**RESULTS AND DISCUSSIONS**

1. **Characteristics of the Customers**

The characteristics of the customers are presented in Table 1.1.

**Table 1.1**

***Characteristics of the Customers***

**Parameters Frequency Percentage**

**Age**

Under 30 117 33.4

31 – 39 175 50.0

40 -46 58 16.6

Total 350 100

Mean 33.6 Years

**Gender**

Male 175 50.0

Female 175 50.0

Total 350 100

**Membership Type**

Bronze 116 33.1

Silver 117 33.4

Gold 117 33.4

Total 350 100

**Satisfaction Level**

Satisfied 125 35.7

Neutral 107 30.6

Unsatisfied 116 33.1

No Answer 2 .6

Total 350 100

The demographics of the sample, as outlined in Table 1.1, reveal that the majority of customers (50%) are aged between 31 and 39, with a mean age of 33.6 years. The gender distribution is equal, with 50% male and 50% female participants (N = 350). Regarding membership type, customers are evenly split among Bronze (33.1%), Silver (33.4%), and Gold (33.4%). Satisfaction levels are distributed as follows: 35.7% of customers reported being satisfied, 30.6% were neutral, and 33.1% were unsatisfied.

**2.0 K-Means Cluster Analysis**

The results from a k-mean cluster analysis are presented in Table 2.1 and Table 2.2.

**Table 2.1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Final Cluster Centre* | | | | |
|  | Cluster | | | |
| 1 | 2 | 3 | 4 |
| Total Spend | 748.43 | 473.39 | 1165.04 | 1459.77 |
| Items Purchased | 12 | 8 | 15 | 20 |
| Age | 32 | 39 | 31 | 29 |

**Table 2.2**

***Number of Cases in each Cluster***

|  |  |  |
| --- | --- | --- |
|  | | |
| Cluster | 1 | 117 |
|  | 2 | 116 |
|  | 3 | 59 |
|  | 4 | 58 |
| Valid |  | 350 |

A K-means cluster analysis was performed to group customers based on age, items purchased, and total spend. A four-cluster solution was selected, and the final cluster centers are reported in Table 2.1.

Cluster 1 (*n* = 117) is characterized by slightly older customers (*M* = 32) with a low number of items purchased (*M* = 12). Cluster 2 (*n* = 116) includes older customers (*M* = 39) with the lowest number of items purchased (*M* = 8), while Cluster 3 (*n* = 59) represents the slightly younger customers (*M* = 31) with the moderate item purchased (*M* = 15). Finally, Cluster 4 (*n* =58) represents the youngest customers (*M* = 29) with the highest number of items purchased (*M* = 20).

The frequency total money spent was significantly different across all clusters, younger customers tend to spend more while as the age increases, customers tend to spend less as well as buy less items.

The four clusters represent distinct customer groups, primarily differing in age, items purchase and total spent. Cluster 1 represents middle-aged customers with low spending, Cluster 2 includes older, low-spending customers, and Cluster 3 consists of slightly younger, moderate-spending customers and Cluster 4 consists of younger, high-spending customers. Since younger and slightly younger customers tend to spend more and buy more, the company should treat these cluster of customers properly by doing promos. For the slightly older and older customers, marketing research should be conducted to find ways to incentive them to spend more and buy more.

**3.0: Chi-Square Test for Association**

The results from a Chi-Square Test for Association between gender and membership applied are presented in Table 3.1.

**Table 3.1**

*Gender \* Membership Type Crosstabulation*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gender \* Membership Type Crosstabulation | | | | |  |  |  |  |  |
|  |  |  | *Membership Type* | |  |  |  |  |  |
|  |  |  | *Bronze* | *Gold* | *Silver* | *Total* | χ² | *df* | **φc** |
| Gender | Female | Count | 116 | 58 | 1 | 175 | 229.04\* | 2 | 0.809 |
|  |  | Expected Count | 58 | 58.5 | 58.5 | 175 |  |  |  |
|  |  | Std. Residual | 7.6 | -0.1 | -7.5 |  |  |  |  |
|  | Male | Count | 0 | 59 | 116 | 175 |  |  |  |
|  |  | Expected Count | 58 | 58.5 | 58.5 | 175 |  |  |  |
|  |  | Std. Residual | -7.6 | 0.1 | 7.5 |  |  |  |  |
| Total |  | Count | 116 | 117 | 117 | 350 |  |  |  |
|  |  | Expected Count | 116 | 117 | 117 | 350 |  |  |  |

Note. \* = *p* < .05

A chi-square test of independence was performed to examine the relationship between gender and membership type. The relation between these variables was significant, χ² (2, *N* = 350) = 229.04, *p* < .001. The Cramer’s V coefficient (**φ*c*** = 0.809, *p* < .001) indicates a strong association between gender and the membership type.

From the crosstabulation, it was found that female were majorly bronze membership subscribers, while male were majority gold membership subscribers.

**4.0 Analysis of Variance (ANOVA)**

The results from an ANOVA between total spend and age category are presented in the table 4.1, table 4.2 and table 4.3.

**Table 4.1**

*Descriptives*

Total Spend

|  |  |  |  |
| --- | --- | --- | --- |
| *Age Category* | *N* | *Mean* | *SD* |
| Under 30 | 117 | 1176.2 | 327.8 |
| 31-39 | 175 | 738.7 | 257.7 |
| 40-46 | 58 | 499.9 | 25.3 |
| Total | 350 | 845.4 | 362.1 |

**Table 4.2**

*Robust Tests of Equality of Means*

Total Spend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Statistica* | *df1* | *df2* | *p-value* |
| Welch | 319.312 | 2 | 188.086 | <.001 |
| Brown-Forsythe | 206.940 | 2 | 218.232 | <.001 |

a. Asymptotically F distributed.

\* = *p* < .05

*Note*: Test for homogeneity failed so heterogeneity results were used.

**Post Hoc Test**

**Table 4.3**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Multiple Comparisons* | | | | | | |
| Dependent Variable: Total Spend | | | | | | |
| Tamhane | | | | | | |
| *(I) Age Category* | *(J) Age Category* | *Mean Difference (I-J)* | *Std. Error* | *p-value* |
|  |
| Under 30 | 31 - 39 | 437.43\* | 36.03 | <.001 |  |  |
| 40 - 46 | 676.29\* | 30.37 | <.001 |  |  |
| 31 - 39 | Under 30 | -437.43\* | 36.03 | <.001 |  |  |
| 40 - 46 | 238.85\* | 19.58 | <.001 |  |  |
| 40 - 46 | Under 30 | -676.29\* | 30.37 | <.001 |  |  |
| 31 - 39 | -238.85\* | 19.58 | <.001 |  |  |
| \* The mean difference is significant at the 0.05 level. | | | | | | |

A one-way ANOVA was conducted to determine whether there were significant differences in total spend based on age category (see Table 4.0). There was a statistically significant difference in total spend between the three age groups, as determined by Welch’s F (2, 188.086) = 319.312, *p* < .001. Post hoc analyses using the Tamhane test revealed that customers under 30 spent significantly more ($1176.17) than those aged 31–39 ($738.74), with a mean difference of $437.43, *p* < .001. Similarly, those under 30 spent significantly more than those aged 40–46 ($499.88), with a mean difference of $676.29, *p* < .001. There were also significant differences between the 31–39 and 40–46 age groups (mean difference = $238.85, *p* < .001).

5.0 **Chi-Square Test for Association**

The results from a Chi-Square Test for Association between Satisfaction Level and Membership Type are presented in Table 5.1.

**Table 5.1**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Satisfaction level \* Membership Type Crosstabulation* | | | | | | |
|  | | | Membership Type | | | Total |
| Bronze | Gold | Silver |
| Satisfaction level | Satisfied | Count | 0 | 117 | 8 | 125 |
| Expected Count | 41.4 | 41.8 | 41.8 | 125.0 |
| Standardized Residual | -6.4 | 11.6 | -5.2 |  |
| Neutral | Count | 56 | 0 | 51 | 107 |
| Expected Count | 35.5 | 35.8 | 35.8 | 107.0 |
| Standardized Residual | 3.4 | -6.0 | 2.5 |  |
| Unsatisfied | Count | 58 | 0 | 58 | 116 |
| Expected Count | 38.4 | 38.8 | 38.8 | 116.0 |
| Standardized Residual | 3.2 | -6.2 | 3.1 |  |
| No answer | Count | 2 | 0 | 0 | 2 |
| Expected Count | .7 | .7 | .7 | 2.0 |
| Standardized Residual | 1.6 | -.8 | -.8 |  |
| Total | | Count | 116 | 117 | 117 | 350 |
| Expected Count | 116.0 | 117.0 | 117.0 | 350.0 |

*Note*: 4x3 contingency table so Cramer’s V was used for effect size.

χ²(6) = 320.57, *p <* .05*, φc =* .667

A chi-square test of independence was conducted to examine the relationship between satisfaction level and membership type (see Table 5.0). The association was significant, χ²(6, *N* = 350) = 320.566, *p* < .001, with a strong association (Cramér’s V = 0.677). Gold members were more likely to report being satisfied (std. residual = 11.6), while bronze and silver members were less likely to report satisfaction (std. residual = -6.4 and -5.2, respectively).

6.0 **Independent Sample t-test**

The result from an independent sample t-test between total spend and discount applied is presented in Table 6.1.

**Table 6.1**

*Independent Sample t-test*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | *Discount applied?* | *N* | *M* | *SD* | *t* | *df* | *p-value* |
| Total Spend |  |  |  |  |  |  |  |
|  | TRUE | 175 | 787.27 | 281.87 | -3.04 | 304.16 | 0.003\* |
|  | FALSE | 175 | 903.49 | 420.34 |  |  |  |

\* = *p* < .05

An independent samples t-test was conducted to compare the total spend between customers who had a discount applied and those who did not (see Table 6.1). There was a significant difference in total spend for customers with a discount (*M* = 787.27, *SD* = 281.87) and without a discount (*M* = 903.49, *SD* = 420.34), *t*(304.16) = -3.04, *p* = .003. Customers who did not have a discount spent significantly more.

7.0 **Correlation Analysis**

The result from a correlation analysis between days since last purchase, membership type and satisfaction level are presented in Table 7.1.

**Table 7.1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Correlations* | | | | |
|  | | *Days Since Last Purchase* | *Membership type* | *Satisfaction Level* |
| Days Since Last Purchase | Pearson Correlation | 1 | -.416\* | .756\* |
| Sig. (2-tailed) |  | <.001 | <.001 |
| N | 350 | 350 | 350 |
| Membership type | Pearson Correlation | -.416\* | 1 | -.743\* |
| Sig. (2-tailed) | <.001 |  | <.001 |
| N | 350 | 350 | 350 |
| Satisfaction Level | Pearson Correlation | .756\* | -.743\* | 1 |
| Sig. (2-tailed) | <.001 | <.001 |  |
| N | 350 | 350 | 350 |
| \*. Correlation is significant at the 0.05 level (2-tailed). | | | | |

Pearson correlation coefficients were computed to assess the relationship between days since last purchase, membership type, and satisfaction level. There was a significant negative correlation between days since last purchase and membership type, r(350) = -.416, *p* < .001, and a significant positive correlation between days since last purchase and satisfaction level, r(350) = .756, *p* < .001. Additionally, a significant negative correlation was found between membership type and satisfaction level, r(350) = -.743, *p* < .001.