

Descriptive Analysis of Cardio Good Fitness Treadmill Product Lines

Sushrit Kaffle

2024-09-23

Introduction

Cardio Good Fitness, a leading retailer in the fitness equipment industry, aims to better understand its customer base to improve its product marketing strategy and increase sales. The market research team is assigned the task to identify the profile of the typical customer for each treadmill product offered by Cardio Good Fitness. The market research team decides to investigate whether there are differences across the product lines with respect to customer characteristics. The team decides to collect data on individuals who purchased a treadmill at a Cardio Good Fitness retail store during the prior three months.

Dataset Description

The team identifies the following customer variables to study:

- Product - the model no. of the treadmill
- Age - in no of years, of the customer
- Gender - of the customer
- Education - in no. of years, of the customer
- Marital Status - of the customer
- Usage - Avg. # times the customer wants to use the treadmill every week
- Fitness - Self rated fitness score of the customer (5 - very fit, 1 - very unfit)
- Income - of the customer
- Miles- expected to run.

The data are stored in the CardioGoodFitness.csv file.

Methodology

The following steps were undertaken to analyze the data and draw insights:

Data Preprocessing: Identification of missing value, classification of variables into categorical and numerical for analysis.

Data Summary: A preliminary analysis to understand the central tendencies and spread of numerical variables and frequency counts for categorical variables.

Univariate, Bivariate, Multivariate Tests: Performed appropriate tests to see if gender affects the model purchased. Performed tests to see if there any difference in mean age among customers that purchased different models.

Visualization: Visualizations were created to understand the data: Histograms and density plots were created to assess the distribution of numerical variables, bar charts and boxplots to compare categorical and numerical variables and multivariate plots to explore the combined effect of several customer attributes on treadmill purchases.

Results and Analysis

In this section, the findings from Cardio Good Fitness dataset are discussed.

About The Dataset:

The dataset has the shape of (180,9), i.e. 180 observations and 9 variables.

The types of variables include:

Numerical Variable: Age(Discrete), Education(Discrete), Usage(Discrete), Fitness(Ordinal), Income(Continuous), Miles(Discrete).

Categorical Variable: Product, Gender, Marital Status.

There are no missing data in the table.

Exploring Key Questions for Data Understanding

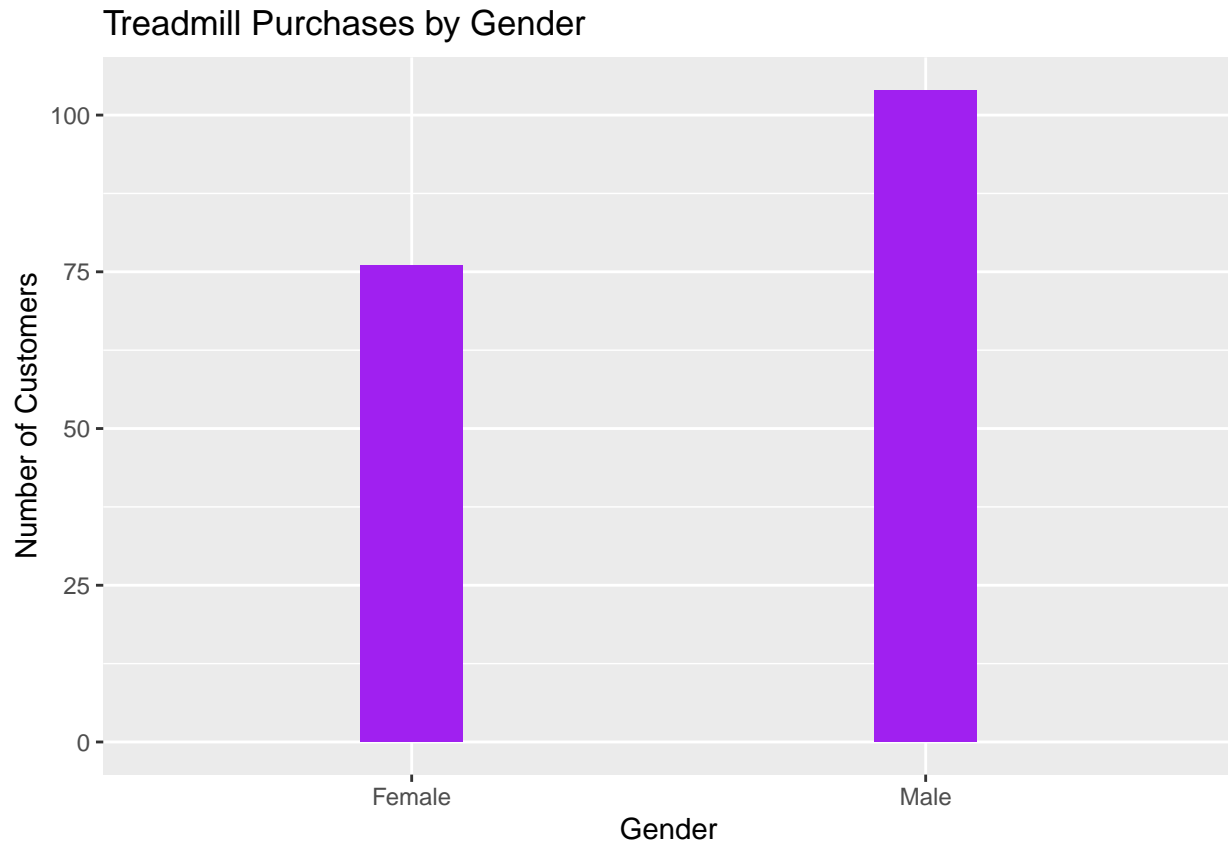
- How many models does store have?
- >The store has 3 models: "TM195" "TM498" and "TM798".
- Which is most sold Model?

Table 1: Treadmill Model Sales

Product	Sold
TM195	80
TM498	60
TM798	40

-> TM195 is the most sold model.

- Are Male customers buying treadmill more than female customers?



-> Yes, male customers are buying more treadmills.

- What is the average Income, Age, Education of people buying treadmill?

-> The averages can be observed as below:

Table 2: Averages of Treadmill Buyers

Avg_Income	Avg_Age	Avg_Education
53719.58	28.78889	15.57222

- How many days and miles customer expect to run on treadmill?

-> According to the data,

Table 3: Average Days and Miles Expected on Treadmill

Avg_Usage	Avg_Miles
3.455556	103.1944

An average usage would be 3 times a week with 103.19 miles.

- What is the average self-rated fitness of customers buying treadmill?

-> The average self-rate fitness is given as:

```
self_rate = data %>% summarise(Avg_Rating = mean(Fitness))
kable(self_rate, caption = "Average self-rated fitness of customers buying treadmill")
```

Table 4: Average self-rated fitness of customers buying treadmill

Avg_Rating
3.311111

• Are married customers buying Treadmill more than Single customers? • Is there any relation between Income and model? • Is there any relation between Age and model? • Is there any relation between self-rated fitness and model? • Is there any relation between education and model? • Does gender have any effect on model customer buy? • Does Martial status have any effect model customer buy? • Are different age groups buying different models? • Relation between Age, Income and education and model bought?