is hair loss.[30] Each of the genetic, endocrine, immunological, and inflammatory systems involved in the etiology of the alopecias needs a distinct approach to cure.

Chapter 06

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