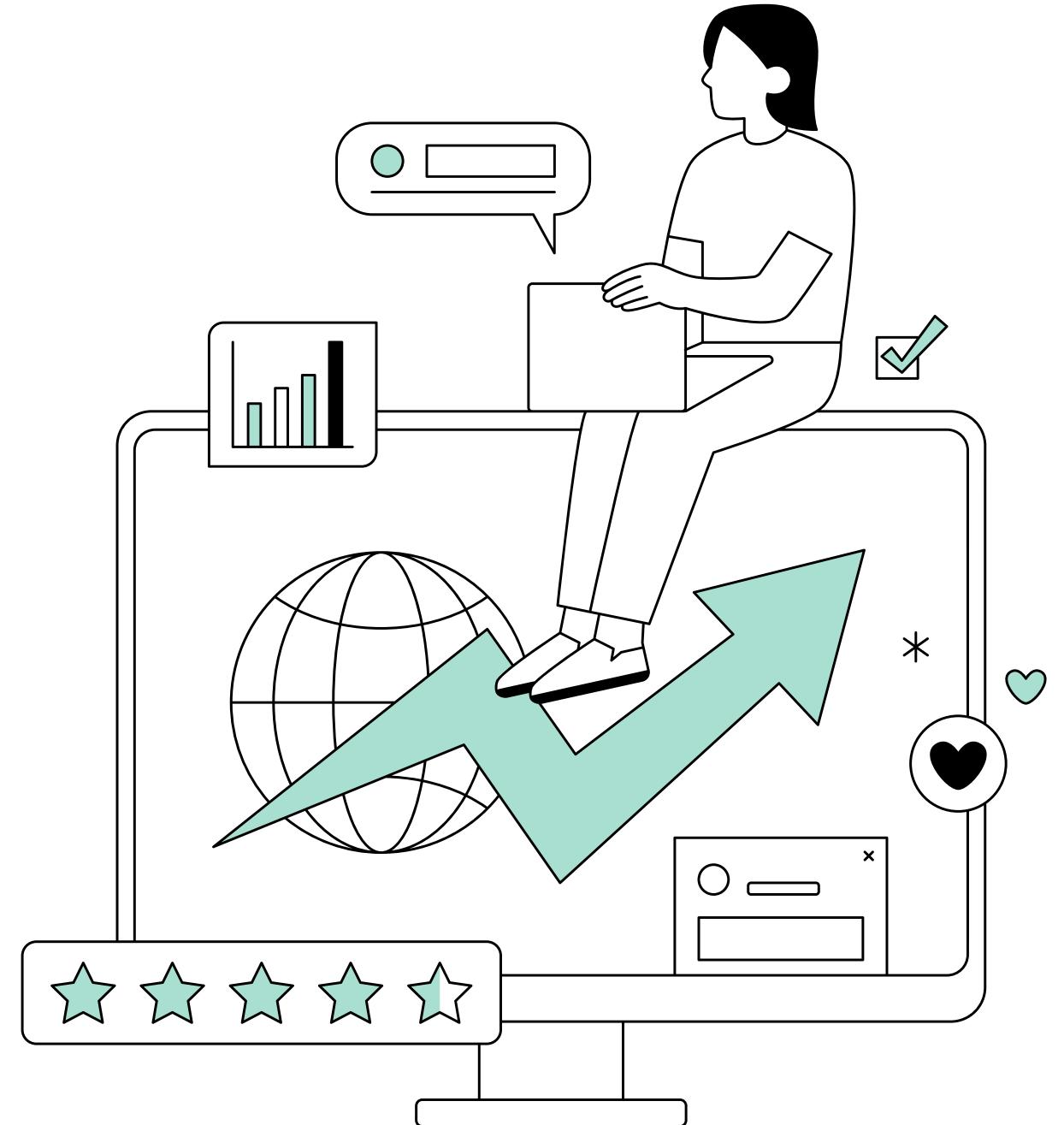


# Credit Card Churn Analysis

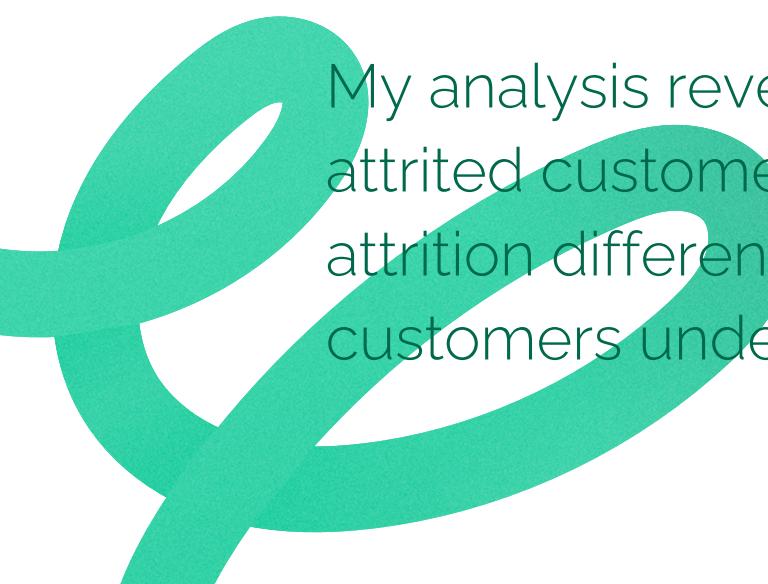
Insights for customer retention



By Mahader Zeru

# Executive Summary

pt. 1



Customer attrition poses a pressing challenge for this fictional credit card company. In addressing this issue, I looked into key insights using the Kaggle dataset provided for this company, which has crucial information on customer demographics and transaction history. This analysis aims to find actionable ways to mitigate attrition and enhance customer retention. By focusing on key features such as CLIENTNUM, Months\_Inactive\_12\_mon, and Total\_Trans\_Ct, I was able to gain a better understanding of the patterns behind customer attrition.

To analyze the data, I used thorough data cleaning and descriptive statistics and Python with tools like Pandas and Seaborn to facilitate data manipulation and visualization.

My analysis revealed several key insights into customer behavior and attrition. For example, I found that a majority of attrited customers are Blue cardholders. I also discovered that men exhibit higher loyalty than women, contributing to attrition differentials. Although age alone doesn't significantly influence attrition, I identified an opportunity to attract customers under 25.

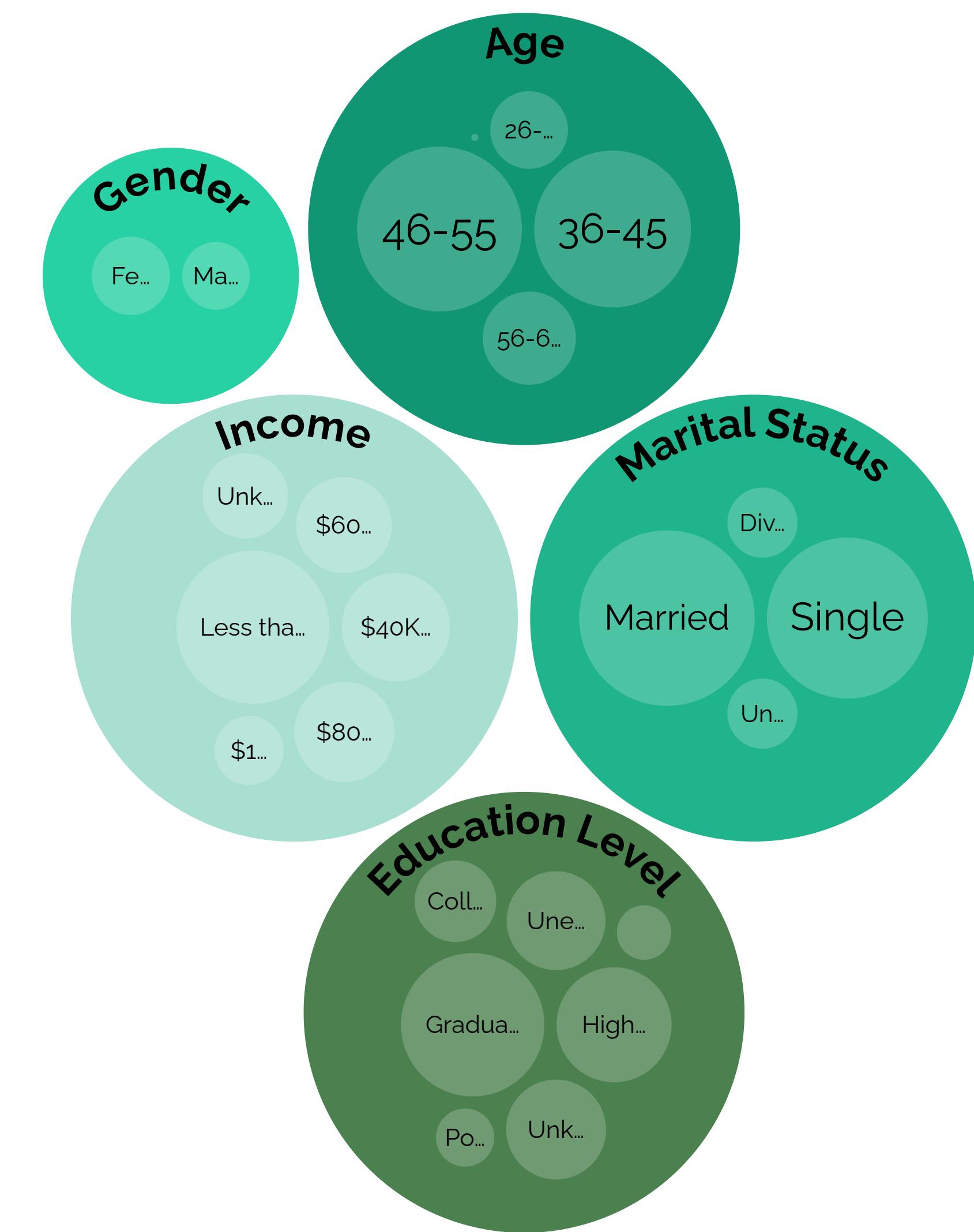
# Executive Summary

pt. 2

Furthermore, I found that customers who are inactive for 1-3 months often precede attrition, indicating potential re-engagement strategies. While I identified weak yet statistically significant relationships between credit limit, age, and total transaction count for attrited customers, I recommend addressing inactivity periods and strategically increasing credit limits to lower attrition rates.

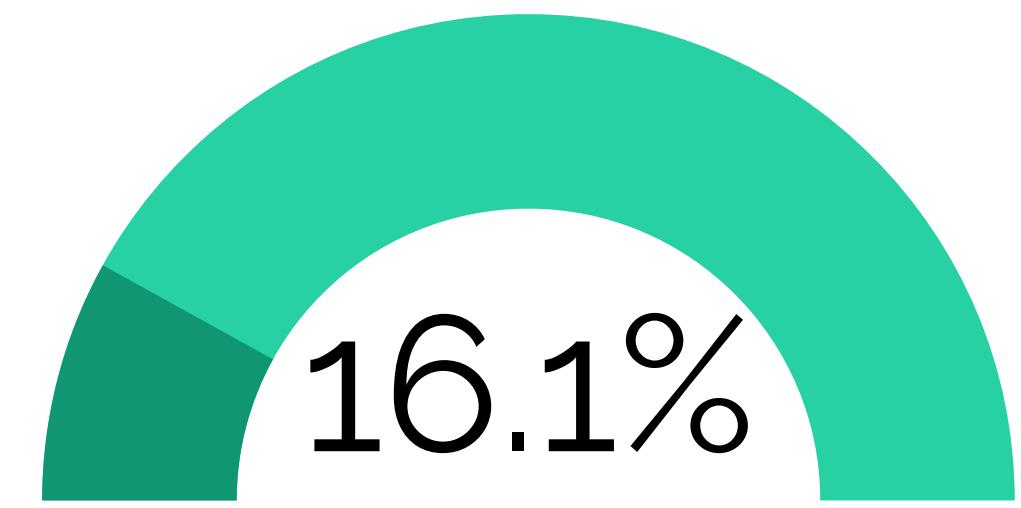
Finally, I found that single women in their mid to late 40s with incomes under \$40k are a concentration of attrited customers. Based on my analysis, I recommend intensifying efforts on retaining Blue cardholders and proactively engaging customers who are inactive for 1-3 months to reduce customer attrition.

# Demographic of Customers

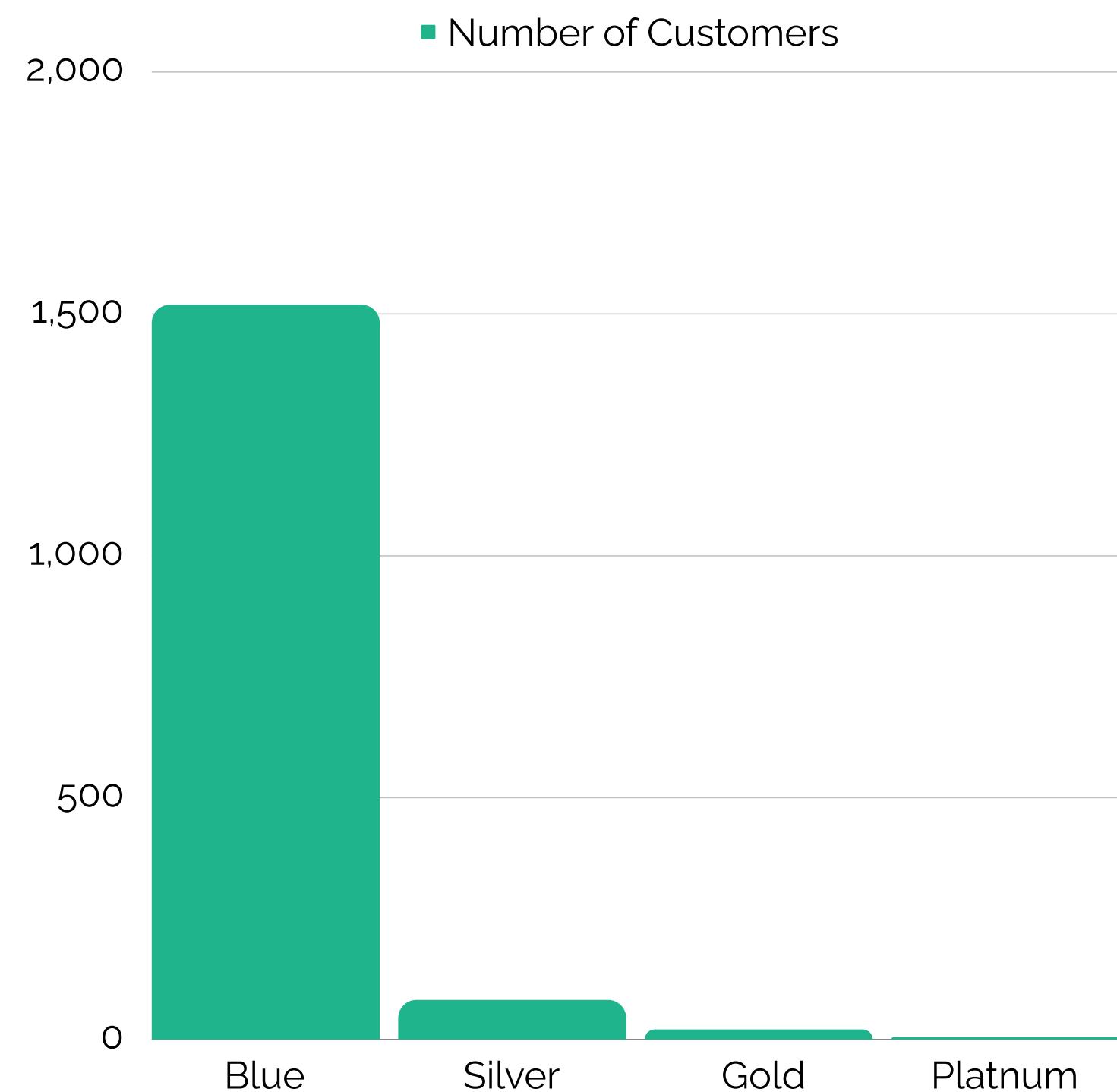


# Attrited Customers

Attrited customers make up 16.07% of the Bank's customer data, with the majority being middle aged, single or married, and making less than 120k a year.

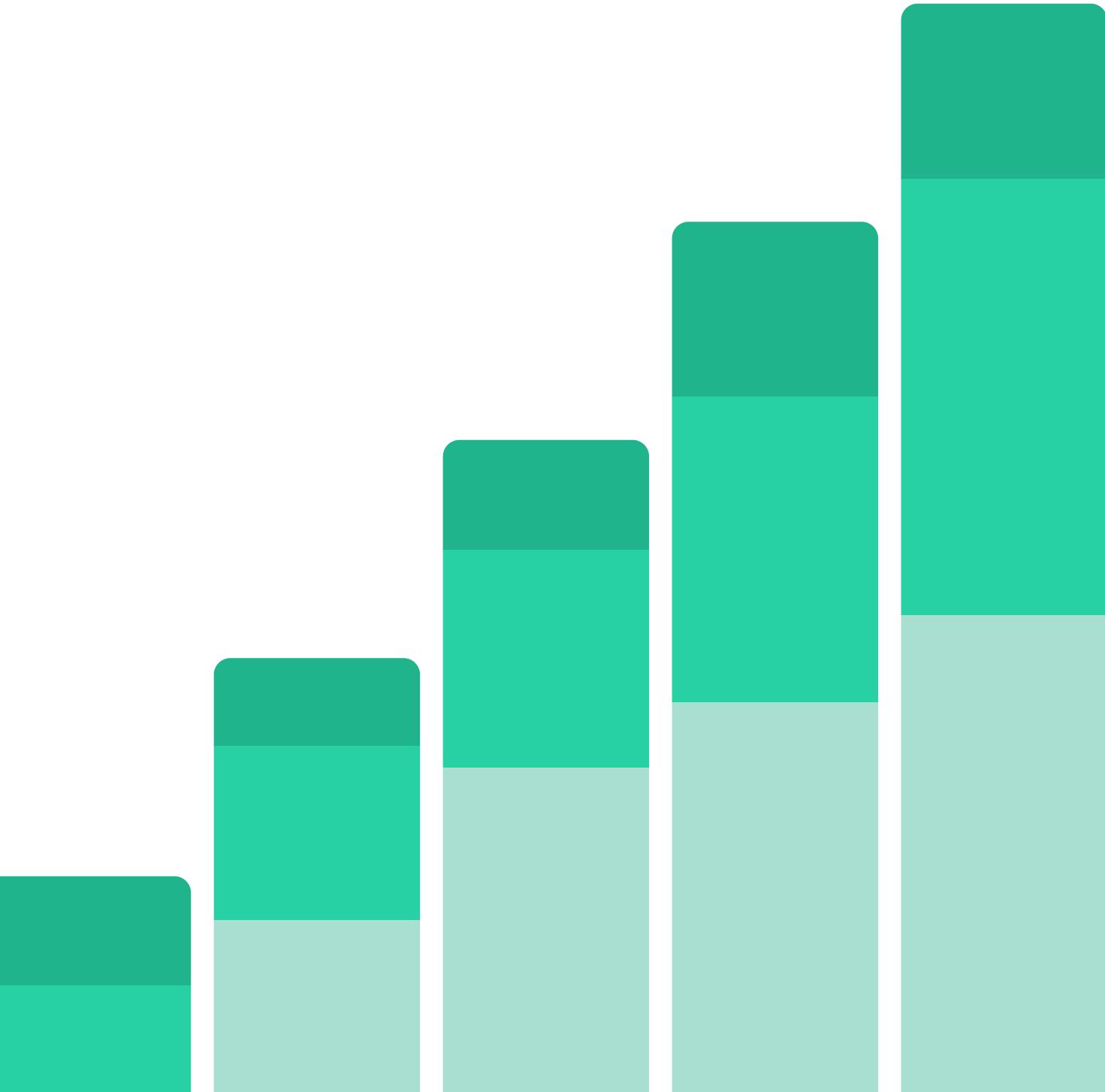


The vast majority of attrited customers are Blue card holders, for this reason I decided to focus my study on attrited customers that fall into this category.

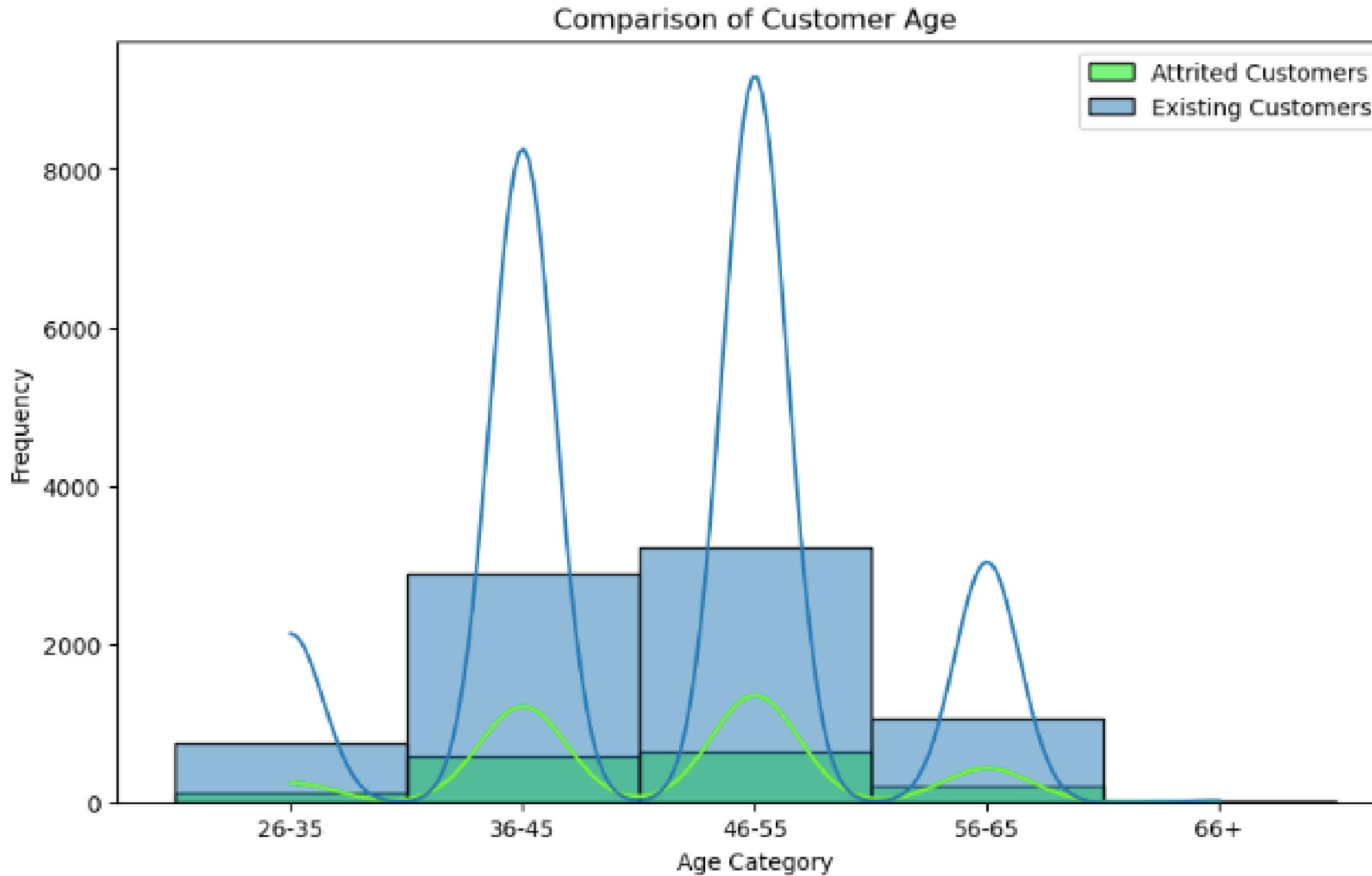


# Analysis

As part of the project analysis, I reviewed each column that I had selected while cleaning the dataset. My review consisted of comparing the attrited and existing values of each column. During this process, I created two linear regression models between different variables that I believed might have a significant relationship with customer attrition.

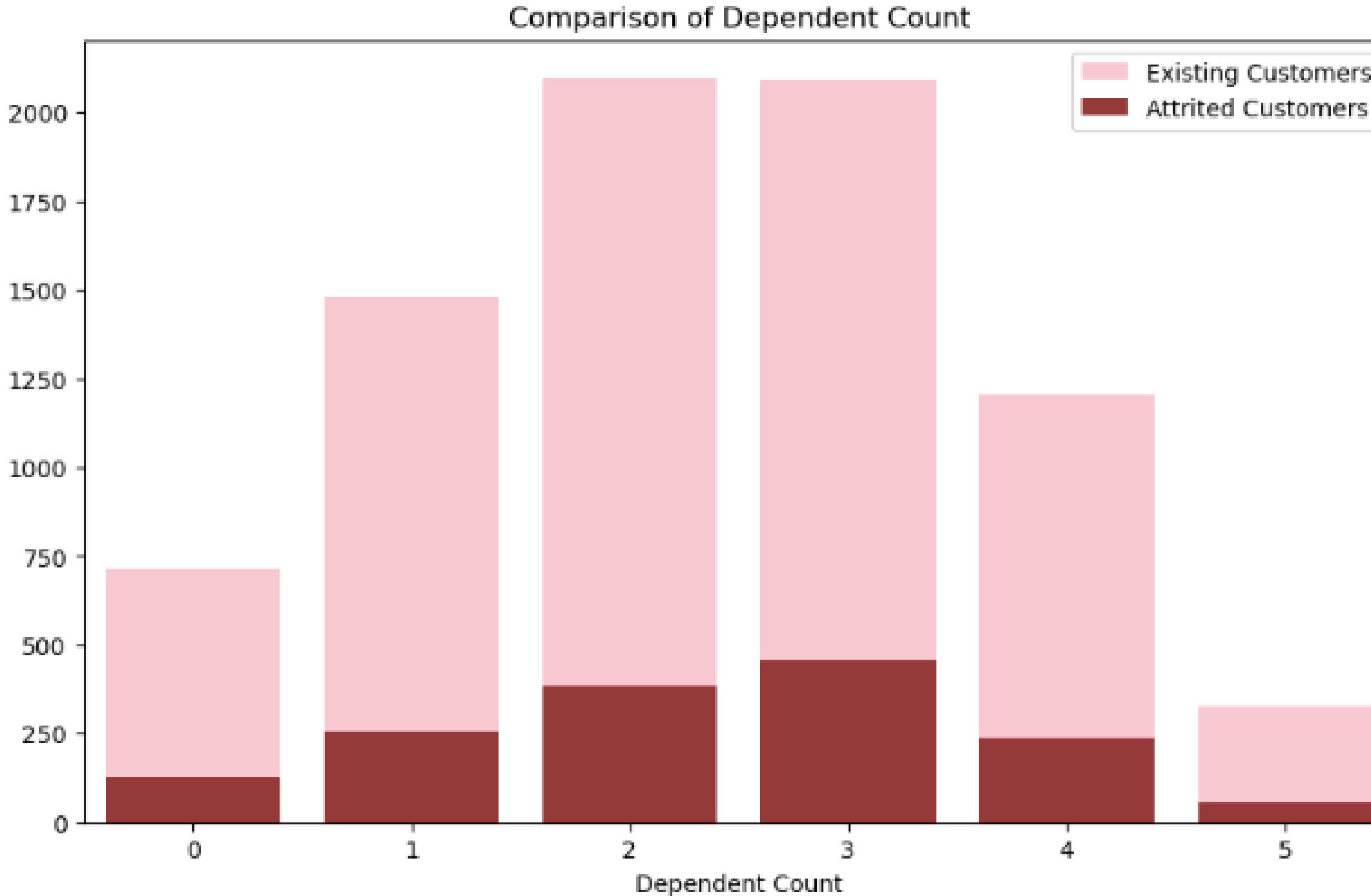


# Attrited vs Existing Customers - Age



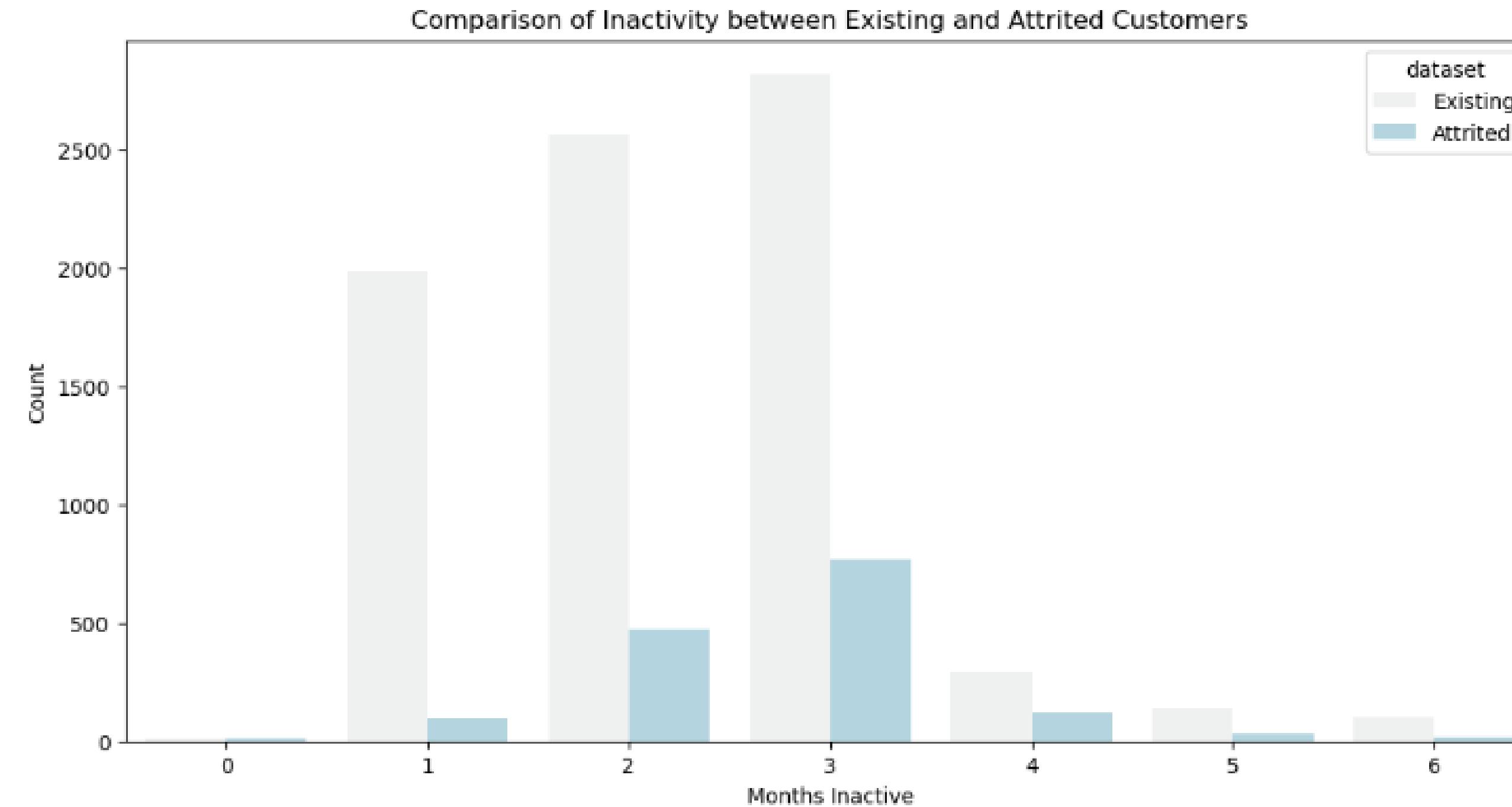
This indicates that the ages at which people are leaving the most are in line with what we expected. Interestingly, there are no customers under 26 years old in our data. While this doesn't explain customer attrition, it could be an opportunity to attract customers between 18 and 25 years old..

# Attrited vs Existing Customers - Dependent Count



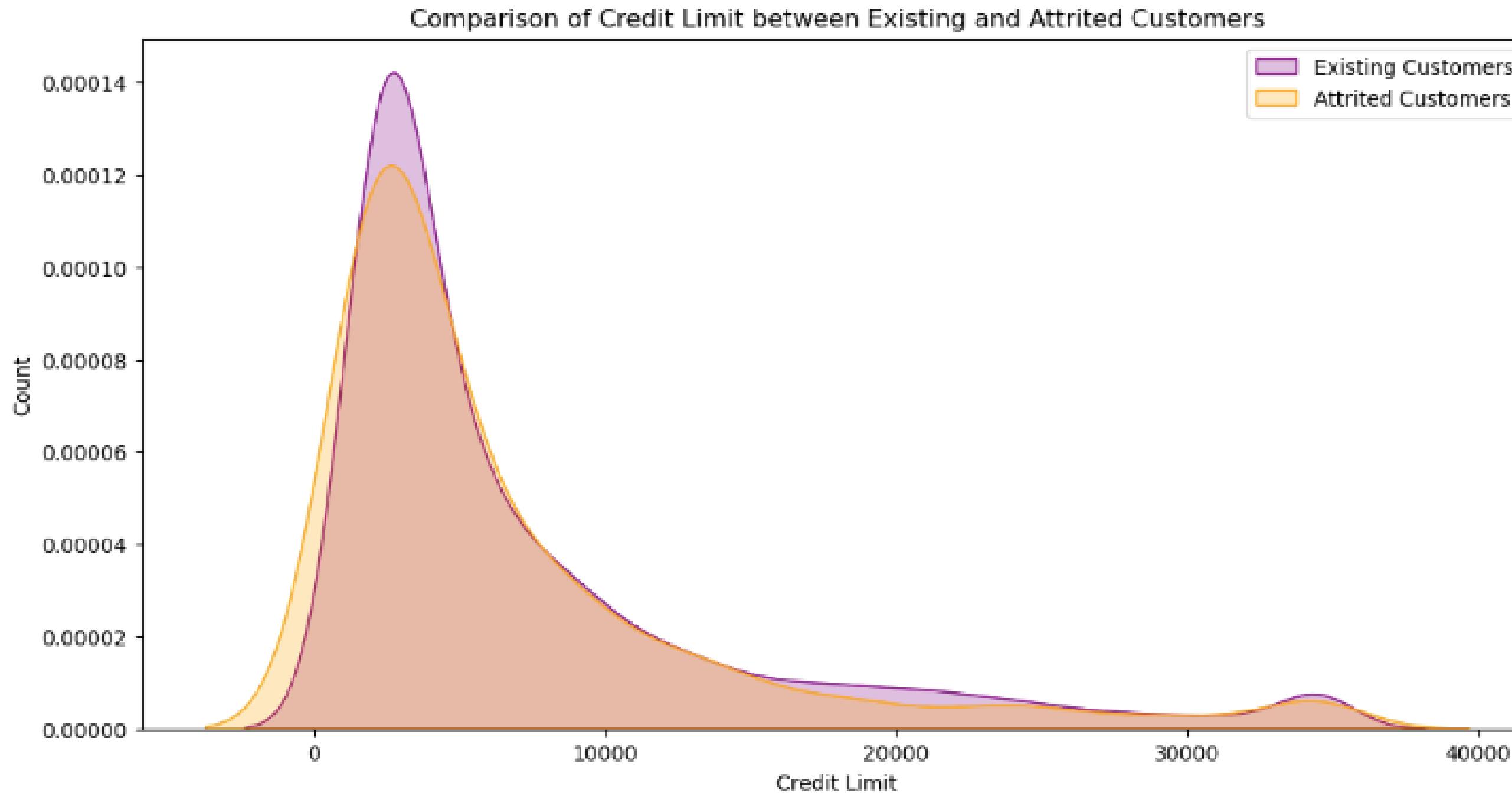
The bar graph indicates that the distribution of attrited customers aligns with that of existing customers. While there is a slight difference in proportionality for customers with three dependents, there is no consistent increase as the number of dependents rises. Therefore, no meaningful inferences can be drawn from this variation.

# Attrited vs Existing Customers - Inactivity



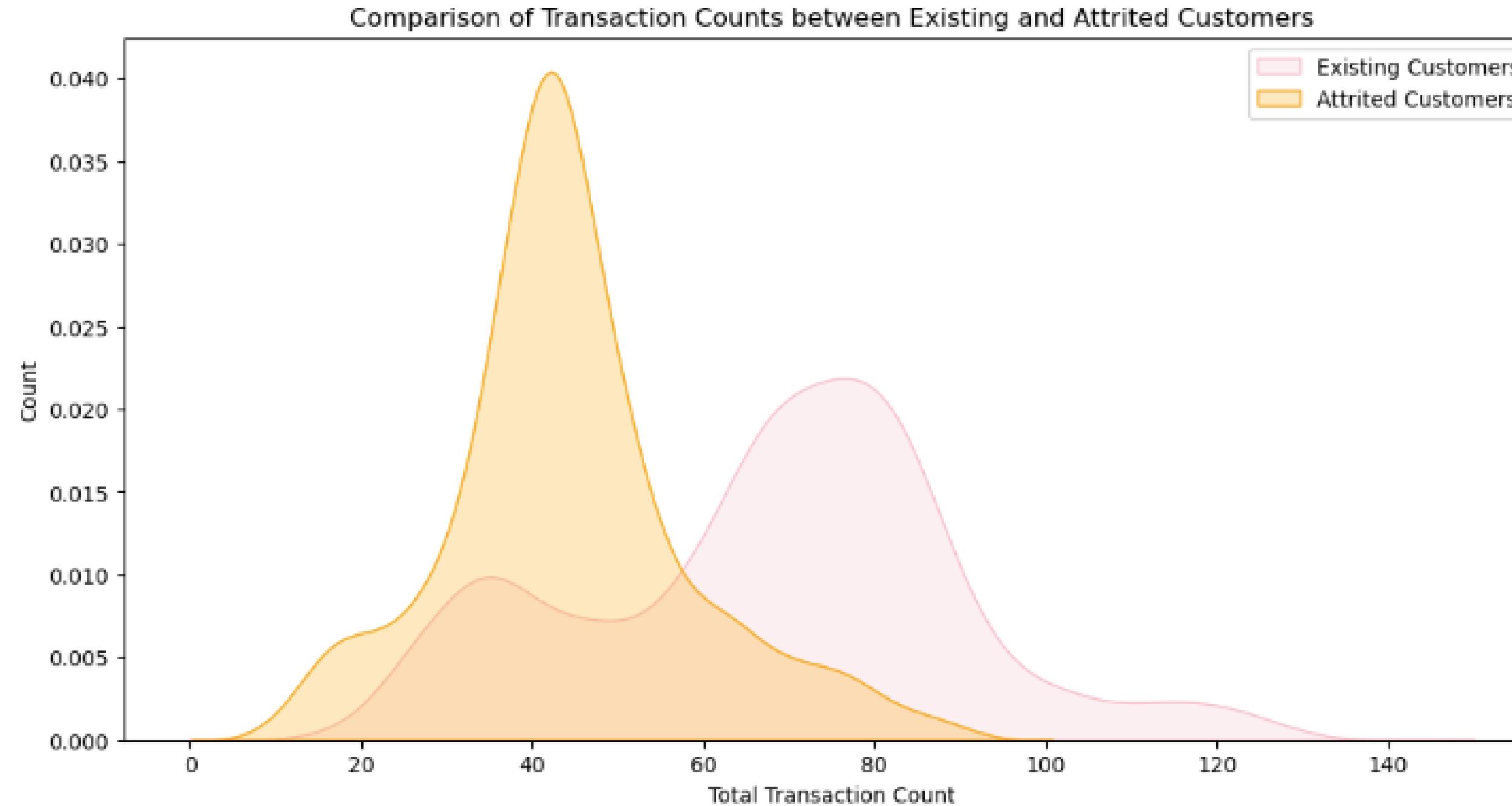
It seems that the majority of attrited customers are usually inactive for 1-3 months before they leave.

# Attrited vs Existing Customers - Credit Limit



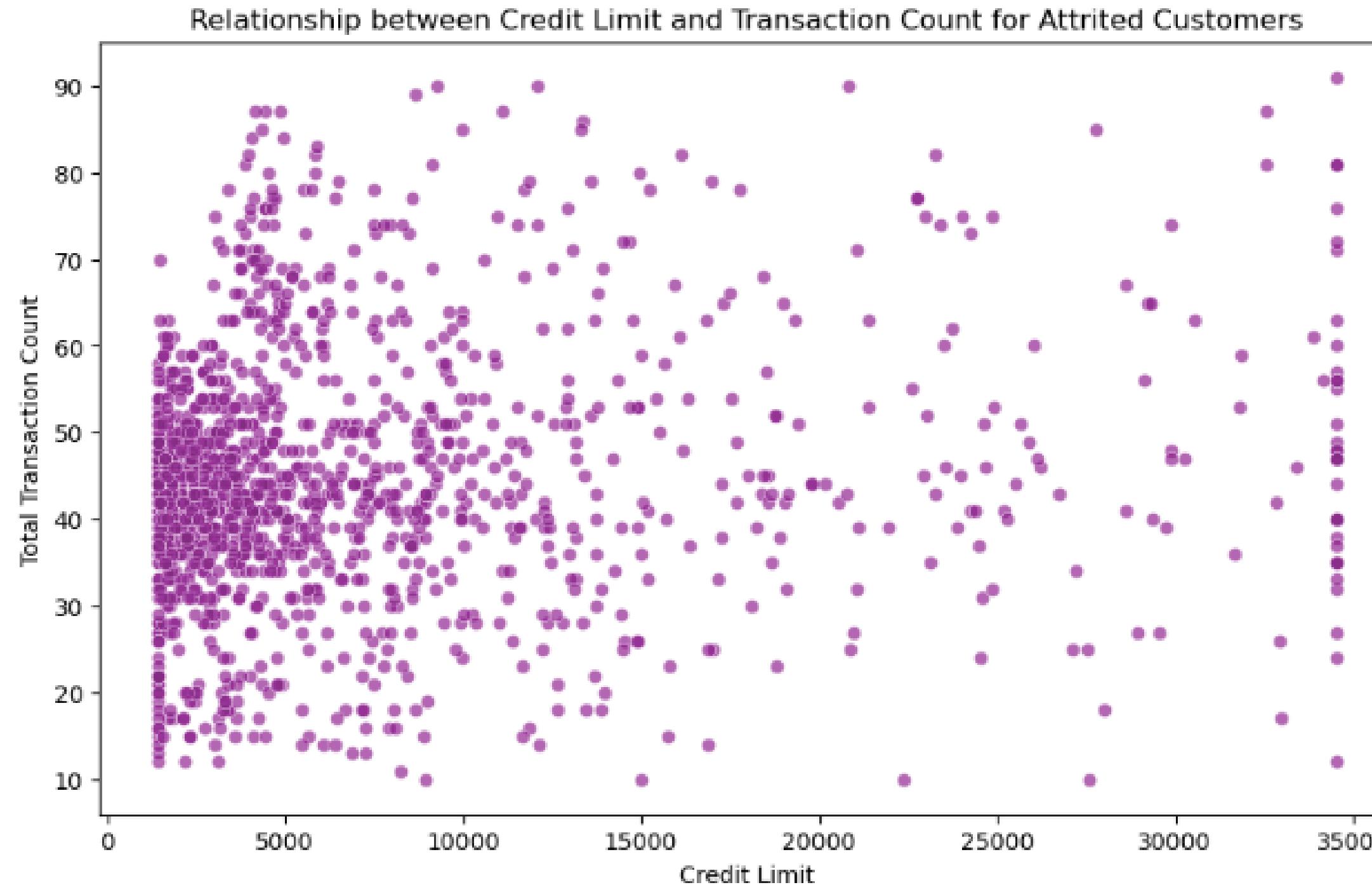
The credit limit of the attrited customers seems to follow a similar path as that of the existing customers. We cannot say that credit limit could contribute to attrition.

# Attrited vs Existing Customers - Total Transaction Count



As expected, the number of transactions of attrited customers is significantly less than existing customers, this could be because they had the card for less time than current customers (given they left) or because they just did not use the card very much (which could be a big reason for customer attrition).

# Attrited vs Existing Customers - Credit Limit & Transaction Count



Most of these customers' credit limits are under 10,000 (mainly under 5,000). The linear regression model summary shows that lower credit limits may be linked with lower transaction counts, which could contribute to customer attrition.

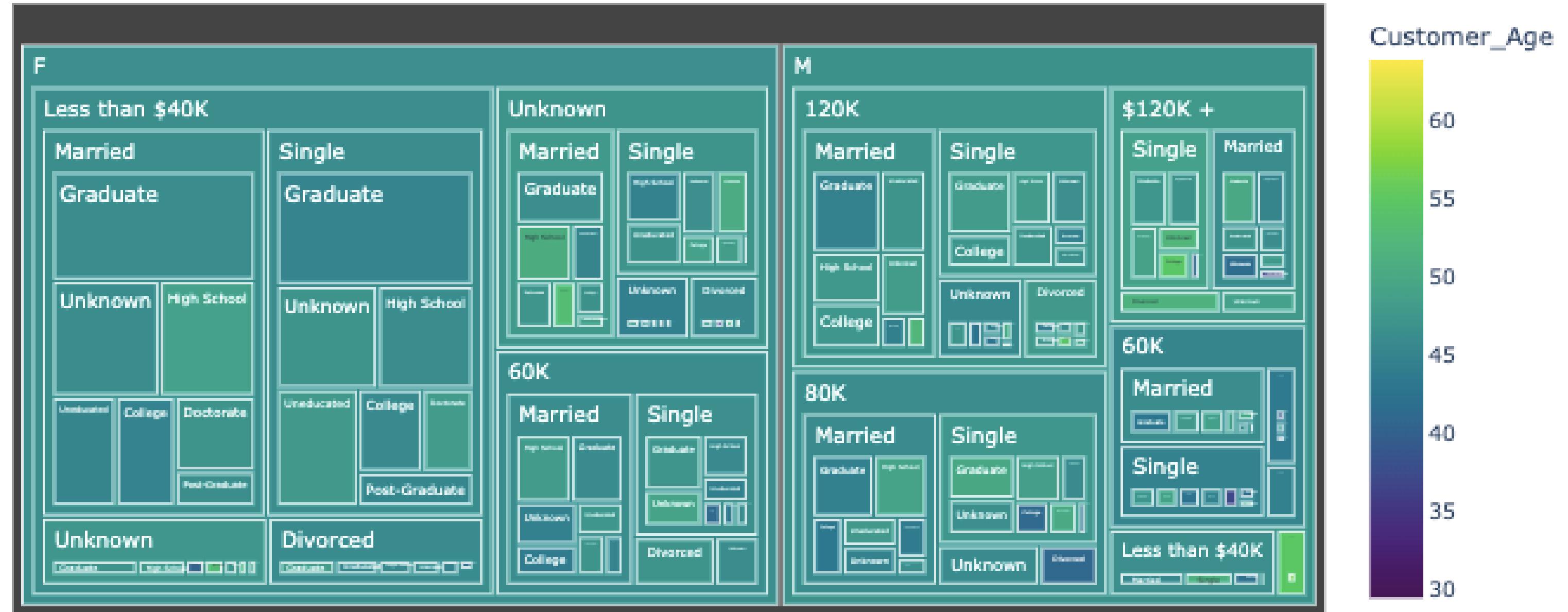
# Attrited vs Existing Customers - Age & Transaction Count



The analysis shows that age doesn't have much impact on how many transactions customers make with their credit cards. The small percentage (about 1%) indicates that age doesn't really explain why some customers use their cards more than others.

# Attrited Customers - Largest Demographics

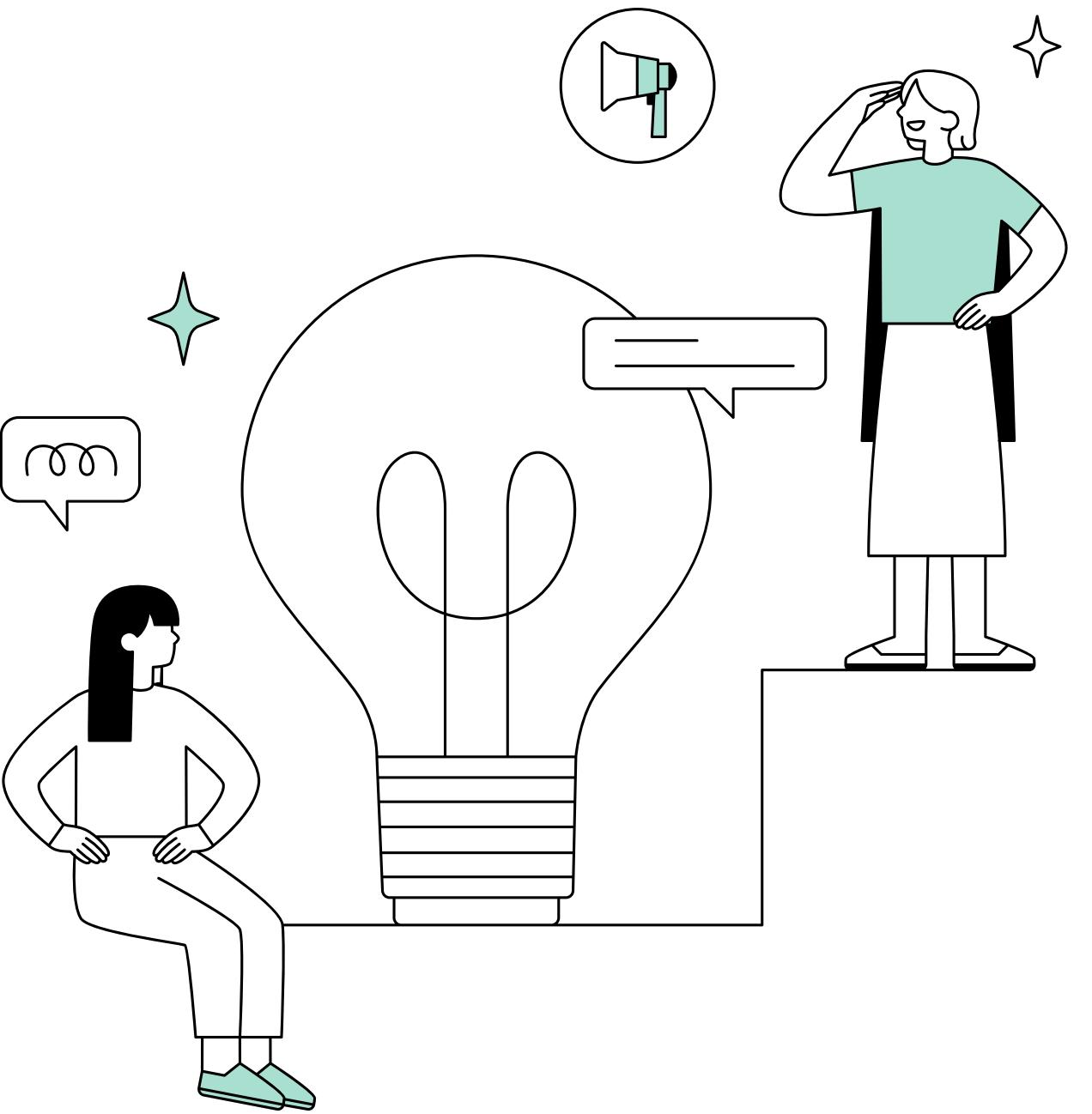
## Treemap of Attrited Customers



From this treemap, we can see that there are more women attrited (which we identified earlier) and the majority of them are single or married, make less than 40k, and are in their mid-40s. On the other hand, the attrited men's results are scattered across various incomes and marital statuses other than having age in common with the women's results.

# Insights

The credit card company can improve customer satisfaction, reduce loss of customers, and offer better services by following the insights in the next slide. Regularly analyzing customer behavior and feedback to continue enhancing their services will help them retain customers in the long run.

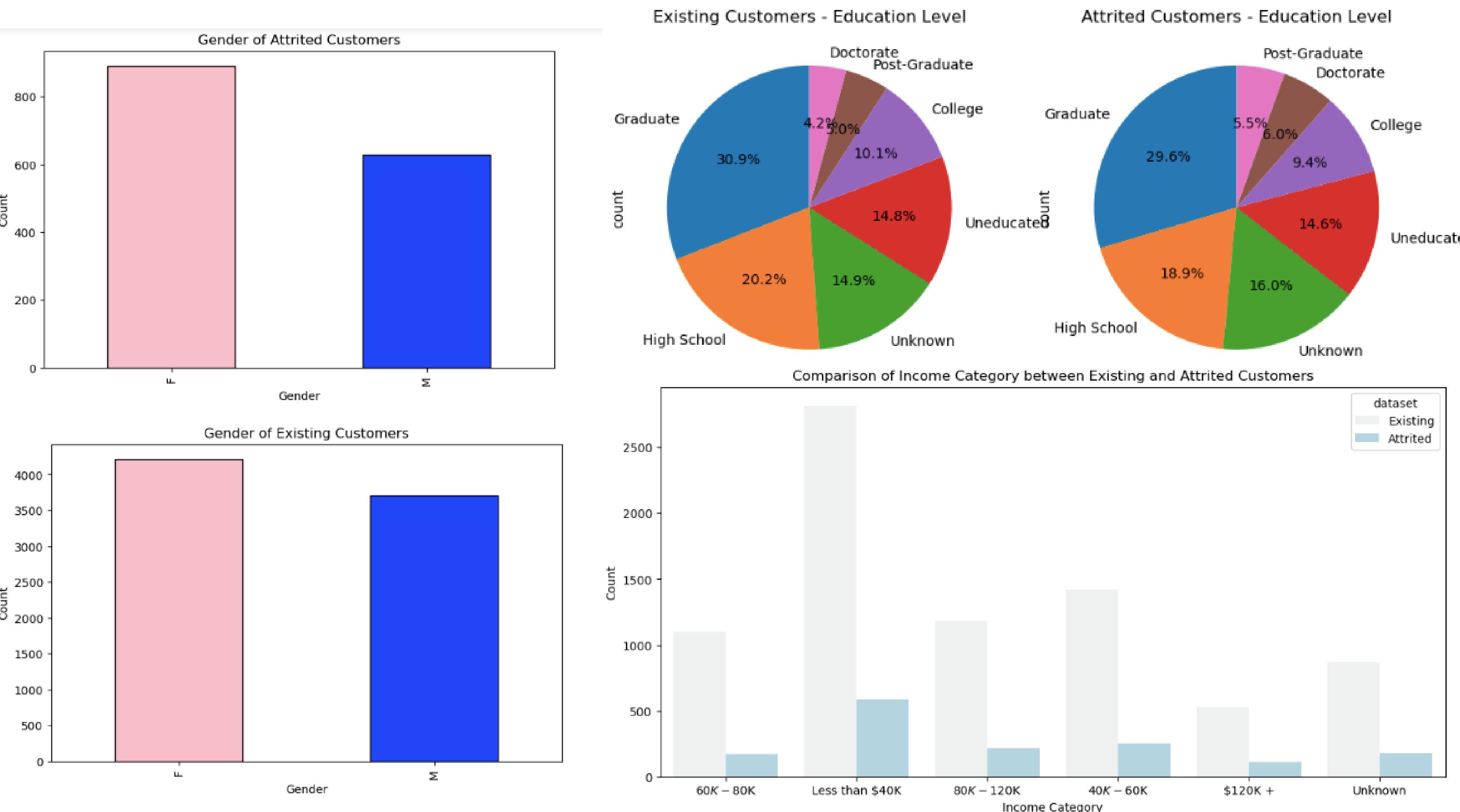


Factor	Findings	Suggestions & Actionables
<b>Inactivity</b>	<p>Customers who have been inactive between 1-3 months have the highest rates of attrition.</p>	<ul style="list-style-type: none"> <li>Notify customers who have been inactive for at least 30 days of their inactivity and offer special promotions for resuming activity.</li> <li>Collect feedback through customer experience surveys every 6 months from customers who have been inactive for 1-3 months.</li> </ul> 
<b>Credit Limit</b>	<p>Attrited customers tended to use their cards less when their credit limit was under 5,000.</p>	<ul style="list-style-type: none"> <li>A credit limit increase program (for all customers) that rewards customers based off of responsible &amp; increased card usage.</li> <li>Offering resources to help customers build healthy credit card habits.</li> </ul>
<b>Total Transaction Count</b>	<p>Attrited customers used their cards a lot less than existing customers, which could be one of the main reasons for attrition.</p>	<ul style="list-style-type: none"> <li>Collect feedback through customer satisfaction surveys every 6 months from customers who have less than 70 total transactions.</li> <li>Personalizing promotions by segmenting customers and targeting each segment individually (one of those segments being customers with credit card limits under 5k and the other being customers with total transactions under 70).</li> </ul> 
<b>Age</b>	<p>People tend to get their first credit cards between 18-21 years old but there are no customers under 26 at this credit card company.</p>	<ul style="list-style-type: none"> <li>Make new student credit cards or make current credit cards student-friendly by offering promotions/deals such as first few months with 0% APR and flexible payment plans.</li> <li>Utilize social media and influencers on Instagram and Tik Tok to advertise credit cards to a younger audience.</li> </ul> 

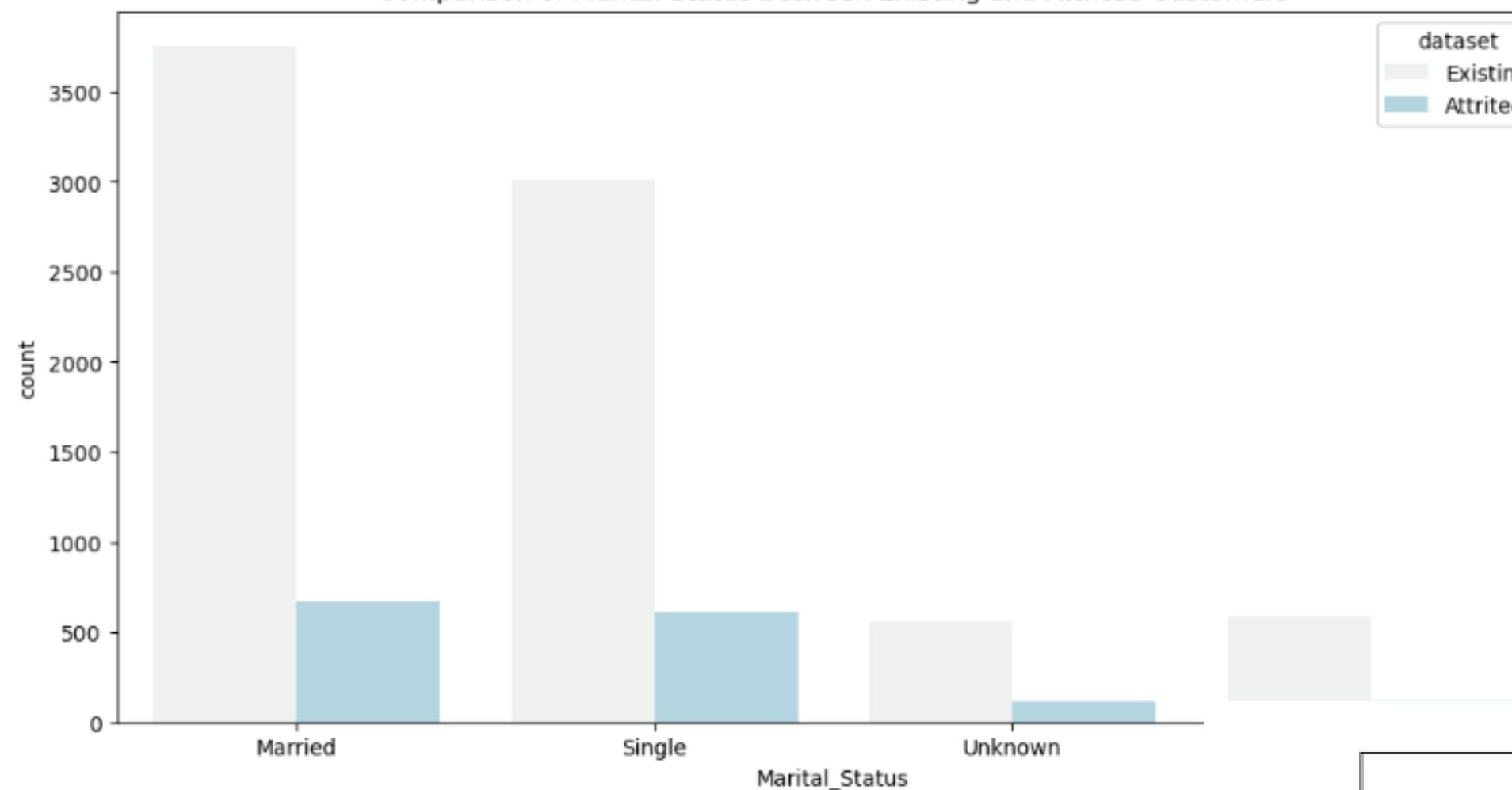
# Appendix

While conducting a comprehensive analysis, I explored additional levels of customer behavior. Although these insights on attrition concerning education level, marital status, and income level may not be as central to the main narrative, they contribute valuable information. The appendix also includes a visualization highlighting the characteristics of the most attrited demographic, offering supplementary perspectives on customer dynamics.



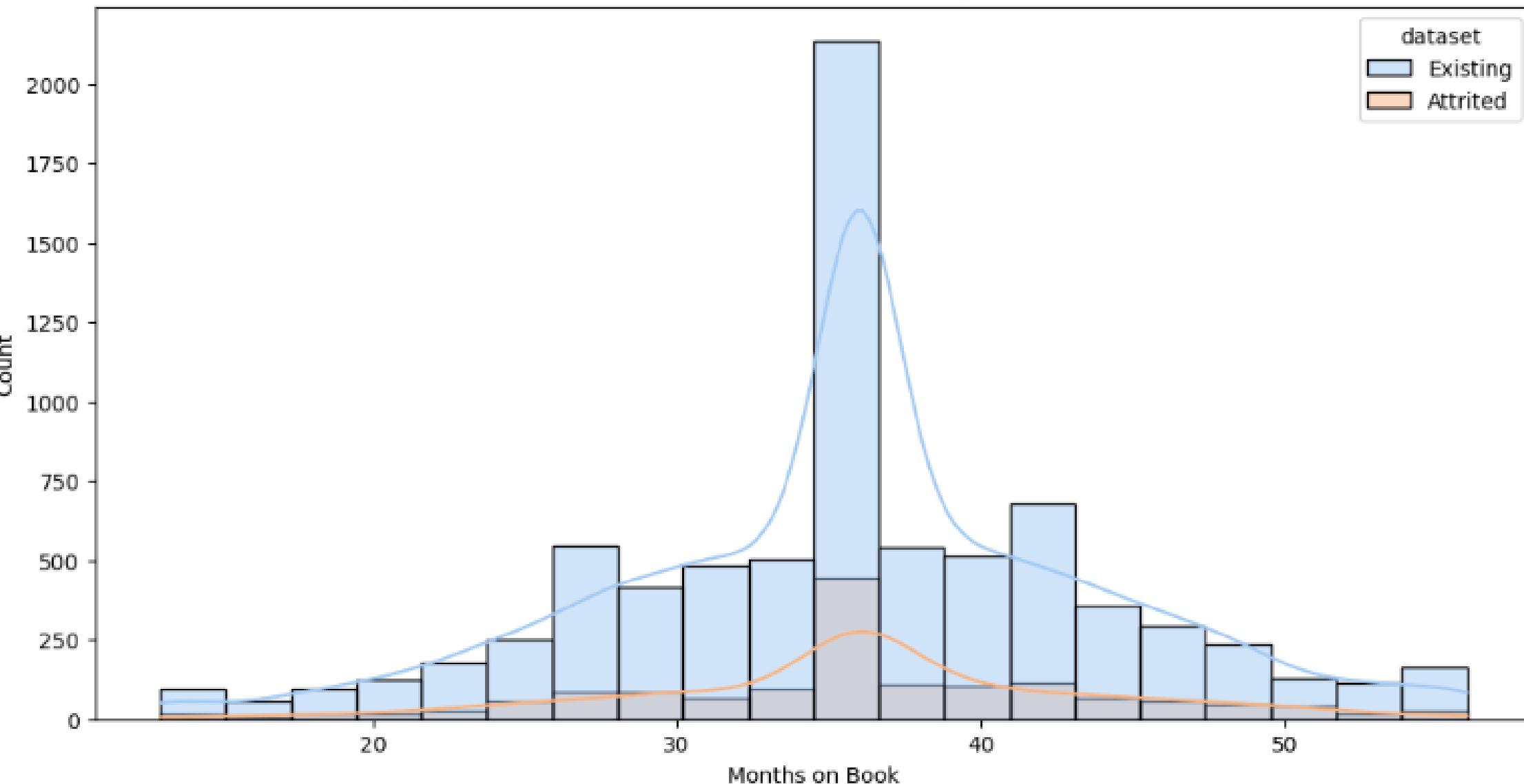


Comparison of Marital Status between Existing and Attrited Customers

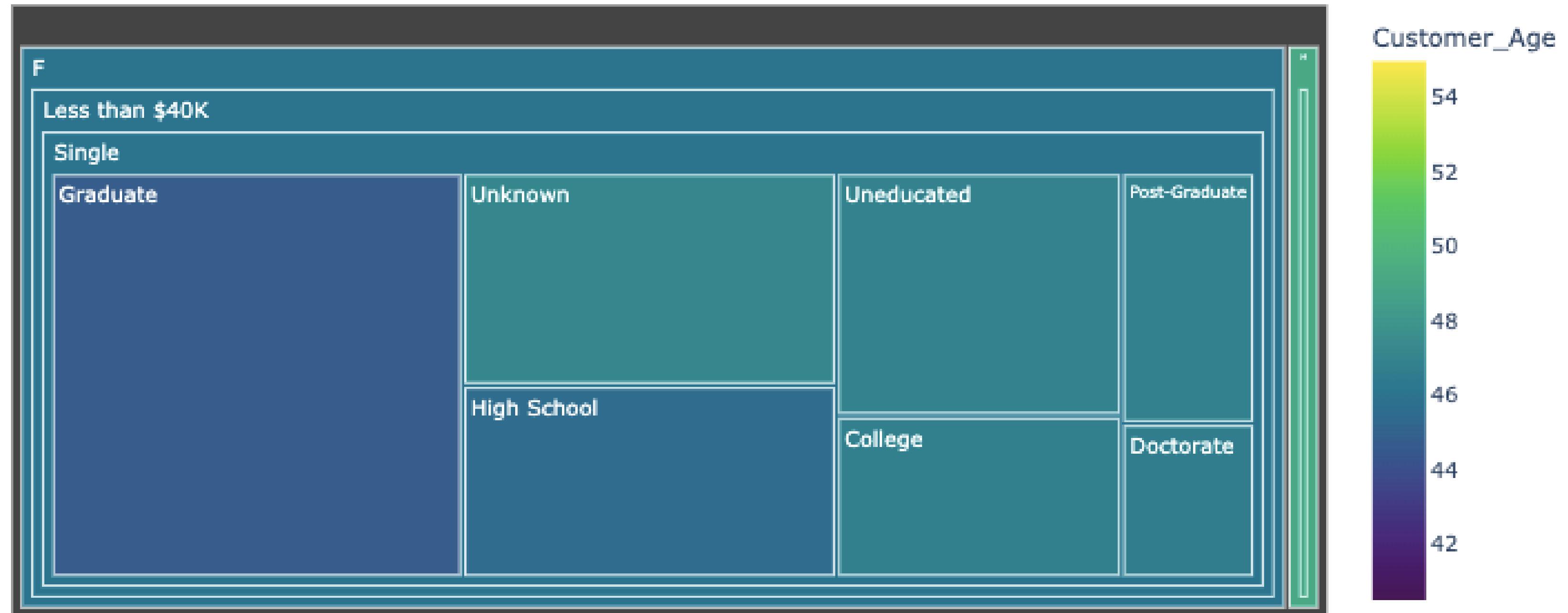


Looking at the bar graph there seems to be similar amounts of married and single attrited customers, although there are more than single existing customers.

Comparison of Months on Book between Existing and Attrited Customers



## Treemap of Attrited Customers



The majority of attrited customers seem to be single women in their mid to late 40s who make under 40k.