Business Intelligence CA1

Analytical Report on Hair Fall Prediction

By

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Submitted to
Lecturer
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Overview

Nowadays people are facing a lot of Hairfall issues due to various reasons. Considering this as one of the rapidly growing concerns in many individuals, the dataset that I have chosen is **Hair Fall Prediction**.

Dataset Description

Dataset contains information about various factors that may contribute to hair fall in individuals. It has 13 columns and 999 rows. Each row represents a unique individual, and the columns represent different factors such as genetics, hormonal changes, medical conditions, medications and treatments, nutritional deficiencies, stress levels, age, poor hair care habits, environmental factors, smoking habits, weight loss, and the presence or absence of baldness.

Target audience

The Target audience to whom I am representing this dataset is **Trichologists, Healthcare professionals or any normal individual** who is studying hair fall patterns. They can focus on the various factors mentioned in the dataset that are affecting the Hair Loss and accordingly suggest required preventive measures.

Data Processing

- The dataset had no missing values but it had 4 duplicate values which were removed.
- **Target feature** was the Hair Loss reprsented with a Binary variable indicating the presence **(1) or absence (0) of baldness** in the individual.
- Added a new column Age Group for considering the values into a specific age group making it a little easier rather than considering only age.

Justification

Dataset Selection

The main reason for selecting this dataset is my personal experience with hair fall issues since moving to Dublin, which prompted me to search for relevant data. The chosen dataset offers comprehensive information on various factors contributing to hair fall, such as environmental conditions, nutrient deficiencies, and stress levels. This makes it suitable for an in-depth analysis of the problem.

Software Choice

- Power BI was selected for a number of reasons. First of all, as I hadn't used it before, I wanted to experiment with its unique and varied graph choices.
- Power BI is widely recognised for its strong data visualization features, user-friendliness, and effectiveness when managing huge datasets. What inspired me to construct this specific

dashboard was also my goal to become more knowledgeable about Power BI so that I could list it as an additional skill on my resume.

- Since it's widely used and great at creating visually appealing and analytical dashboards, I considered Power BI as the best option to explore.

Column Selection

With hair fall as the target feature, I included the "Hair Loss" column along with other relevant columns such as "Age," "Medical Conditions," "Genetics," ,"Stress Level",etc. These columns were used to create visualizations that highlight key predictors of hair fall and analyze trends across various factors.

Favorite Chart

There are multiple charts that I like but one of them, The chart showing the percentage of hair loss due to medical conditions is particularly effective. It visually demonstrates the relationship between medical conditions and hair fall levels, highlighting the correlation between specific health issues causing increased hair fall. This makes it easier to identify critical medical conditions that should be considered for intervention.

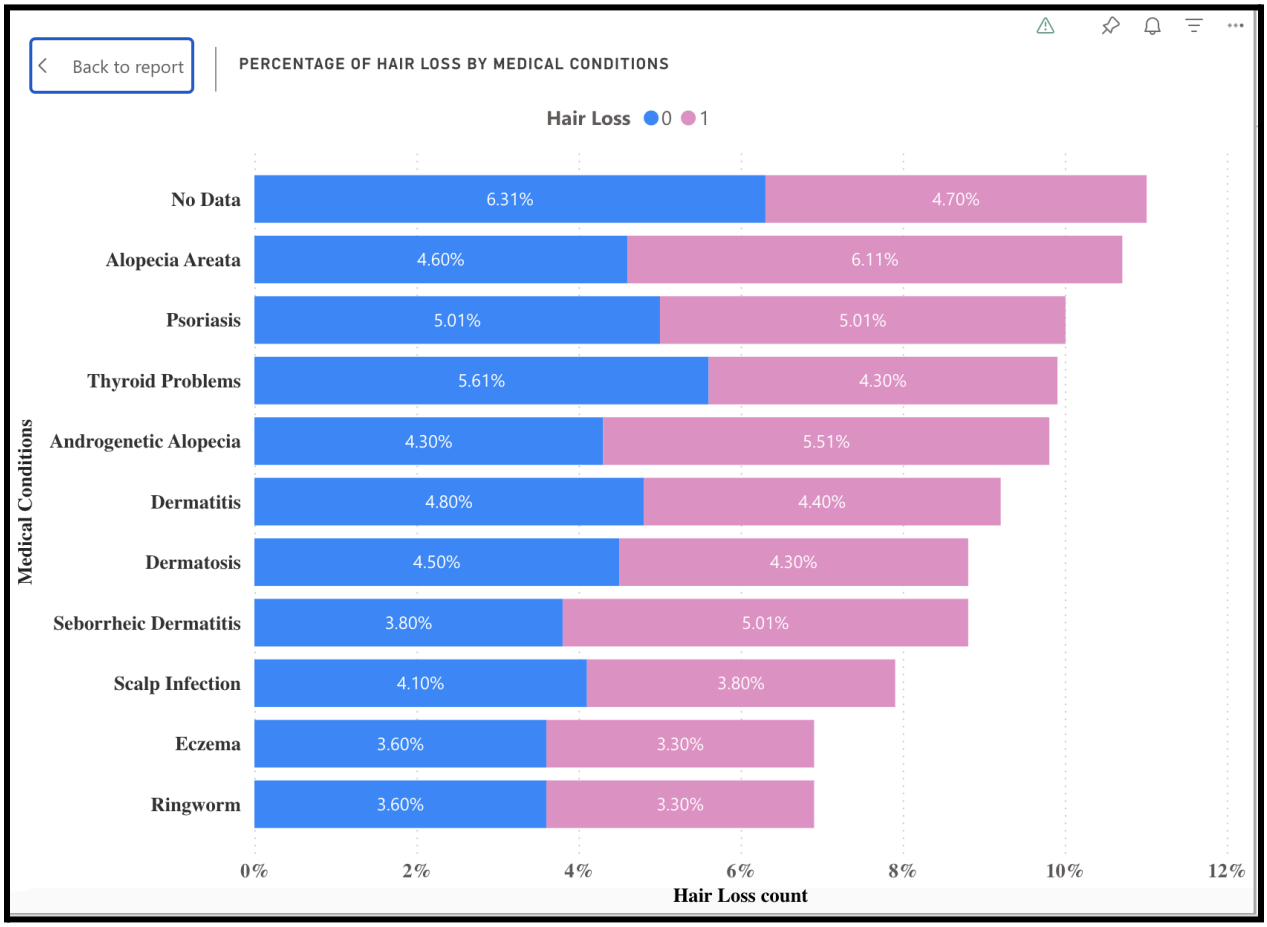

Chart 1. Hair Loss due to Medical Conditions

Other Charts Insights

1. **Hair Loss due to Nutritional Deficiencies**

    - Nutritional deficiencies that may contribute to hair loss, such as Iron deficiency, Vitamin D deficiency, Biotin deficiency, Omega-3 fatty acid deficiency, etc.
    - As per the chart, Individuals with Zinc, Vitamin D,Biotin,Vitamin A and Omega 3 fatty acid deficiencies are more likely to experience hair fall compared to those with deficiencies in other nutrients. This suggests a strong correlation between nutrients affecting hair health.
    - To avoid hair fall considering nutrient deficiencies we can increase the intake of all these nutrients that cause hair loss by consuming the required amount of supplements or foods through which we can overcome the deficiencies and prevent the hair fall.

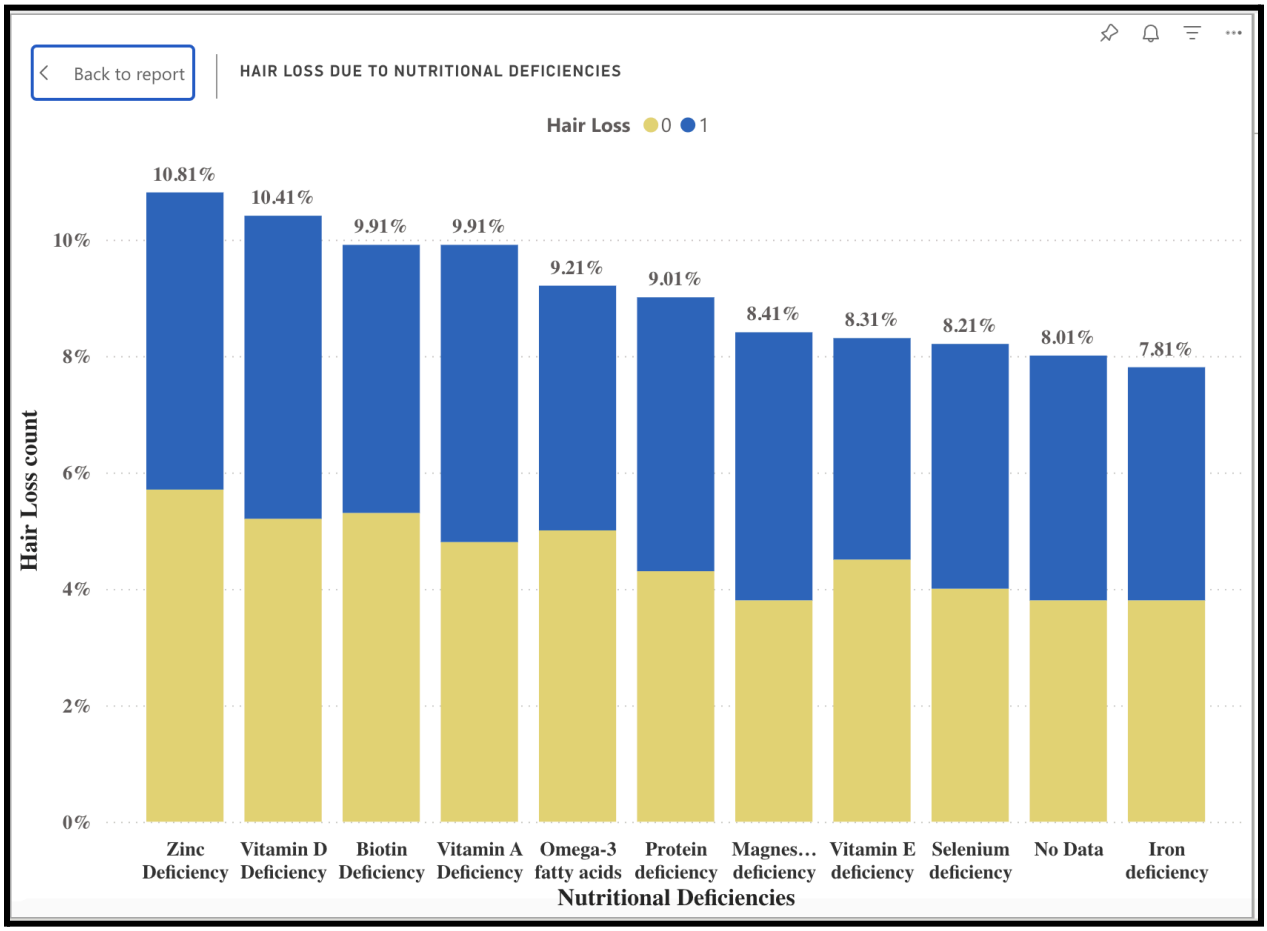

Chart 2. Hair Loss due to Nutritional Deficiencies

2. **Key Influencer Graph**

    - This graph highlights the multidimensional nature of hair loss, demonstrating how numerous causes influence it. The graph looks at a number of important factors:
    - Factors that contribute to the graph are Analyzed by the age group, and is Explained by Hormonal Changes, Medical Conditions, Medications & treatments and Nutritional deficiencies. It categorizes the data based on different age groups with relation to these factors.
    - For example: In the 30-40 age bracket, Thyroid problems are a common medical condition impacting hair loss, Rogaine is more likely identified for medication and therapy. Nutritional deficits, particularly those involving Vitamin D and Biotin, are also noticeable.
    - The graph provides a detailed summary of how these factors interact with age to influence hair loss, providing important insights into the fundamental causes of hair loss across different age groups.

Conclusion

To summarize, creating this dashboard with Power BI was a good learning experience as well as a significant achievement. The process helped me to create visually appealing and useful dashboards for specific purposes, hence improving my data visualization abilities and skills.