**Data analysis report:** Synthetic Prostate Cancer Risk Assessment

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**Executive Summary**

This report presents an Exploratory data analysis of a dataset containing information about different risk factors that contribute to synthetic prostate cancer. The analysis aims to uncover which risk factors contributed to synthetic prostate cancer which could inform health decision on how to improve quality of life. Key findings were that regular health check ups reduced the chance of getting prostate cancer.

**Introduction**

Synthetic prostate cancer affects the prostate glands in males and has been health crisis for the past years. This dataset analyses the hypothetical data of the risk factors that may contribute to getting prostate cancer.

**Dataset Overview**

The dataset is assumed to contain the following columns:

* Age
* BMI
* Alcohol consumption
* Sleep hours
* Physical activity
* Diet type
* Smoker
* Family history
* Mental stress level
* Regular health checkup
* Prostate exams done
* Risk level (Target variable)

**Methodology**

The analysis employs descriptive analysis distribution analysis and relationship analysis (cross-tabulation) to draw insights. The questions to be addressed were:

1. How does the individual factors contribute to the probability of getting prostate cancer?
2. Which factors had the highest probability of causing prostate cancer?

**Analysis and Findings**

1. **Descriptive analysis**

**Age**: The age range is between 30 and 80 years with and average of 55 years.

**BM**I: The BMI range is between 18 and 37 with and average of 26.

**Sleep hours**: The range is between 5 and 9 hours with an average of 7 hours.

1. **Frequency distribution**

**Smoker:** Active smokers made up 51% of the population.

**Alcohol consumption:** Alcohol consumption was at 19% of the entire population.

**Diet type:** 28% indulged in fatty diets’

**Physical activity:** 29% involved in physical activity.

**Family history:** 19% had a relative who had prostate cancer.

**Mental stress:** 30% reported to having high mental stress.

**Regular health check-ups:** 52% reported to undergo regular health check-ups.

**Prostate exams:** 33% reported to have undergone a prostate exam

**Risk level:** 4 out of 100 people were estimated to have prostate cancer.

1. **Relationship analysis**

The following were reported to be the risk factors towards prostate cancer development:

* Smoking (7%)
* Alcohol consumption (10%)
* Fatty diets (10%)
* Low physical activity (8%)
* Family history (9%)
* High mental stress (6%)
* Old age
* Higher BMI
* Lesser sleep hours

The following were reported to reduce the chance of getting prostate cancer:

* Regular health check-ups reducing the risks to 1%
* Prostate exams reduced the risk to 2%

**Key Insights**

1. Regular health check ups and prostate exams reduced the risk of getting prostate cancer
2. High alcohol consumption, family history, fatty diets, and low physical activity increased the risk of getting prostate cancer.

**Recommendations**

1. Regular health check ups and prostate exams should be conducted to decrease the risk of getting prostate cancer
2. Patients with low physical activity, alcohol consumptions, fatty diets, and with family history should be considered as the target individuals when combating the prostate cancer.

**Conclusions**

Prostate cancer is a disease that affects men only due to the presence of the prostate glands in them. 4 out of 100 men, is likely to have prostate cancer. There are activities that reduce the risk of getting the disease such as regular health check ups while there are some the increase the chances of getting the disease.