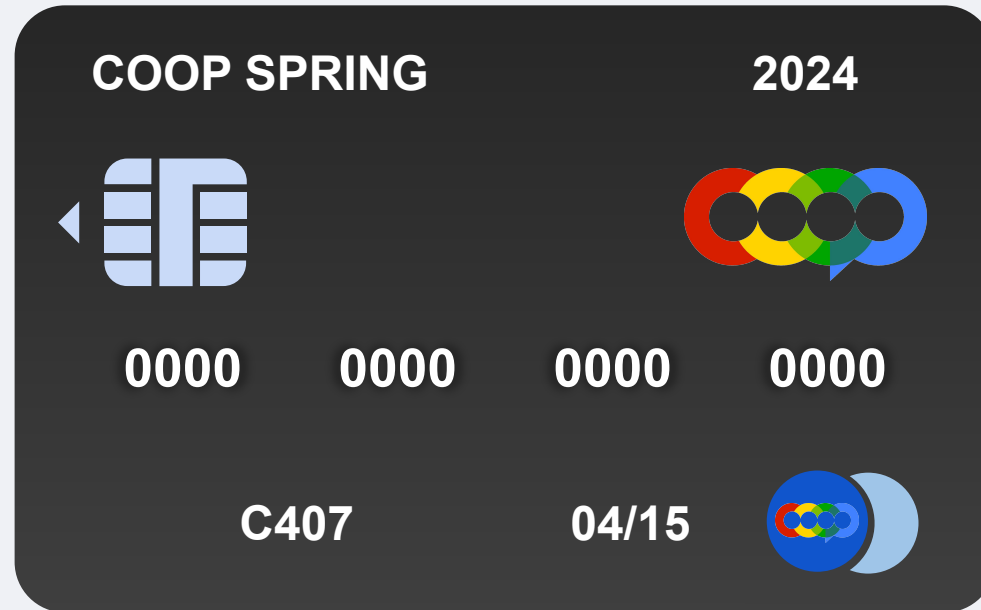


# CREDIT CARD ATTRITION FORECAST



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# AGENDA

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# INTRODUCTION



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# RELEVANT TERMINOLOGY



## Credit Card Attrition

Customer attrition, customer churn, defection, or turnover, simply refers to the process of losing a customer.

## Utilization Ratio

Amount of credit you're using divided by amount of credit available to use

## Stakeholder

Someone who has an interest in the credit card company's financial performance, profitability, and long-term growth



# METHODOLOGY

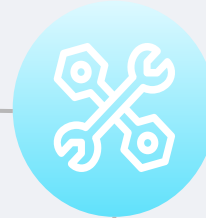


- The bank has access to a dataset of 10,000 customers with 18 features, including attrition flag, age, salary, marital status, income level, education level, credit card limit, and credit card category.



# NEW FIELDS CREATED

## Attrition Category



- ★ Based on Naive Bayes Classifier for Attrition, which takes into account of Attrition Flag, Card Category, Contacts Count, Dependent Count, Education Level, Months Inactive.
- ★ Categorized as: [Low Attrition](#), [Moderate Attrition](#), and [Attrited](#)

- ★ Based on Naive Bayes Classifier for Retention, which takes into account of Attrition Flag, Card Category, Contacts Count, Dependent Count, Education Level, Months Inactive.
- ★ Categorized as: [Attrited](#), [Moderate Retention](#), and [High Retention](#)



## Retention Category

## Difference between Credit Limit & Open to Buy



- ★ Calculates difference between credit limit and open to buy

- ★ Creates bins of clients ages with a span of 10 years



## Client Age



# EXECUTIVE SUMMARY



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# EXECUTIVE SUMMARY

## Objectives:

- Identify credit card customers who are at high risk of attrition, enabling the bank to proactively engage with these high-risk customers and implement targeted strategies to improve retention. We'll be presenting our analysis, findings & recommendations to Marketing, Data Analytics, Product & Customer Success departments.

## Key Findings:

- Blue Card has the most members, however it also has the highest attrition rate.
- Females make far less than males and are also more likely to be attrited.
- Higher-income customers and those who remain as existing customers tend to have lower utilization ratios and higher credit limits, which may be factors contributing to customer retention.

## Recommendations:

- Enhancements on Blue Card benefits
- Repayment Plans for Cardholders
- Optimize retention marketing spend by targeting only the highest-risk customers





# DATA ANALYSIS



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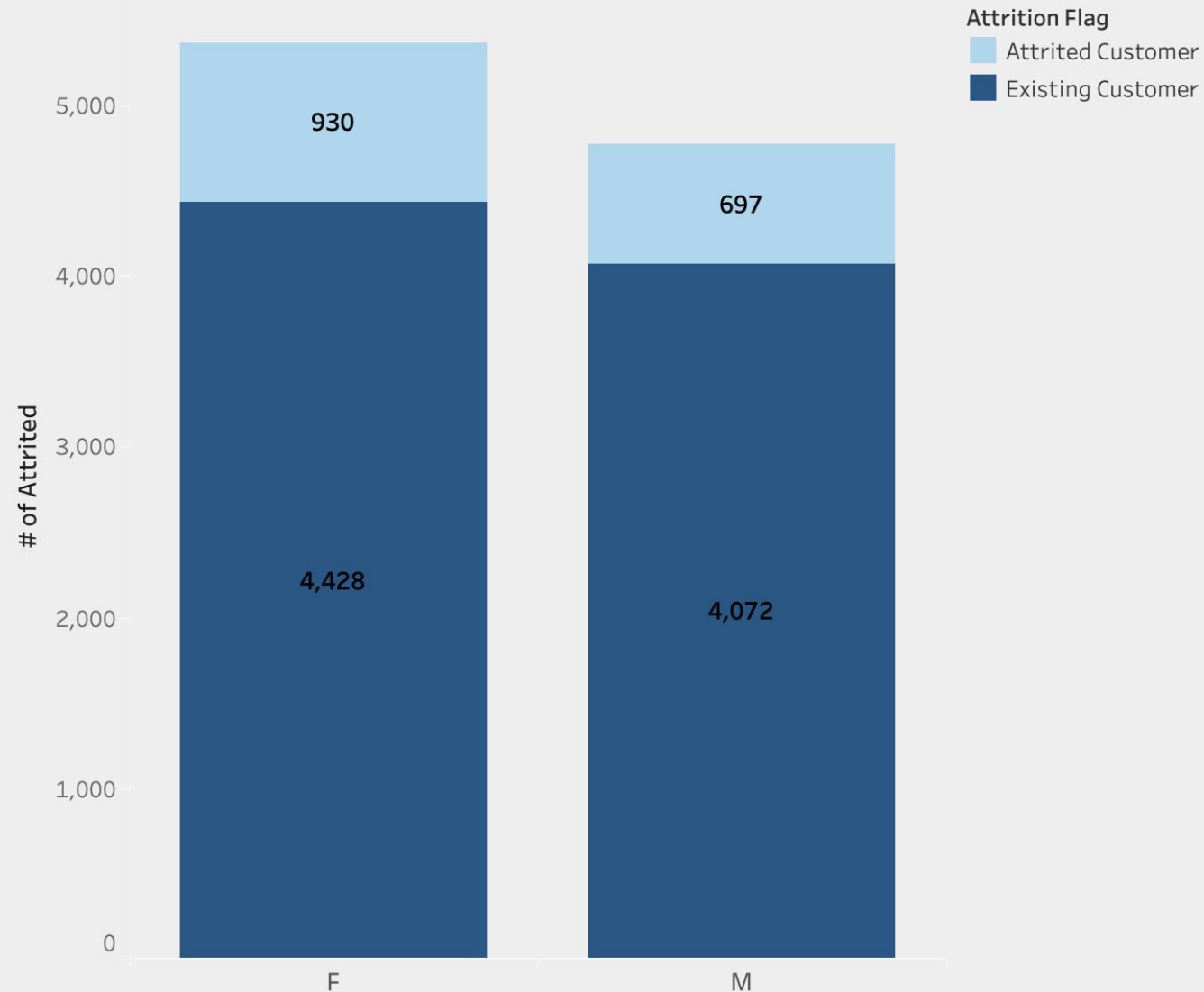


**What are the Demographics  
of Attrited Clients?**



# ATTRITION BY CLIENT GENDER

Attrition by Gender

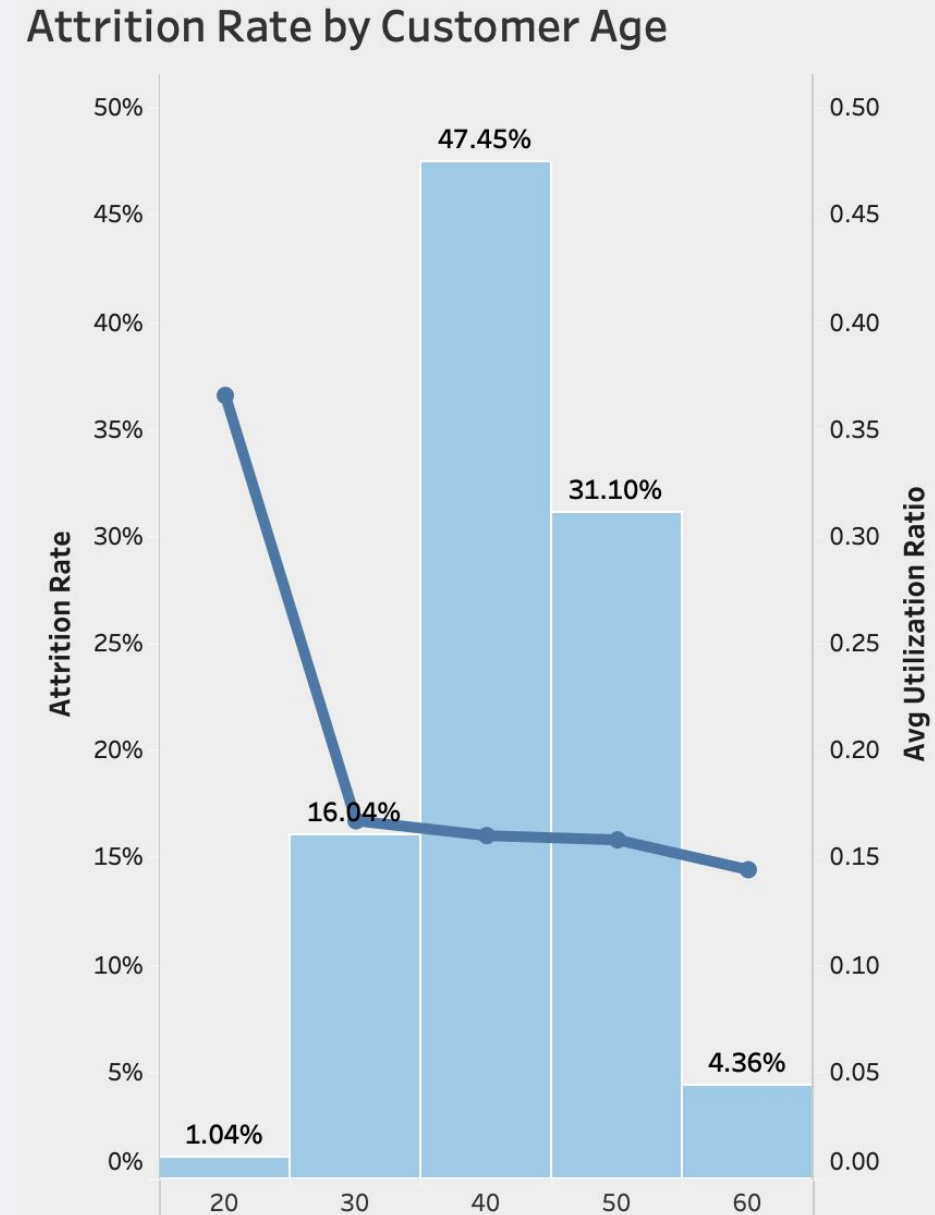


- There is a higher rate of attrition among female customers.
- The overall customer base has a larger proportion of male customers.



# ATTRITION RATE BY CLIENT AGE

- Attrition rate is lowest for those who are in their 20s and highest for those in their 40s
- Utilization ratio is highest for those in their 20s and lowest for those in their 60s
- Utilization ratio shows minimal variation among individuals aged in their 30s, 40s, and 50s, whereas significant differences exist in their attrition rates



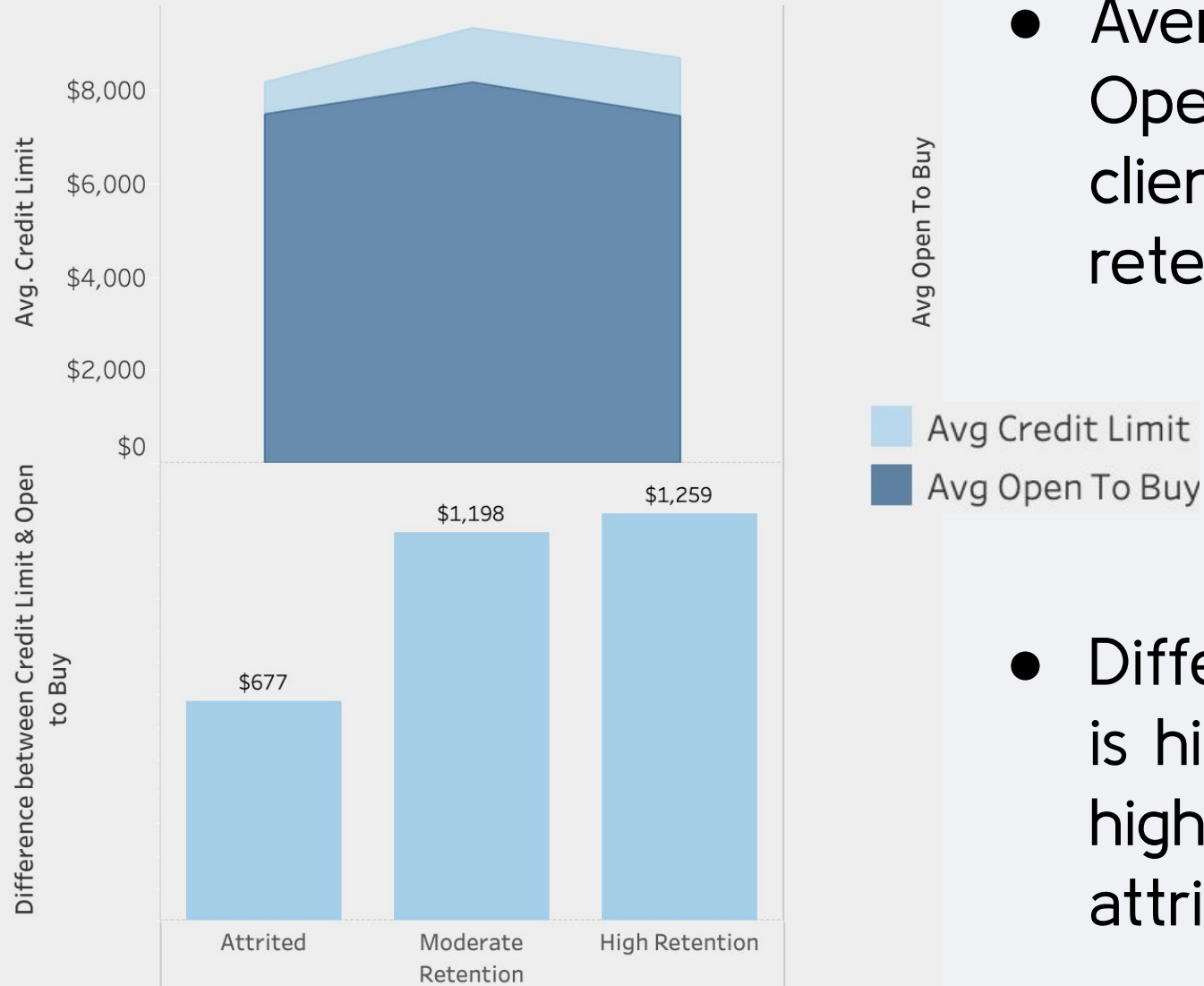


## What Factors Contribute to Client Attrition?



# CREDIT LIMIT vs. OPEN TO BUY

Client Average Credit Limit vs. Average Open to Buy

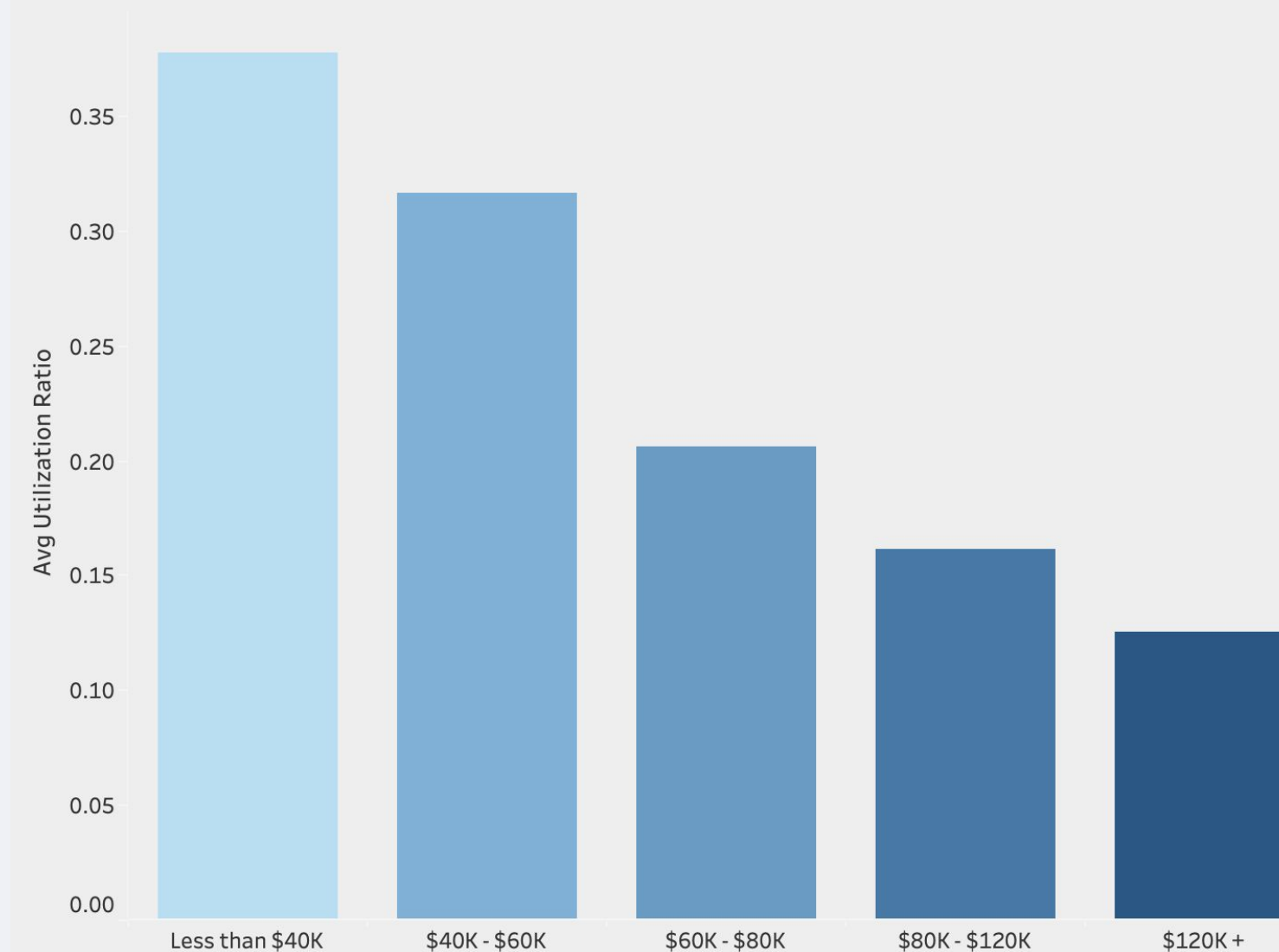


- Average Credit Limit & Average Open to Buy are both highest for clients categorized as moderate retention and lowest for attrited
- Difference between both variables is highest for clients categorized as high retention and lowest for attrited



# INCOME CATEGORY & UTILIZATION

Average Utilization Ratio by Income



- Customers with a salary of 40k-60k have a lower credit limit, but high utilization rate which could correlate to why they are likely to become attritted.
- Card utilization ratio decreases as the salary increases.





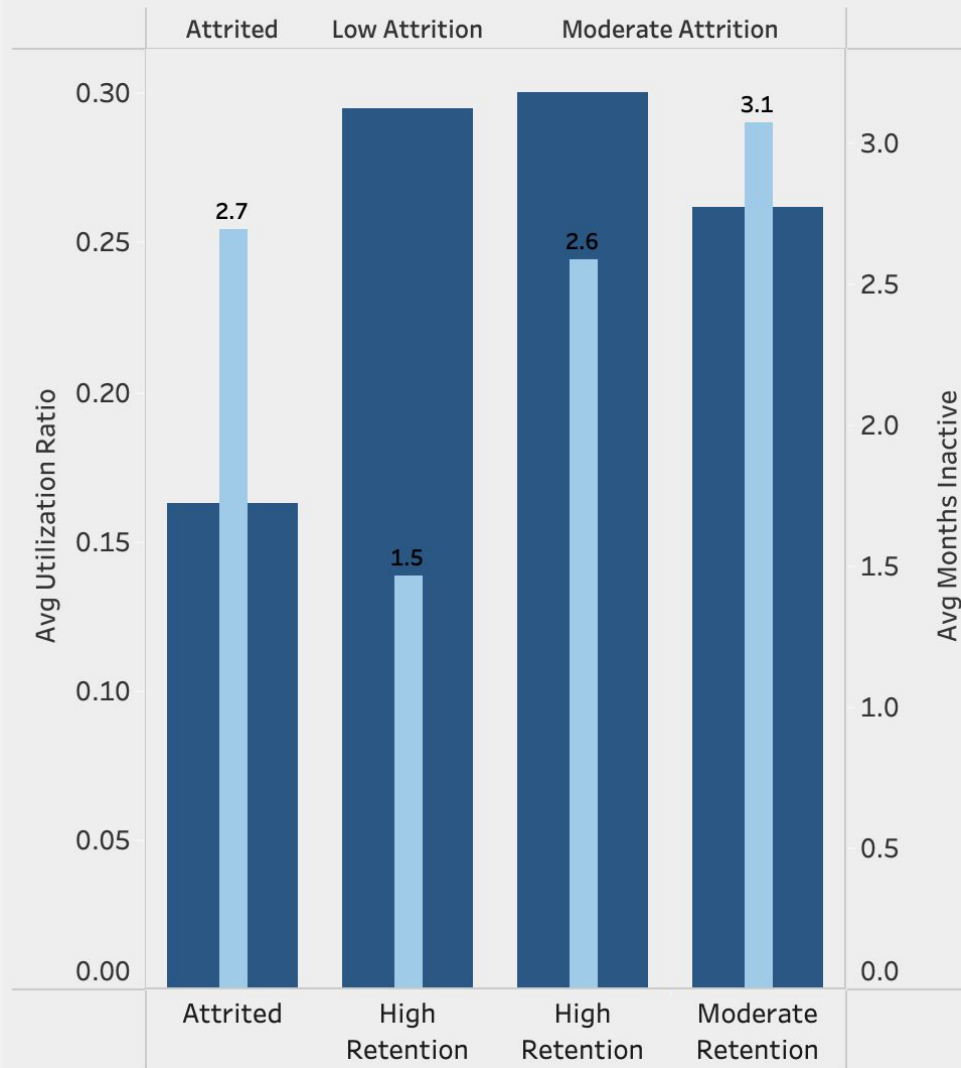
**Do Certain Credit Card Categories or  
Usage Patterns Correlate With  
Client Turnover?**





# UTILIZATION RATIO vs. MONTHS INACTIVE

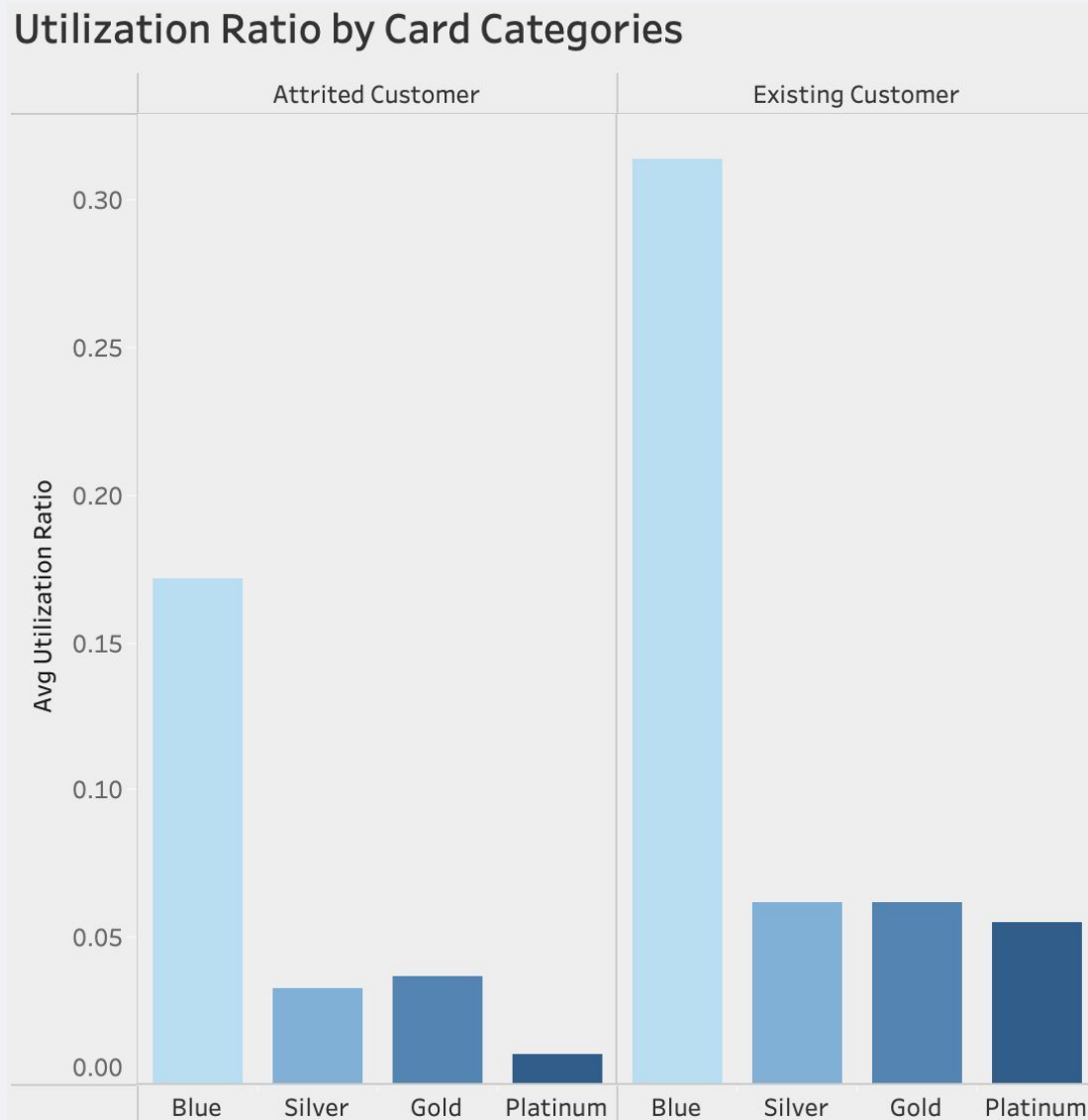
Utilization Ratio vs. Months Inactive



- Average utilization ratio is highest for clients categorized as high retention and moderate attrition and is lowest for clients categorized as attrited
- Clients categorized as moderate retention and moderate attrition have been inactive for the longest time period: >3 months
- Clients categorized as high retention have the lowest inactivity durations and highest utilization rates



# UTILIZATION RATIO BY CARD CATEGORY

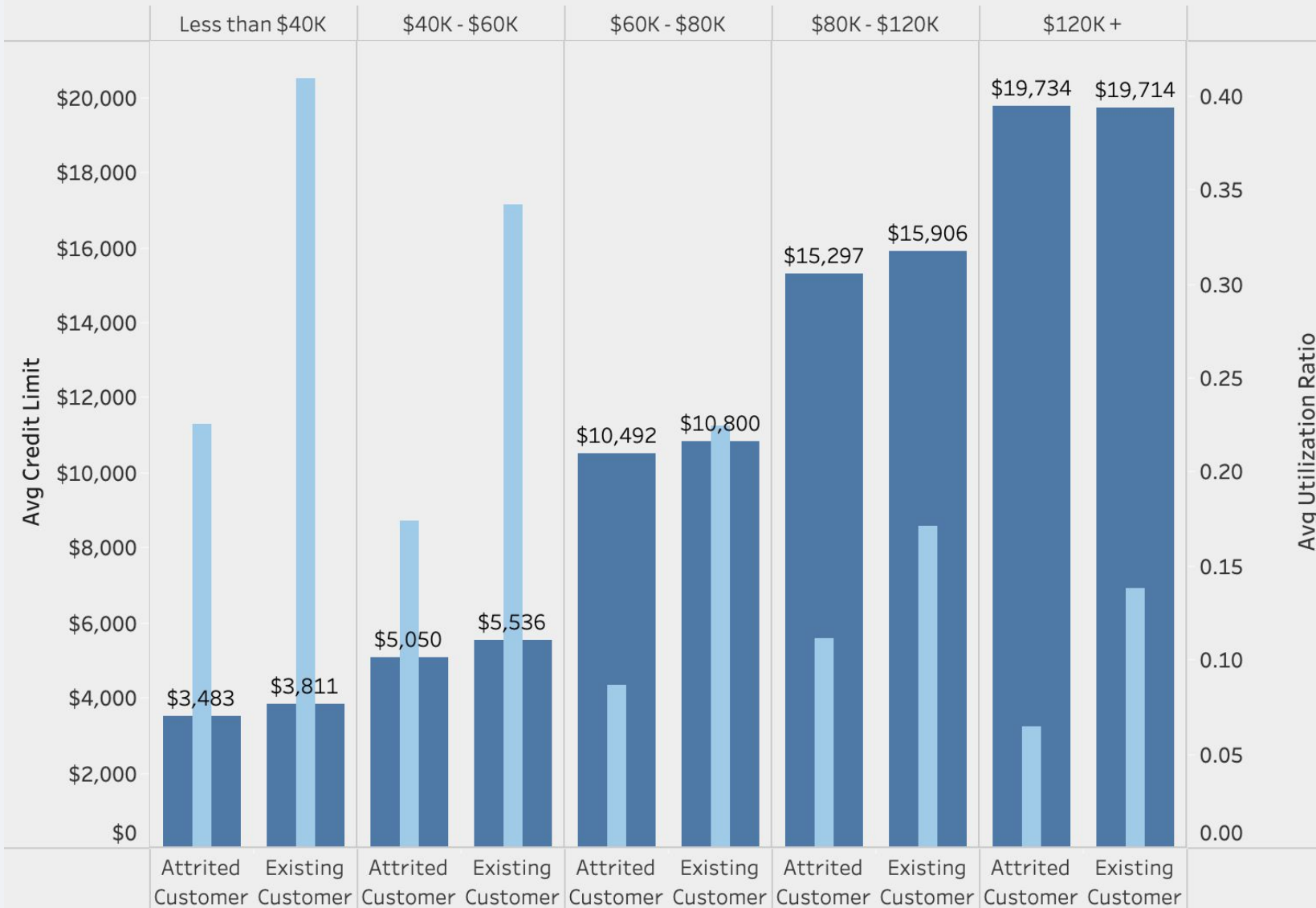


- Blue card users have the highest average utilization ratio
- Attrited customers have less overall average utilization ratio than existing customers



# AVERAGE UTILIZATION BY CREDIT LIMIT & INCOME

Average Utilization Ratio of Attrited Customers Segmented by Credit Limit & Income



- Utilization ratio decreases as customers income increases.
- Existing customers have a lower utilization ratio compared to attrited customers.



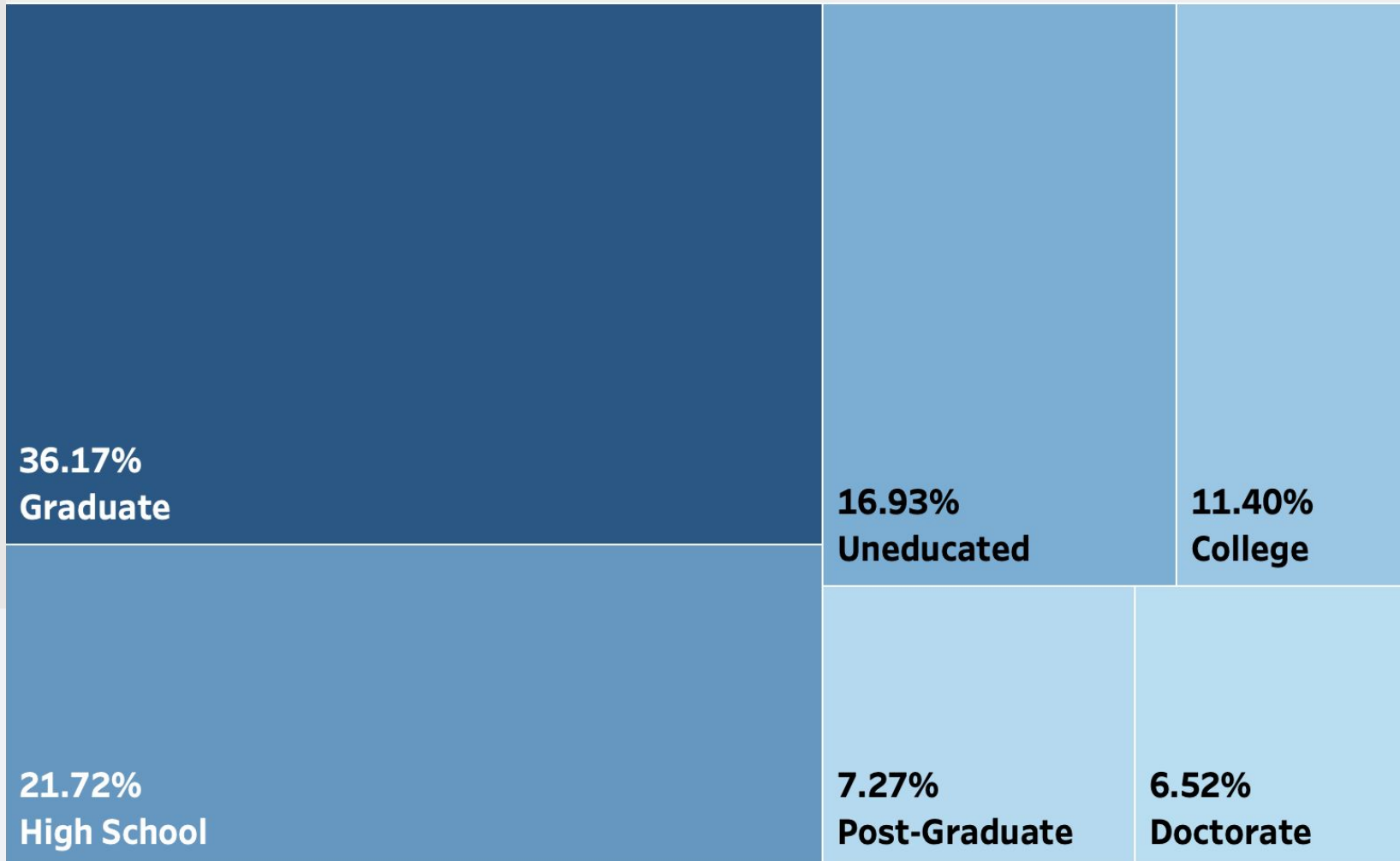


**Are Factors that are Associated with  
Instability Correlated with Higher  
Attrition?**



# ATTRITION RATE BY EDUCATION LEVEL

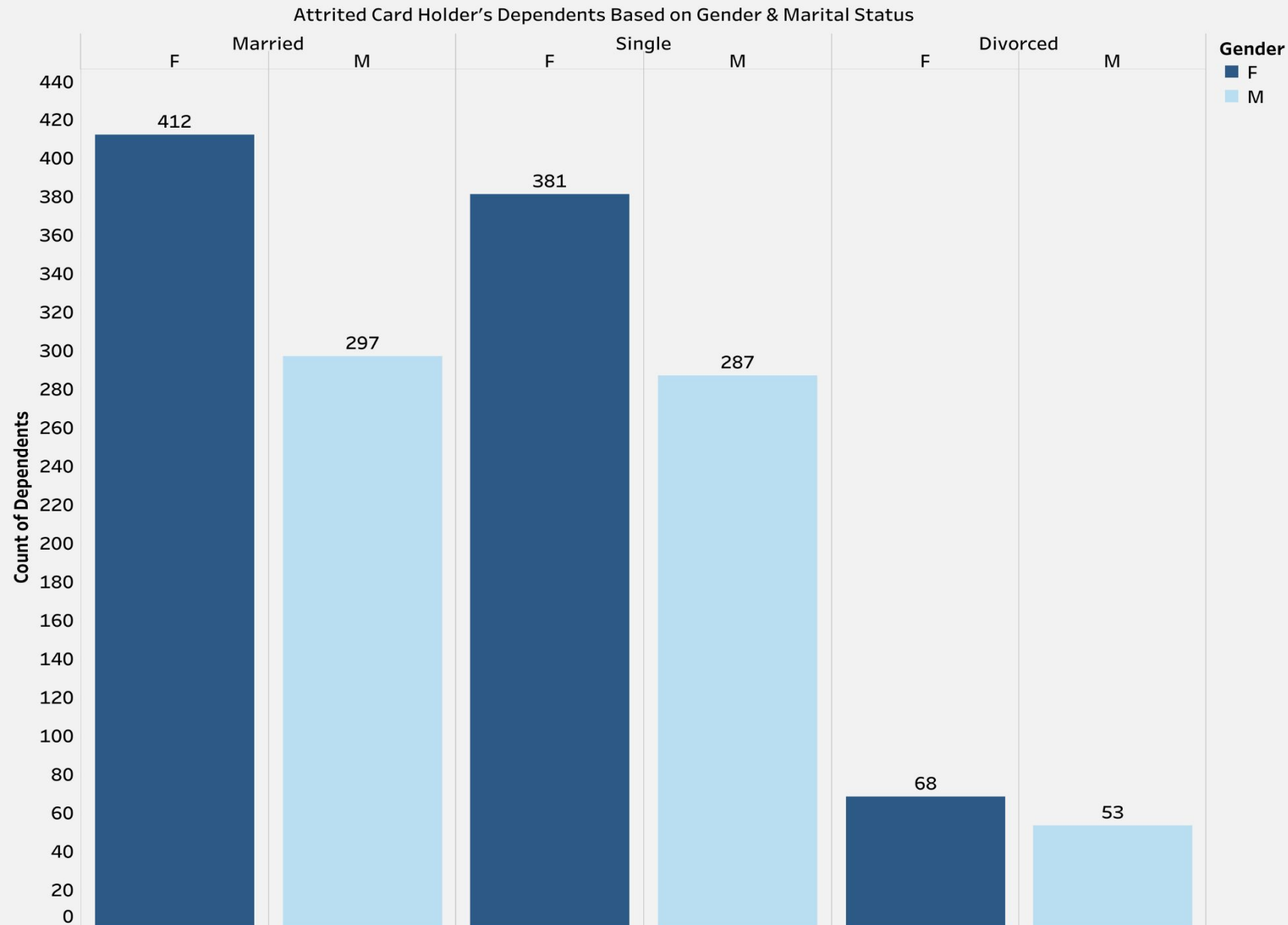
Breakdown of Attrited Clients by Highest Level of Education



Attrition rate is highest among clients who have completed graduate school as their highest level of education, and lowest among clients who have completed a doctorate



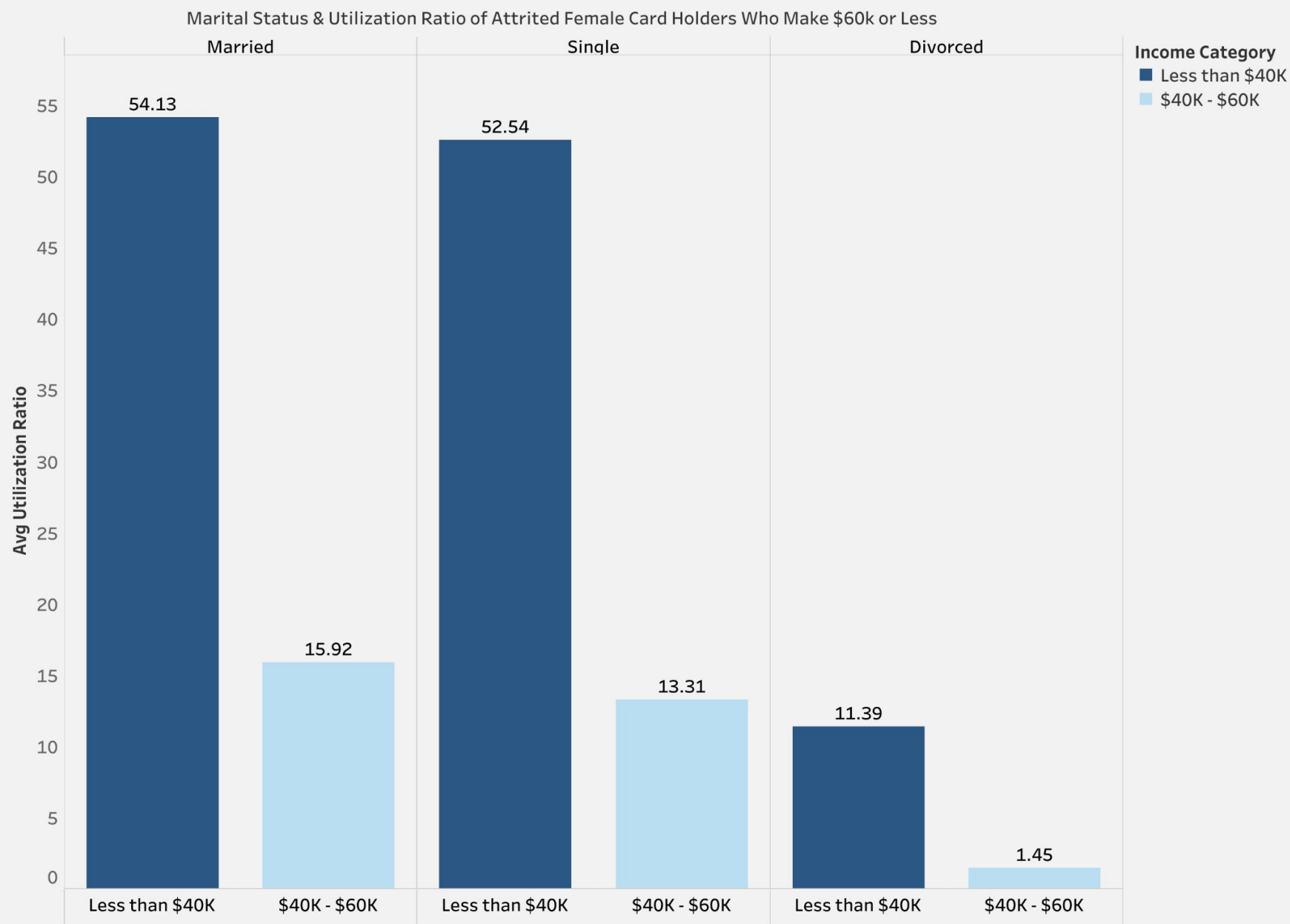
# ATTRITED CARD HOLDER'S DEPENDENTS BASED ON GENDER & MARITAL STATUS



- The count of dependents is highest amongst attrited female card holders
  - Especially those who are married



# Marital Status & Utilization Ratio of Attrited Female Card Holders Who Make \$60k or Less

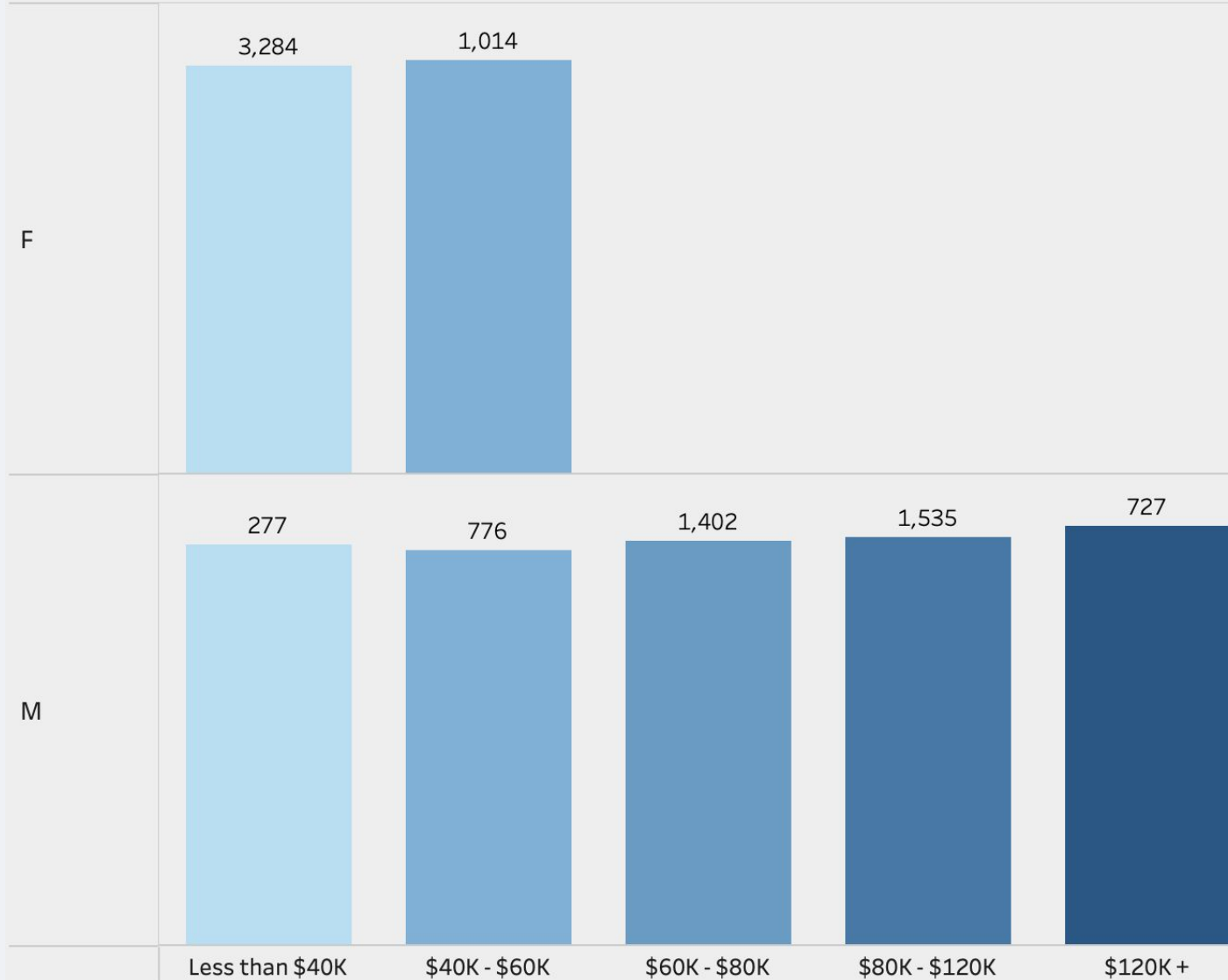


- Attrited female card holders who earn less than \$40K a year, utilize their account 3X as often as attrited female card holders who earn \$40K-\$60K a year
  - Regardless of marital status



# INCOME BY GENDER

Income by Gender



- In the lower income brackets of less than \$40K & \$40K - \$60K, the number of female customers is higher compared to male customers.
- For the higher income brackets of \$80K- \$120K and \$120K+, the income for male customers is substantially higher than female customers.





# CONCLUSION



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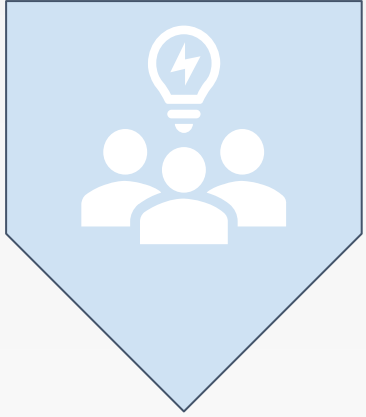
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# RECOMMENDATIONS (1)



## **Rec #1:**

Repayment plan For card holders with an income of 60K or less and those who are behind on payments



## **Rec #2:**

Enhance cash back benefits on grocery purchases for Blue Card holders with an income of 60k or less



## **Rec #3:**

Advertise Blue Card Loyalty Program to single moms and families



## **Rec #4:**

Advertise Blue Card Loyalty Program to men with an income of 60K or more (credit limit increases and travel rewards)

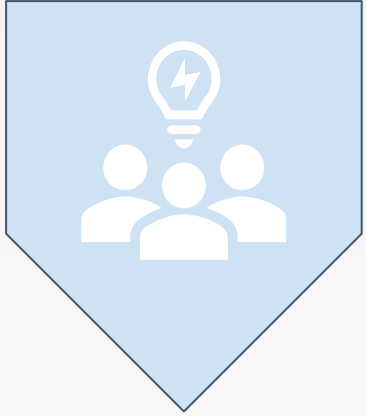


## **Rec #5**

Fee waivers, discounts & lower interest rates for long term card holders



# RECOMMENDATIONS (2)



## Rec #6:

Look into clients whose ages are between 40 and 60, as those in their 40s and 50s have the highest attrition rates in comparison to utilization ratios



## Rec #7:

Look into difference between client's average credit limit and average open to buy to identify high risk clients



## Rec #8:

Look into client's utilization ratio in comparison to their inactive periods to identify high risk clients



## Rec #9:

Look further into client's highest level of education completed, targeting those whose highest level of education is grad school and high school, as they're high risk clients



## Rec #10

Add clients # of life events and payment pattern (such as # of missed payments) as factors to Naive Bayes classification



# SOURCES

- <https://www.kaggle.com/datasets/whenamancodes/credit-card-customers-prediction/data>
- <https://www.chase.com/personal/credit-cards/education/credit-score/what-is-credit-utilization-ratio-and-how-does-it-work>
- <https://gocardless.com/en-us/guides/posts/what-is-customer-attribution/#:~:text=customer%20attrition%20definition.-,Customer%20attrition%20definition,process%20of%20losing%20a%20customer.>



# Q & A



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