

HEALTH INSURANCE ANALYSIS

Smokers

- Non-smoker
- Smoker

Sex

- Female
- Male

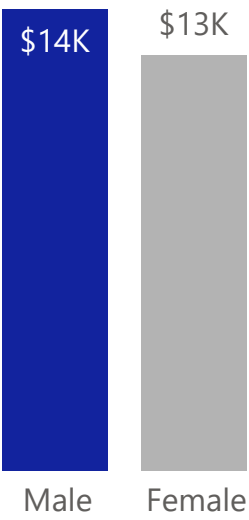
Age Group

- Select all
- 18-24
- 26-34
- 36-44
- 46-54
- 56-64

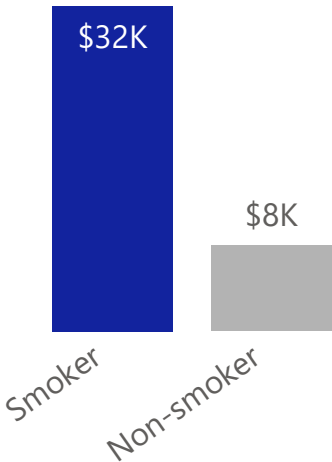
Region

- Select all
- North-East
- North-West
- South-East
- South-West

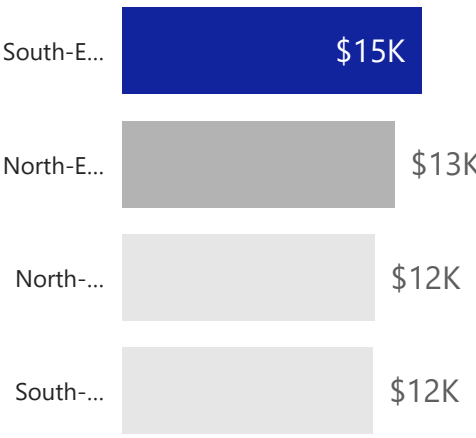
Men's health insurance charges are 10% higher.



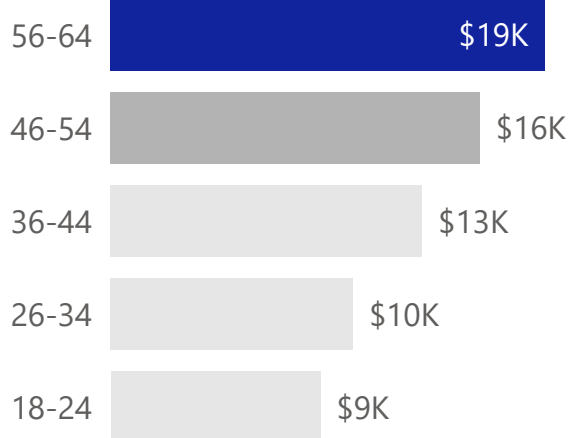
Smokers' health insurance charges are 178% higher.



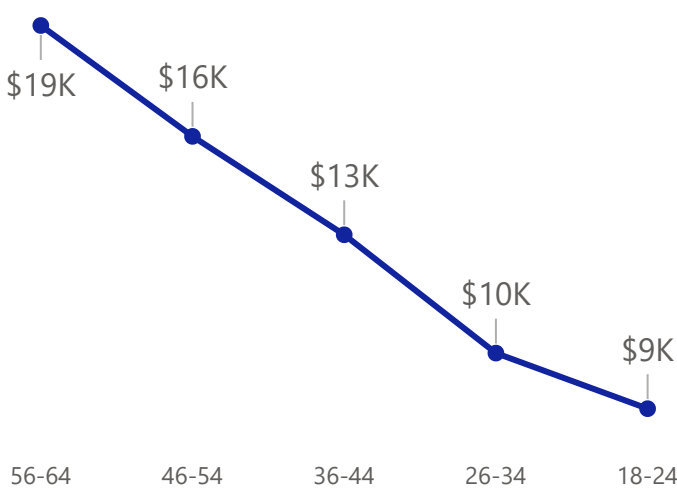
The South-west region has the highest health insurance charges



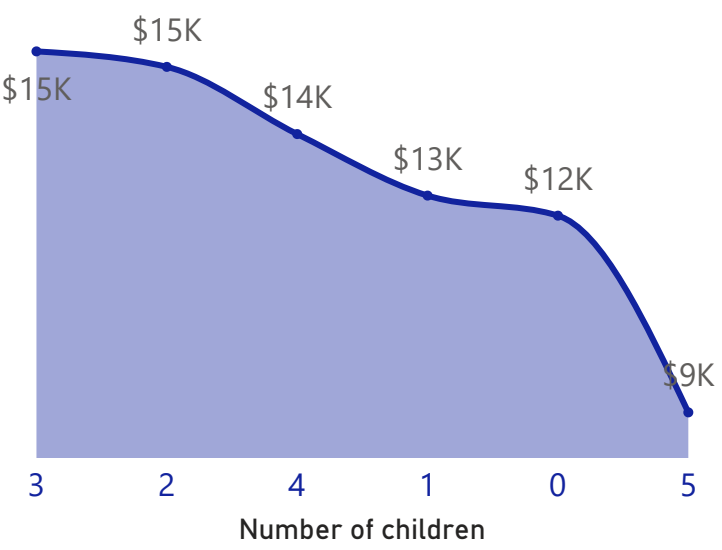
Adult between age 56 and 65 has the highest health insurance charges



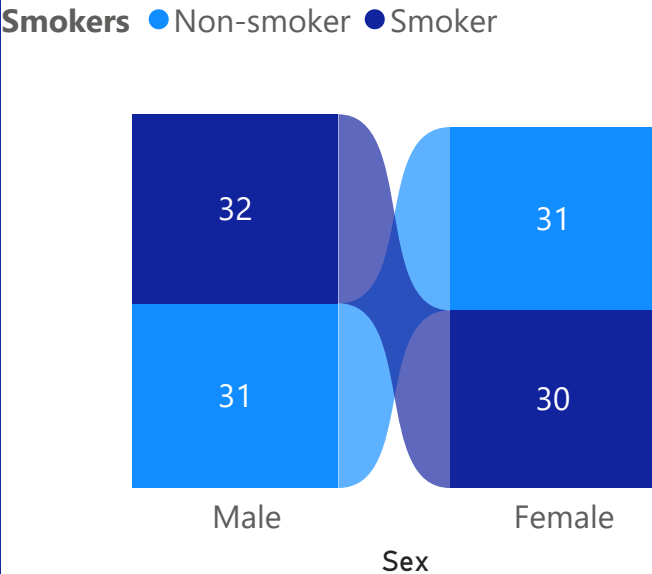
Obese patient spend more on health insurance



People with 2 and 3 children pay more for health insurance



Majority of the smokers are male with higher BMI



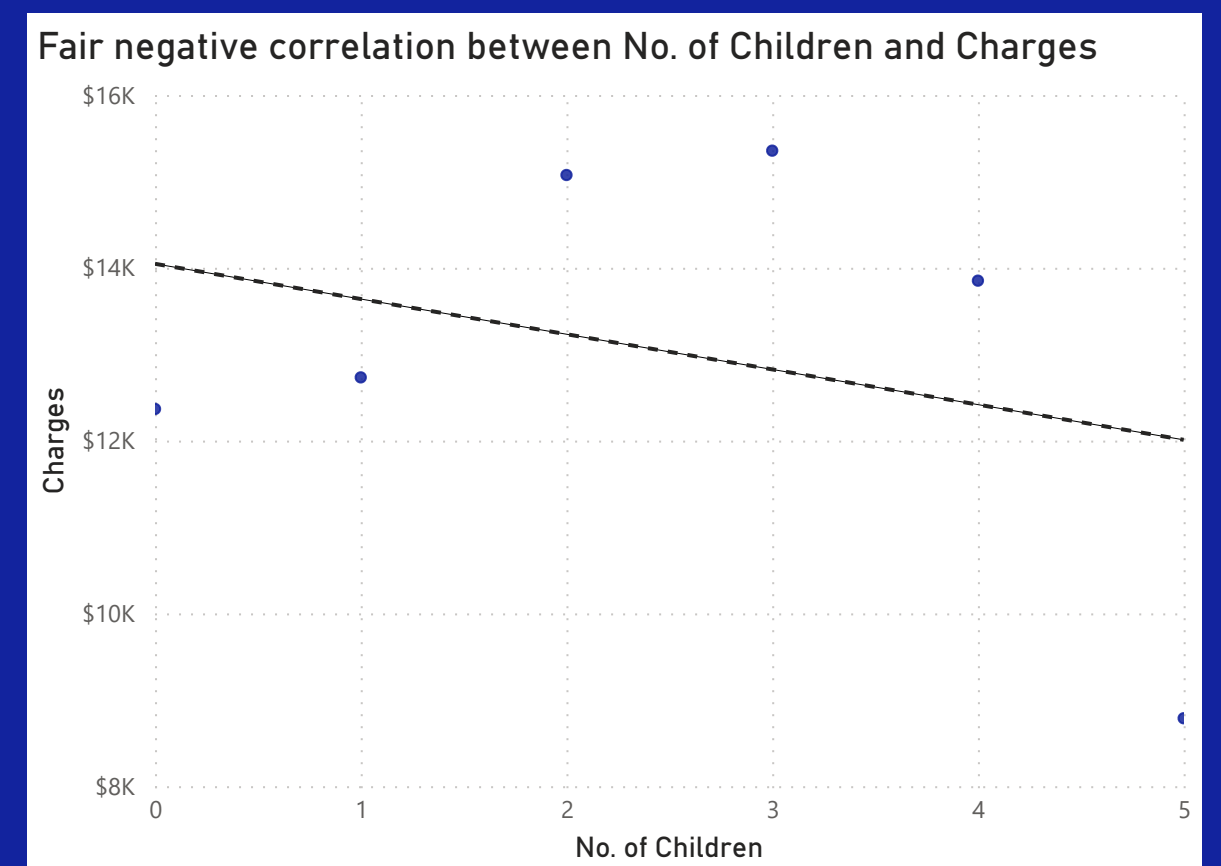
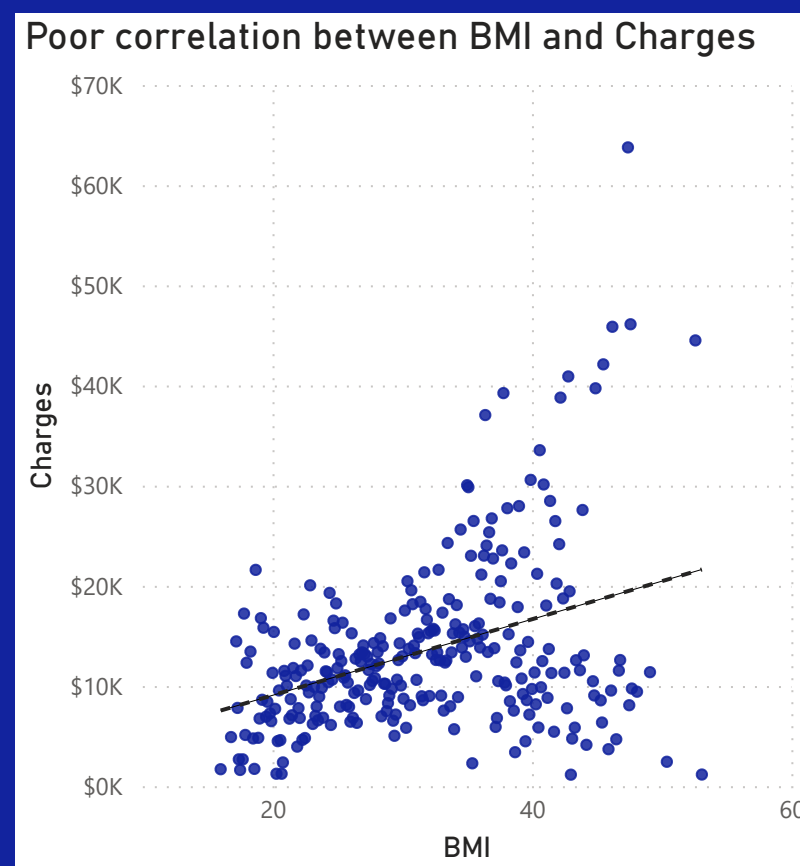
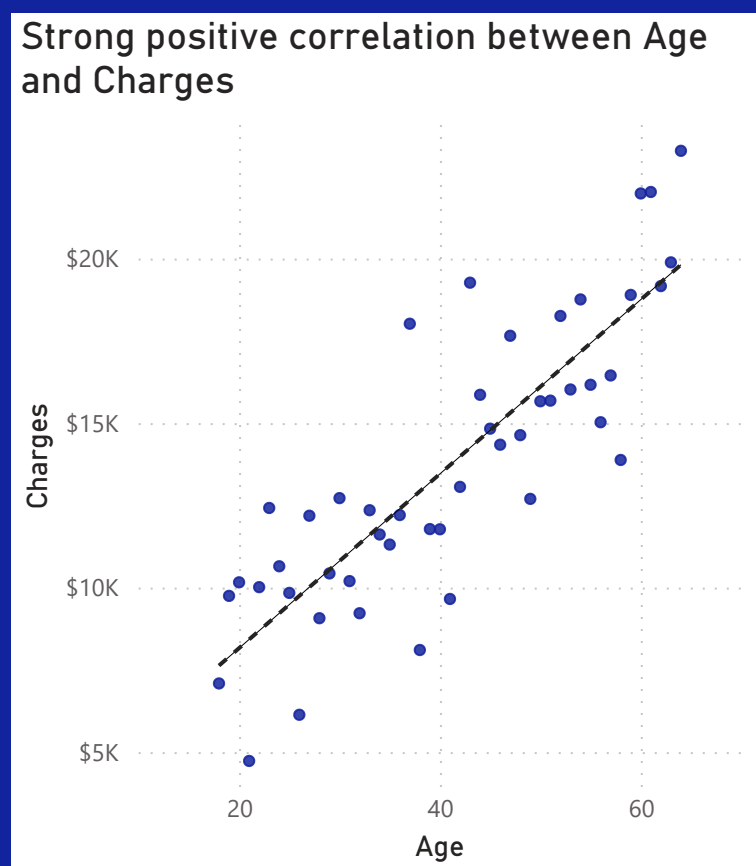
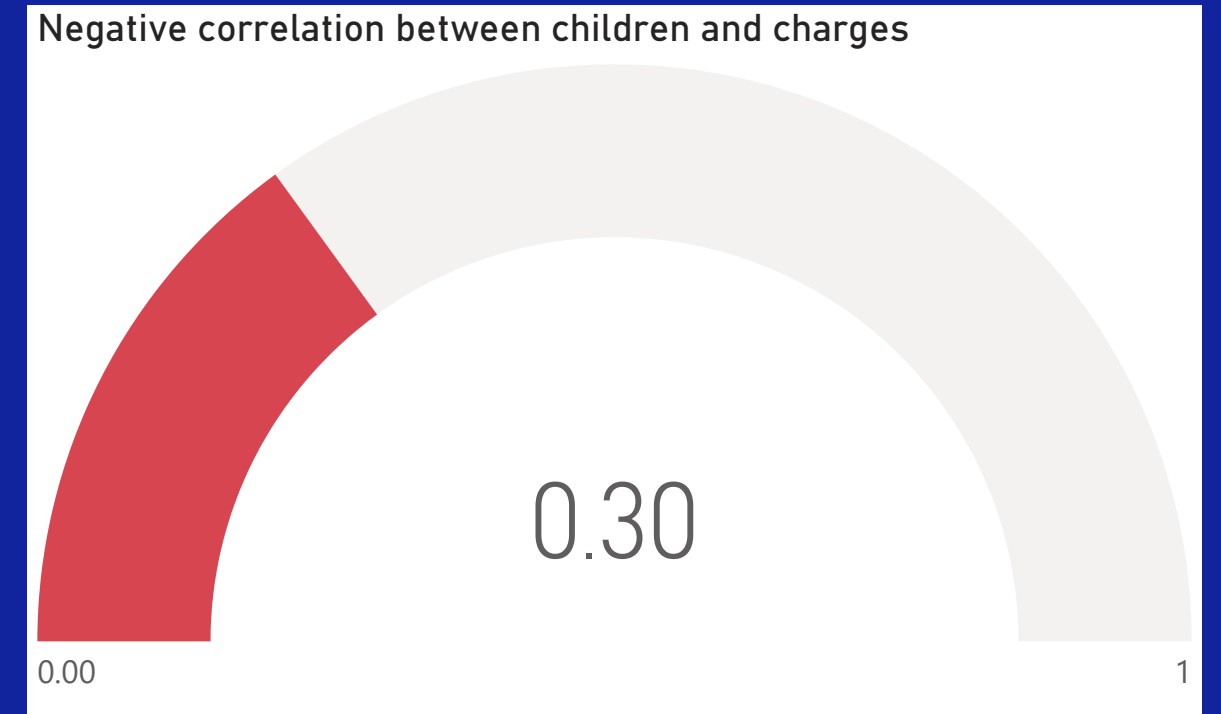
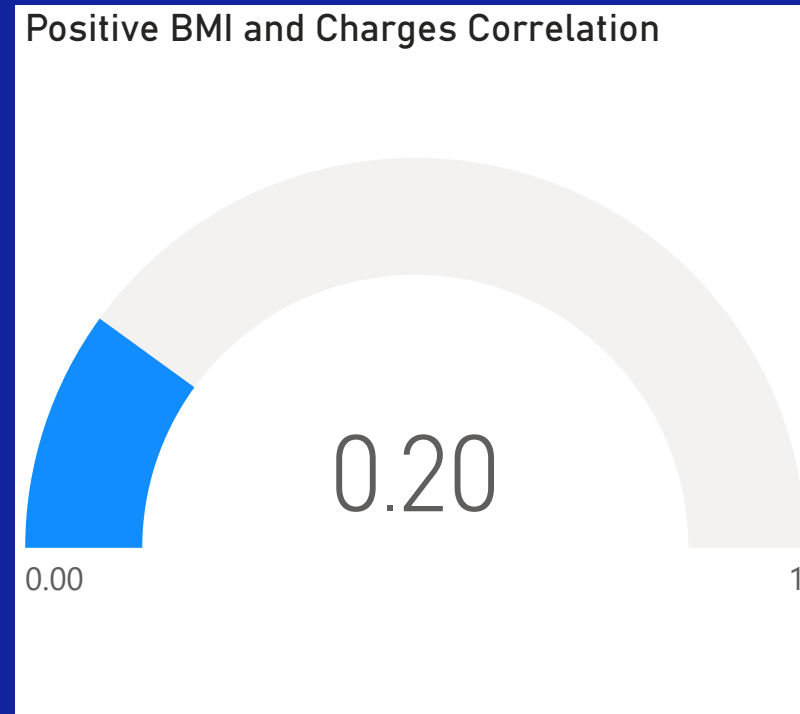
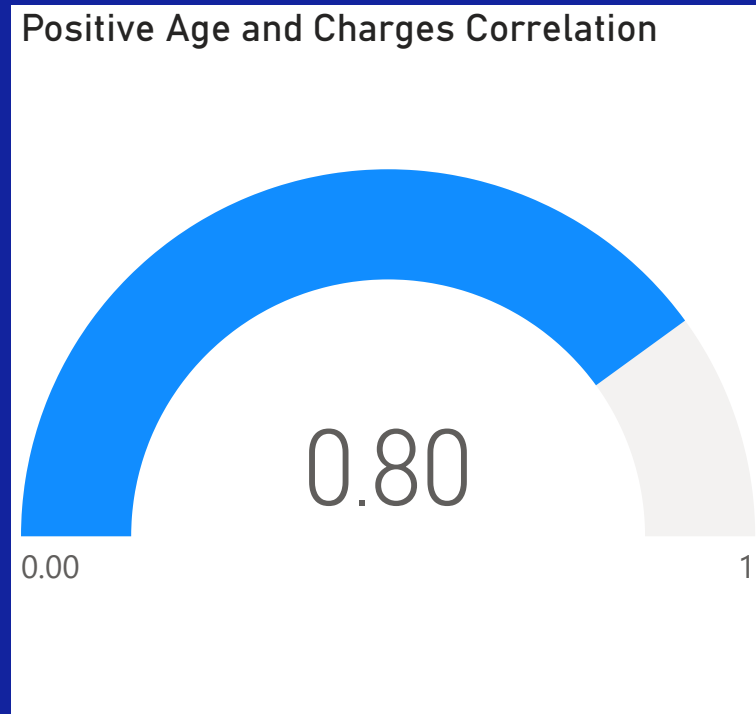
1. INSIGHTS

- Health insurance charges for men are 10% higher.
- Individuals who smoke face a 178% increase in health insurance costs.
- Health insurance costs are highest in the South-East region.
- Higher health insurance expenses are incurred by individuals with obesity.
- Families with 2 or 3 children experience elevated health insurance costs.
- The majority of smokers are males with a higher BMI.

RECOMMENDATION

- Develop gender-specific health insurance plans to capitalize on the 10% higher premiums for men.
- Launch targeted anti-smoking campaigns, particularly focused on males with a higher BMI, as they constitute the majority of smokers.
- Implement regional pricing strategies, especially in the South-East region, where health insurance costs are highest.
- Introduce wellness programs aimed at addressing obesity, as individuals with obesity tend to have higher health insurance expenses.

CORRELATION ANALYSIS

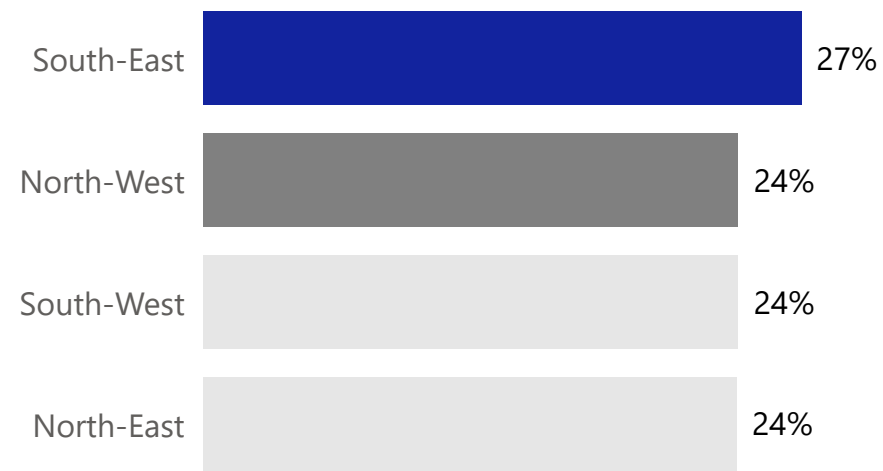


INSIGHT

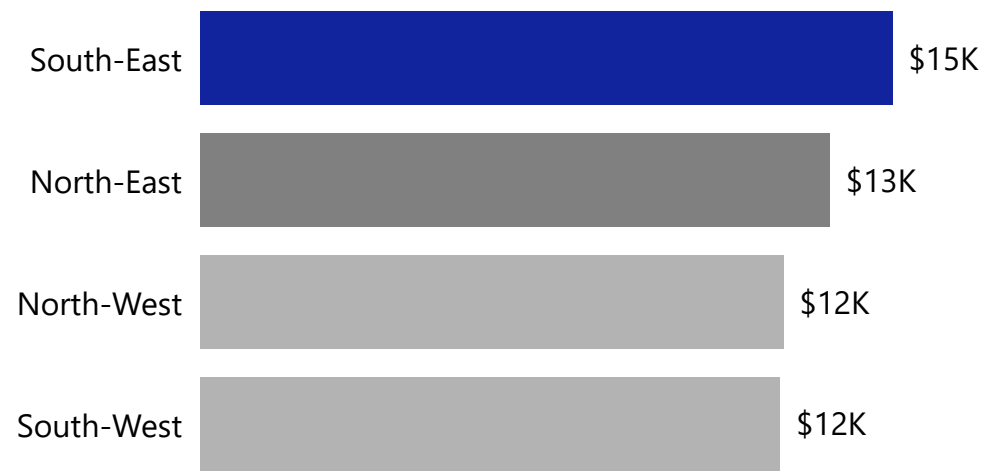
There is a strong positive correlation between Age and Charges, Poor positive correlation between BMI and charges and fair negative correlation between children and charges. There is no correlation between Age and children, BMI and children and Poor correlation between Age and BMI.

REGIONAL ANALYSIS

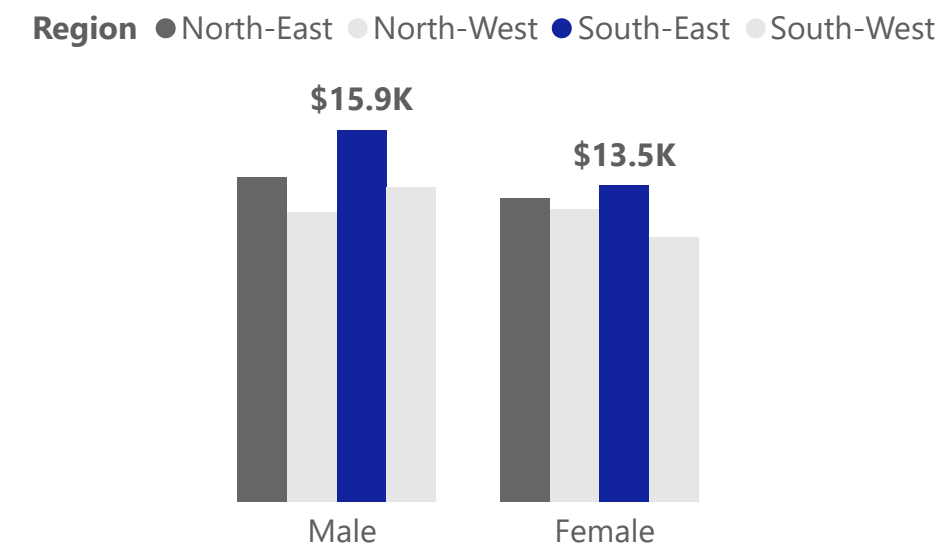
South-East has 27% of the customer base



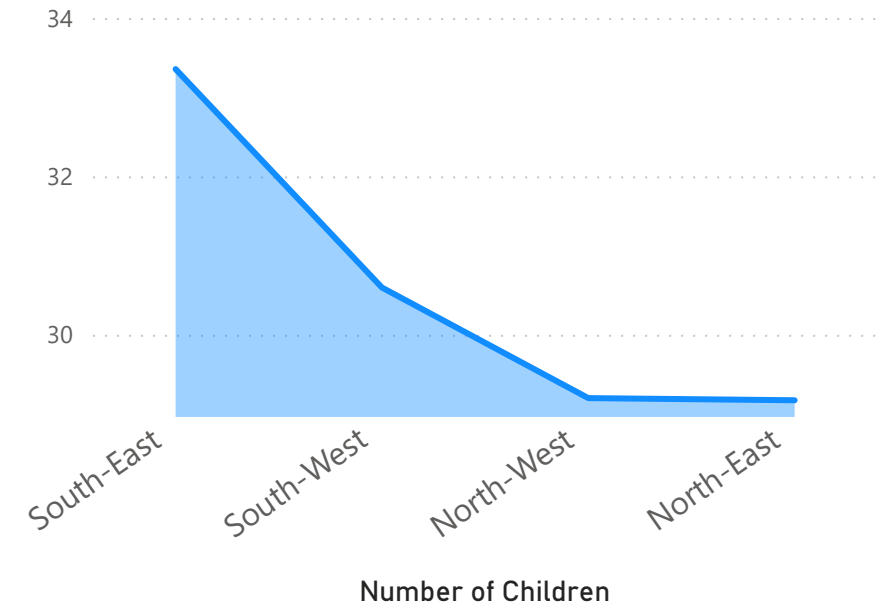
South East has the highest charges



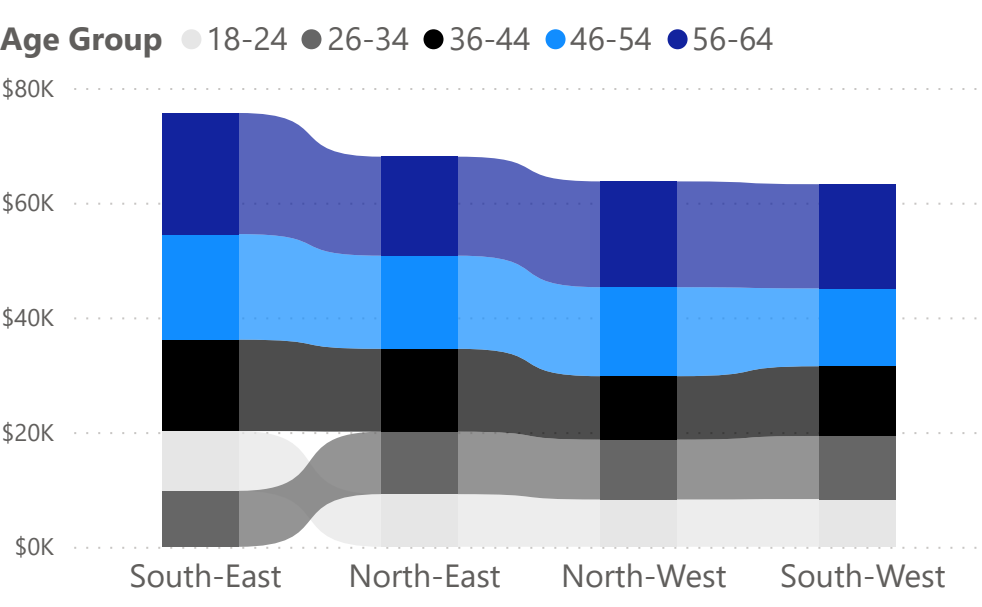
Men charges is highest in the South East



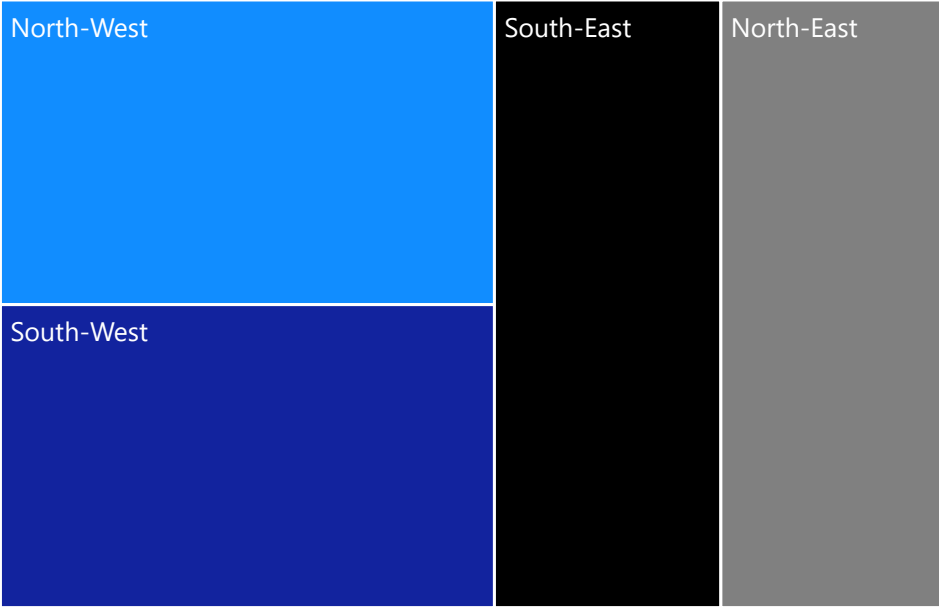
South-East region customers has the highest BMI



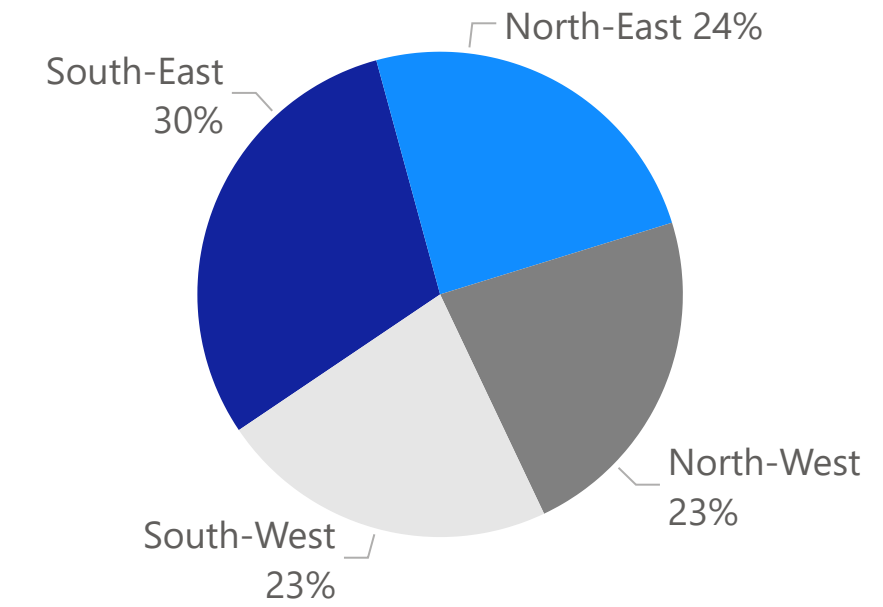
South-East charge is more for 56-64 age group



North-West customers has the highest number of children



South-East charges is 30% of total

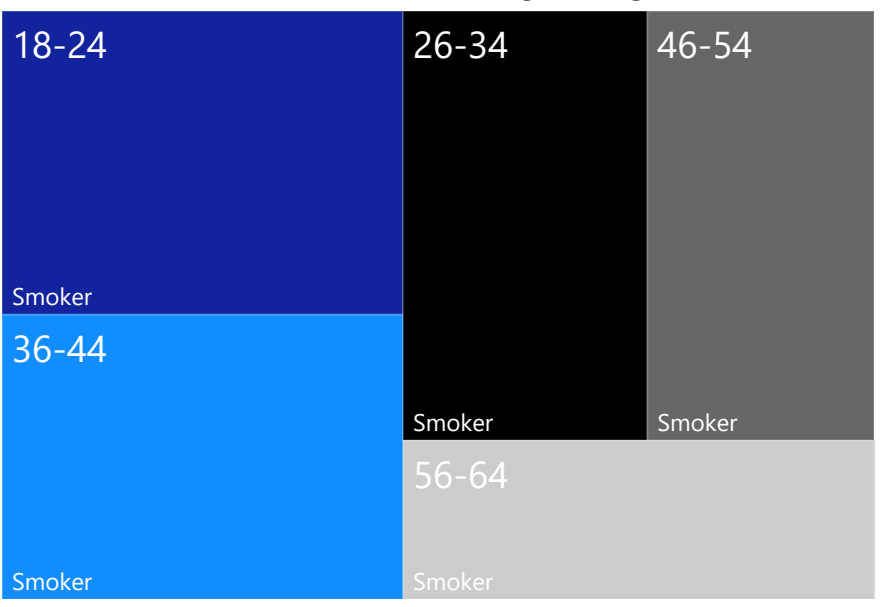


INSIGHT

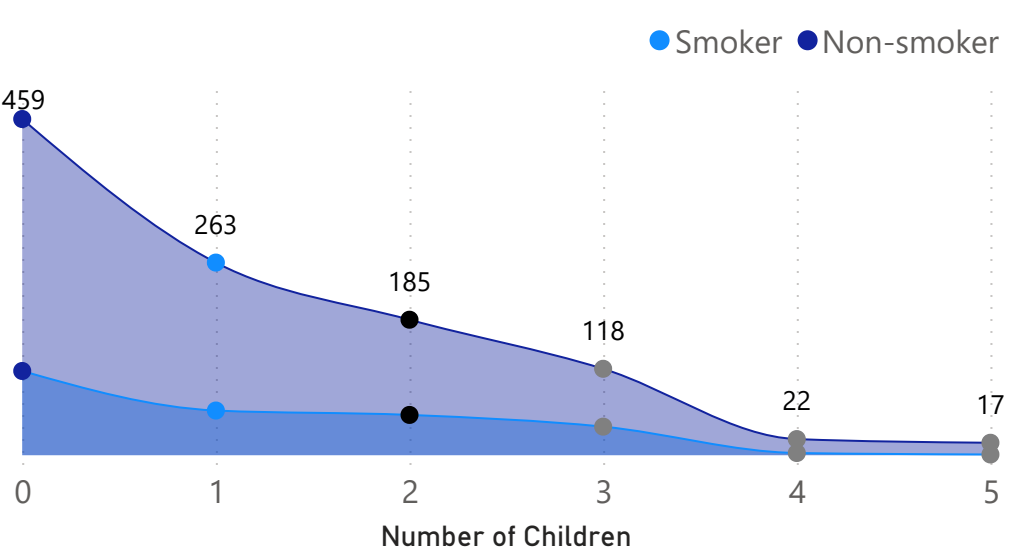
- The South-East region stands out with a substantial 27% share of the total customer base. . The South-East not only has the largest customer base but also boasts the highest healthcare charges.
- Men experience higher healthcare charges in general, and this discrepancy is particularly pronounced in the South-East.
- Customers in the South-East region exhibit the highest average Body Mass Index (BMI). This may suggest a higher prevalence of health conditions.
- related to weight or lifestyle factors in this area, influencing healthcare needs and costs. The South-East charges are notably elevated for the 56-64 age group.

SMOKERS vs NON SMOKERS ANALYSIS

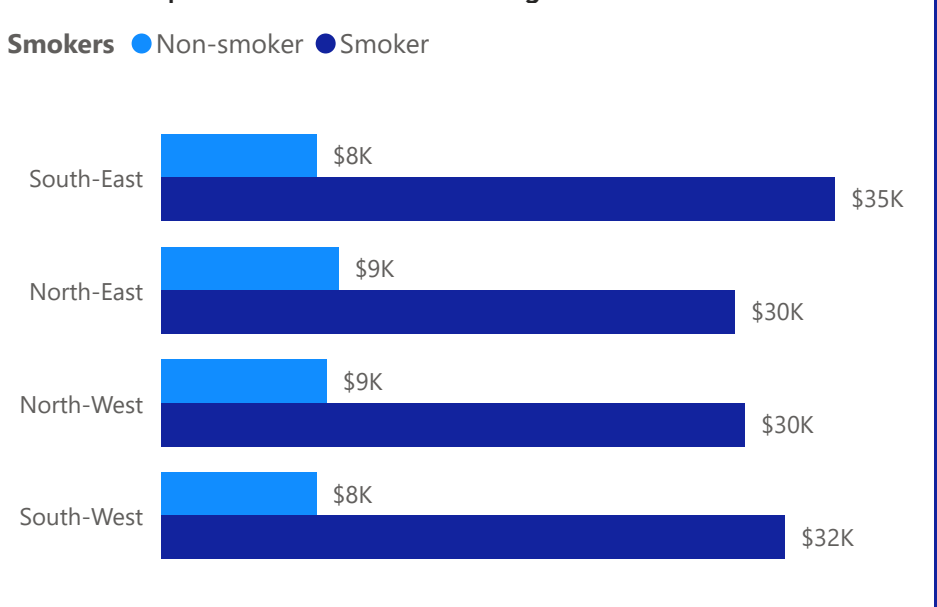
Most smokers fall within the age range of 18 to 24



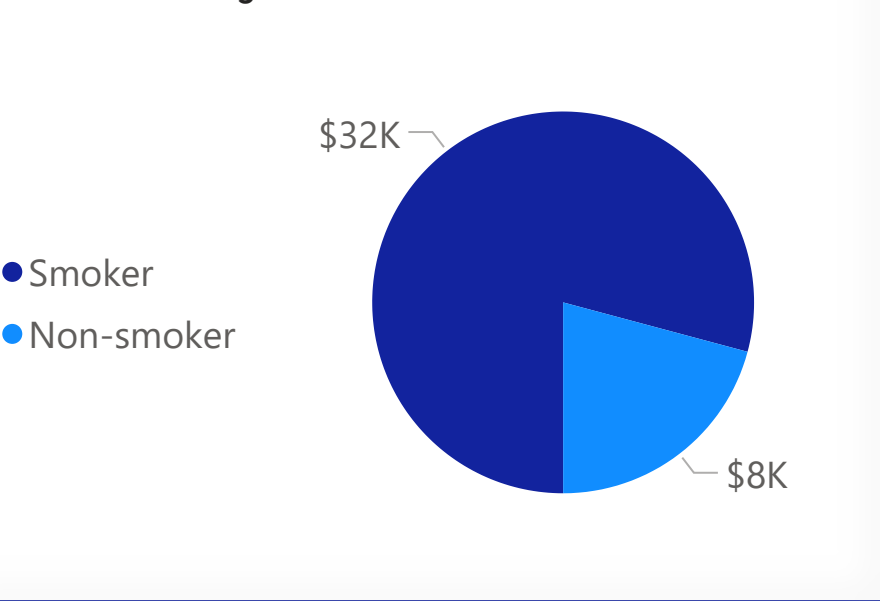
The majority of smokers and non smokers do not have children



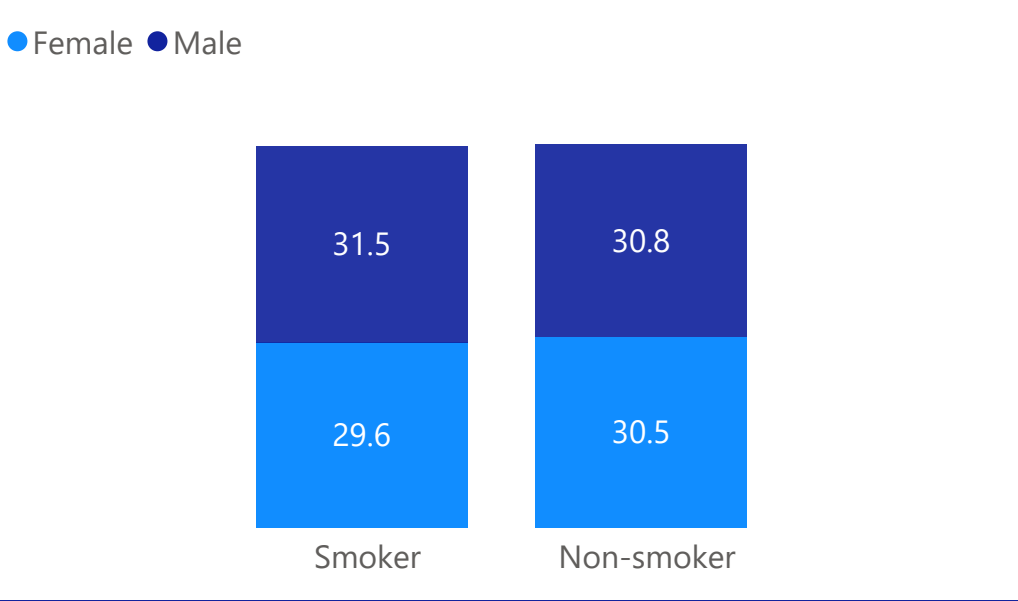
Smokers spend more across all regions



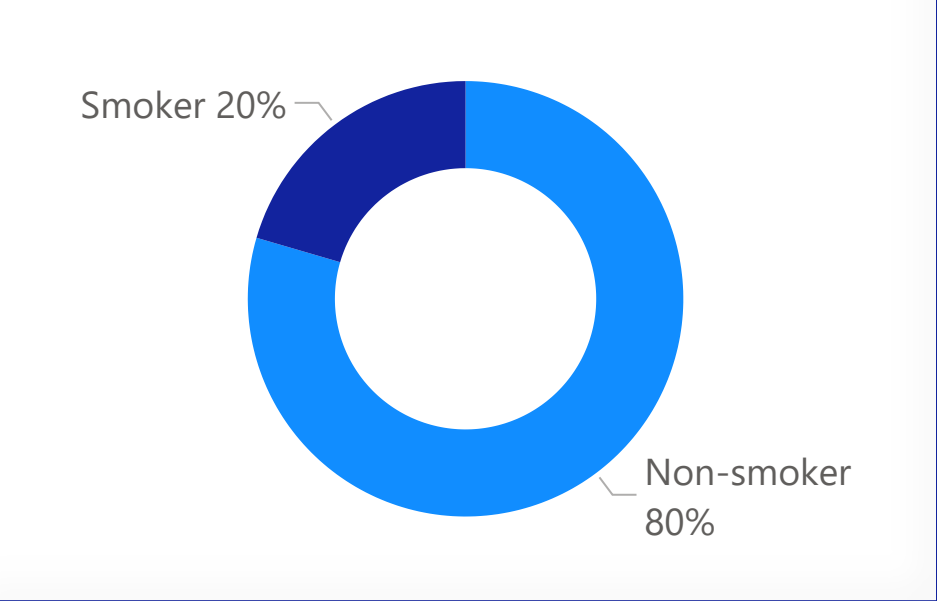
Smokers charges are more



Majority of the smokers are male with higher BMI



80% of the customers are Non smokers

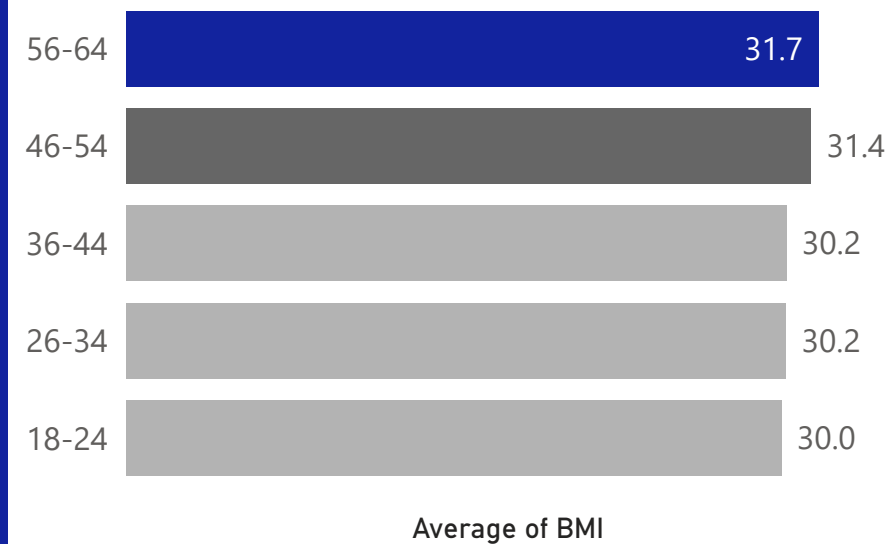


INSIGHT

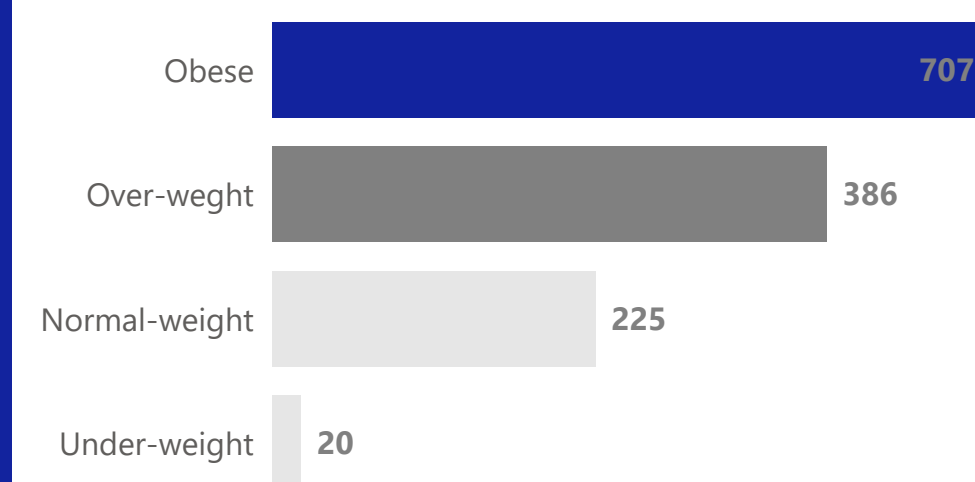
- A significant portion of smokers, approximately falling between ages 18 to 24, suggests that early adulthood is a critical period for addressing smoking habits and promoting health awareness.
- The prevailing absence of children among both smokers and non-smokers implies that family size may not be a primary driver of smoking behavior or health insurance decisions for this dataset.
- Smokers consistently incur higher charges across all regions, highlighting the potential financial burden associated with smoking-related health issues.
- The majority of smokers being male emphasizes the gendered nature of smoking habits. Tailoring health interventions to address male-specific health concerns and smoking cessation programs may be particularly impactful.
- The absence of children is characteristic of about **43%** of the customer base, leading to increased charges for this demographic.

BODY MASS INDEX ANALYSIS

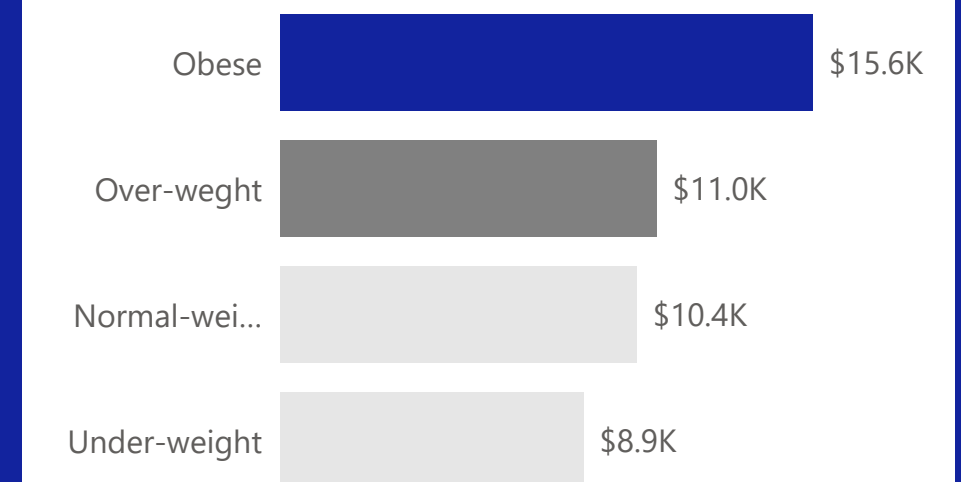
BMI increases with Age



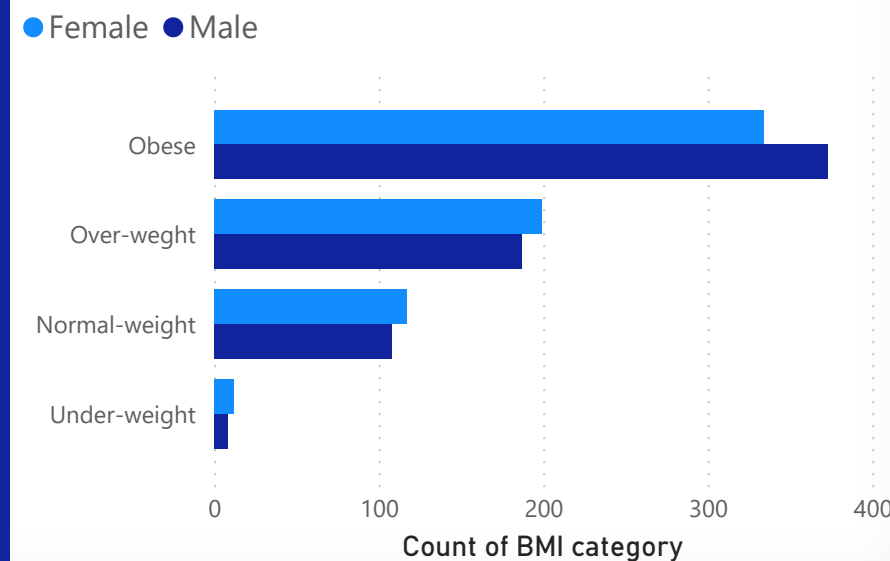
Majority of the customers are Obese



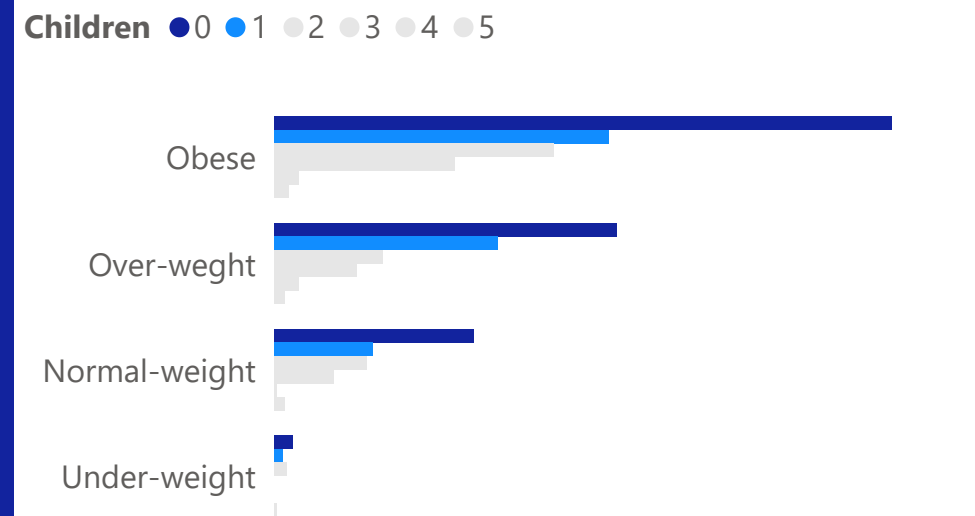
Obese customers get higher charges



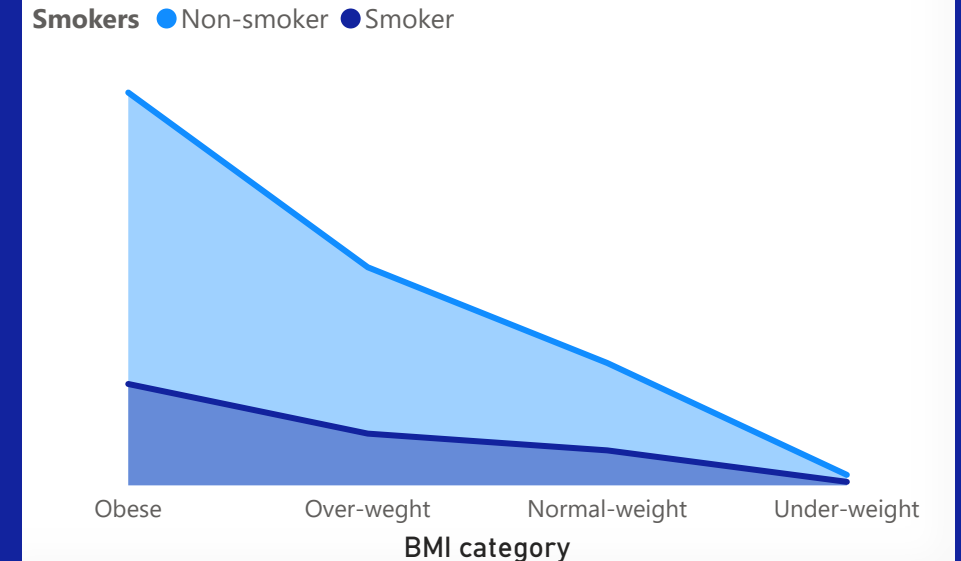
More of the male customers are obese



Most of the obese customers have no child



Most of the obese customers are non smokers



INSIGHT

- BMI demonstrates a consistent increase with age among the customer base.
- The majority of customers fall into the obese category, suggesting a prevalent health concern.
- More male customers fall into the obese category, indicating a gender-specific trend.
- The observation that most obese customers do not have children emphasizes the potential impact of obesity.
- The highest charges are applied to approximately **53%** of the customer base, who are classified as obese.

RECOMMENDATION

Invest in educational campaigns to inform customers about the link between lifestyle choices, BMI, and healthcare costs. Empowering individuals with knowledge can lead to more informed decisions about their health and insurance coverage.

SUMMARY STATISTICS OF THE AGE VARIABLE

39

MEAN

39

MEDIAN

18

MODE

14.0

STANDARD DEVIATION

197.3

VARIANCE

46

RANGE

27

Q1

39

Q2

51.0

Q3

18

MIN

64

MAX

Age Group	Percent Contribution	Avg charges	Count
56-64	16%	\$18,797	216
46-54	21%	\$15,987	284
36-44	20%	\$13,494	264
26-34	20%	\$10,496	268
18-24	23%	\$9,088	306

BMI category	Percent Contribution	Avg charges	Count
Obese	53%	\$15,553	707
Over-weght	29%	\$10,988	386
Normal-weight	17%	\$10,410	225
Under-weight	1%	\$8,853	20

SUMMARY STATISTICS OF THE BMI VARIABLE

30.7

MEAN

30.4

MEDIAN

27.60

MODE

37.2

VARIANCE

6.1

STANDARD DEVIATION

37.1

RANGE

26

Q1

30.4

Q2

34.70

Q3

16.0

MIN

53.1

MAX

SUMMARY STATISTICS OF THE NUMBER OF CHILDREN VARIABLE

1
MEAN

1
MEDIAN

0
MODE

1.5
VARIANCE

1.2
STANDARD DEVIATION

5
RANGE

0.00
Q1

1
Q2

2
Q3

0
MIN

5
MAX

Children	Percent Contribution	Avg charges	Count of Children
0	43%	\$12,366	574
1	24%	\$12,732	324
2	18%	\$15,074	240
3	12%	\$15,356	157
4	2%	\$13,851	25
5	1%	\$8,787	18

SUMMARY STATISTICS OF THE CHARGES VARIABLE

13K
MEAN

9383
MEDIAN

1138
Mode

12K
STANDARD DEVIATION

147M
VARIANCE

63K
RANGE

4734
Q1

9383
Q2

17K
Q3

\$1.12K
MIN

\$63.8K
MAX

THANK YOU

ZEENAT OYETOLU, A professional Data Analyst/Scientist, oyetoluzeenat@gmail.com