

Final Project

WHOOP – Analysis of Brand Attractiveness

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Introduction

Marketing Challenge

WHOOP is a fitness tracker device that differentiates itself from others through target marketing strategy of focusing on recovery time and sleep analysis more than just on the workout. WHOOP and their fitness tracker are relatively new to the fitness tracker industry. Founded in 2011, WHOOP has struggled to make a significant breakthrough as far as market share. The company has geared their marketing campaigns towards professional sports teams' athletes and trainers, Olympians, fortune 500 CEOs and the United States Military[1]. WHOOP had previously entered the market aiming to sell their wearable technology at steep prices. They had attempted to sell both the wearable and in-depth bio-analytics to professional sports teams at \$1,000 to \$2,000 per player. They also listed their initial retail price at \$500 per wearable band [2].

WHOOP had tried to position themselves as an elite wearable technology, but their sales did not reciprocate. Overall, the fitness tracker industry has seen tremendous growth in recent years and is expected to continue a steep growth in the recent future. The global fitness tracker industry was tagged at 20.88 billion US dollars in 2017 and forecasted to grow to 59.22 billion USD by 2023 with a compound annual growth rate of 18.98% [3].

Competitors and Competitive Advantage

Major competitors in the fitness tracker industry include the Apple, Fitbit, Samsung and Garmin. Although the Apple Watch may be the closest to the WHOOP in retail price, the Apple Watch is not strictly a fitness tracker. Fitbit, which produces wrist wearable fitness trackers and lower priced watches than Apple Watch, retail comparable devices anywhere from \$150 to \$300 US dollars[4]. Essentially, the WHOOP wearable fitness band was priced only for the elite professional athletes or wealthy CEOs and alienated the everyday athlete or gym enthusiast that were not willing to spend \$500 on a fitness tracker. In Q2 2018, WHOOP decided to change their strategy. Instead of selling a one time wearable band, WHOOP announced that their product would be a subscription based service that included the band for free. At \$30 per month, WHOOP still aims to market the service to elite athletes, Olympians and CEOs while trying to maintain their premium brand image. The shift from a single sale product to monthly subscription based service will dramatically change WHOOP's marketing strategy and create new challenges.

We have identified the lack of market share to be the first major challenge WHOOP faces. WHOOP has not yet gone public, although it has received funding Series C in March 2018[5], the information to detailed numbers is limited so assumption was made that due to small size and awareness, the market share is also small, relative to competitors. WHOOP has been competing

against large and established companies such as Apple and Fitbit and has yet to succeed against the giants. The attempt to market their product to elite athletes and wealthy CEOs has not garnered the type of response in market share that they had hoped. Since moving to their product to a subscription-based product, their marketing strategy must change. Their CEO Will Ahmed said, "It expands the market ... What we expect is that after people try it for a period of time, they're going to see powerful behavior change" [2]. Part of the lack of market share can be attributed to WHOOP's struggles to increase their brand awareness. WHOOP wants to attract customers to try their product on a month to month subscription, in which they are confident that their product will retain customers[6]. To attract more customers requires a boost in brand awareness. An increase in brand awareness might be associated with increase sales, which in turn can lead to increasing market share.

Abstract

The purpose of our analysis is to investigate brand awareness for WHOOP by customer segmentation and customer profiling. Customer segmentation analysis will help determine the most relevant type of customer for the WHOOP product. Also known as target market selection, our analysis will include segmentation of potential customers by k-means clustering techniques. Our clustering algorithms will help identify key attributes and consumer behavior tendencies of potential customers that match best with the WHOPP product. By segmenting the customers, a more targeted marketing strategy can be used to sell the WHOOP product to the right customer base. Moreover, the regression analysis and ANOVA will be used discover relationships between survey responses, demographics and endorsement. This will help with communication and advertising campaigns narrow focus to essential groups that are most likely to buy the WHOOP product and translate into an increase of overall sales.

Primary Research -

Data Collection - Survey

The goal of our research is to determine how WHOOP can increase its brand awareness in the competitive fitness tracker market. To measure how a brand is positioned in the market, we have focused our analysis on three areas: *product popularity, market competition and brand perception*. In the analysis of product popularity, we want to understand the demand for fitness trackers and the willingness of consumers to purchase these types of devices. Market competition is a relevant area that gives us insight on what brands of fitness trackers are recognized in the market, and how they compare against WHOOP. Finally, the study of brand perception centers around marketing metrics such as awareness, familiarity, favorability, perception and endorsements.

Survey Monkey was used to collect data through sending emails to potential customer base. The survey consisted of 10 questions, outlined below, that were designed to measure brand equity and awareness in the market:

Demographics

1. What is your Age?
2. What is your Gender?

Product Popularity

3. When was the last time you used this product category?
4. Would you Consider Purchasing a Fitness Tracker Device?

Market Competition

5. Which of the following brands have you heard of?

Brand Perception

6. When did you first hear about our brand? (*Awareness*)
7. How familiar are you with our brand? (*Familiarity*)
8. How would you describe your overall opinion of our brand? (*Favorability*)
9. How has your perception of our brand changed in the past 3 months? (*Perception*)
10. How likely is it that you would recommend our brand to a friend or colleague?
(Endorsement)

[*(please refer to the attached excel files:

Appendix A: Survey & Appendix B: Data Dictionary)]

Each of these questions corresponds to a specific variable that was important to determine the brand Equity of WHOOP. Our intention with the results of this survey is to convert all these categorical responses into numerical variables, to develop a variety of statistical models that allow us to interpret product popularity, competition and perception with accuracy across different demographic groups.

Descriptive Statistics

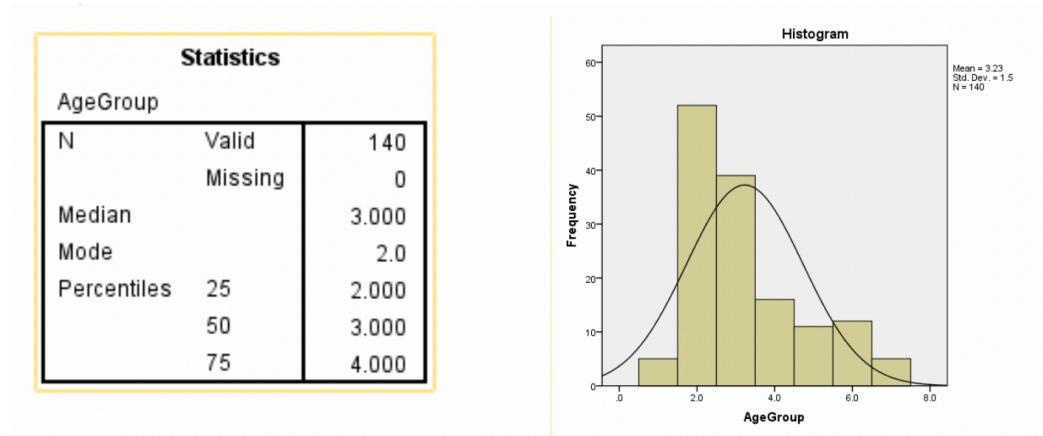
Dealing with missing values:

There were a few missing values in the dataset. For the observations that have one or two missing values a mode value was implemented due to structure of the data being categorical and numerical. Different models needed different approach to missing data, since there were only a few missing variables, for most calculations there were removed.

Analysis

Per variable analysis is performed to better understand the data and the responders and their profiles.

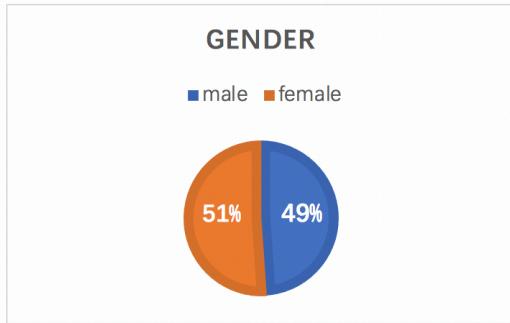
Age



There are 140 records with no missing values. The mode age group is 3, indicating the biggest group of people who are between 18 to 24 years old. We can also see that most people are between 18-34 (group 2 and group3 combined) years old.

Gender

From the pie chart below we notice that male and female are almost evenly distributed. The number of females is a little higher than that of male.

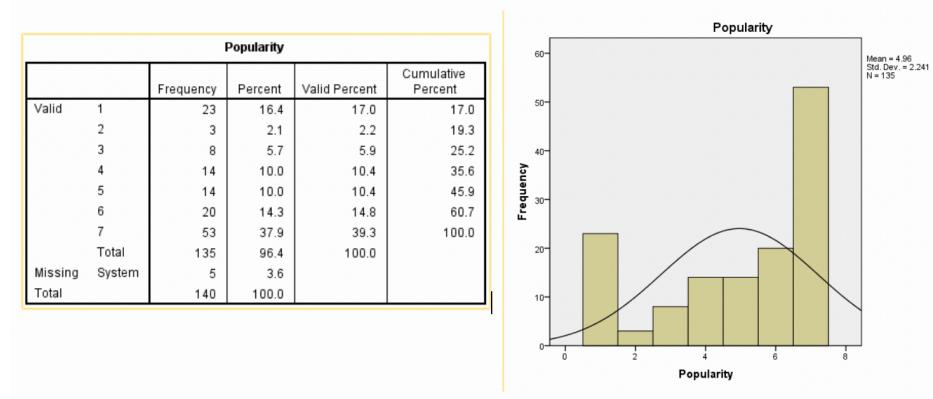


Next, let's look at the measurements of brand equity and awareness. We researched popularity, awareness, familiarity, favorability, and perception.

Statistics					
	Popularity	Awareness	Familiarity	Favorability	Perception
N	Valid	135	135	135	135
	Missing	5	5	5	5
Mean		4.96	4.07	3.66	3.90
Median		6.00	4.00	4.00	3.00
Mode		7	6	5	6
Std. Deviation		2.241	1.995	1.404	2.022
Percentiles	25	3.00	2.00	2.00	2.00
	50	6.00	4.00	4.00	3.00
	75	7.00	6.00	5.00	6.00

This is the overall descriptive analysis result of these five variables. Let's look into every measurement one by one and visualize them to gain better insights.

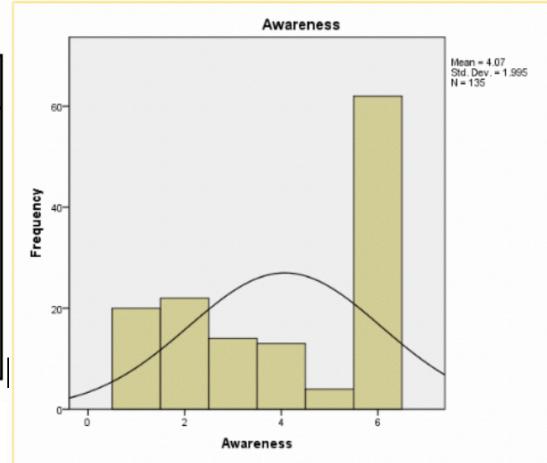
Popularity



The first table shows that 60.7% of people have ever used fitness tracker products, and 17% of people used a fitness tracker product in last week. Yet at the same time, the mode is 7, indicating that there are still many people that have never used this product category before. In conclusion there is popularity of fitness trackers among the sample customers.

Awareness

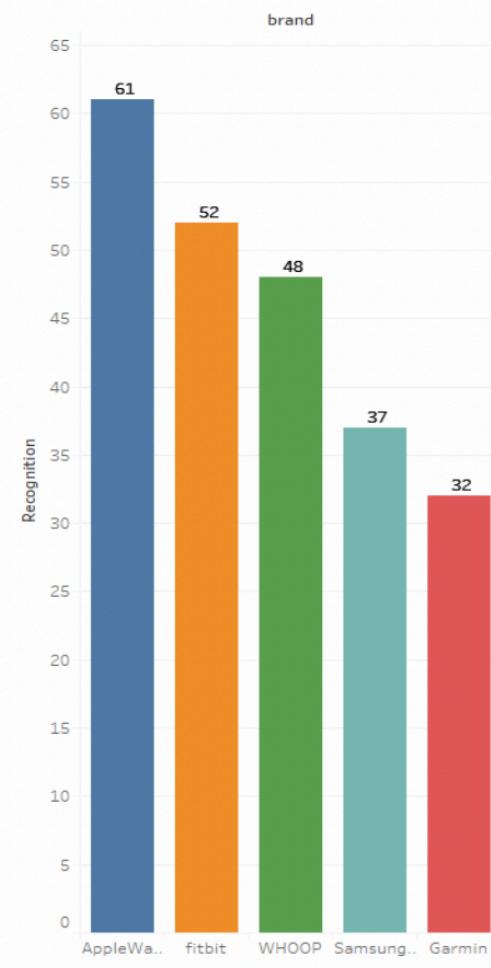
Awareness					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid					
1	20	14.3	14.8	14.8	
2	22	15.7	16.3	31.1	
3	14	10.0	10.4	41.5	
4	13	9.3	9.6	51.1	
5	4	2.9	3.0	54.1	
6	62	44.3	45.9	100.0	
Total	135	96.4	100.0		
Missing	System	5	3.6		
Total	140	100.0			



Awareness of the brand, 54% of respondents have heard of WHOOP ever, while 45.9% of people never heard of WHOOP before. Sizeable amount of people (51.1%) first heard about the brand less than one year ago, showing that this brand is pretty new to customers.

Brand Recognition

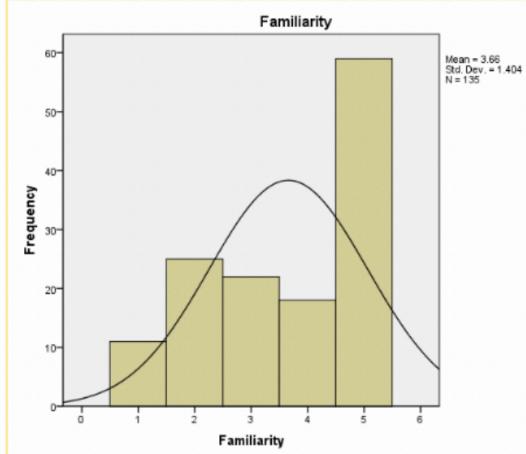
Recognition of Different Brands



The graph above shows the number of respondents who have heard the specific bands before. Apple Watch has the highest band recognition, while Garmin has the lowest recognition. Whoop's strong competitors are Apple Watch and Fitbit.

Familiarity

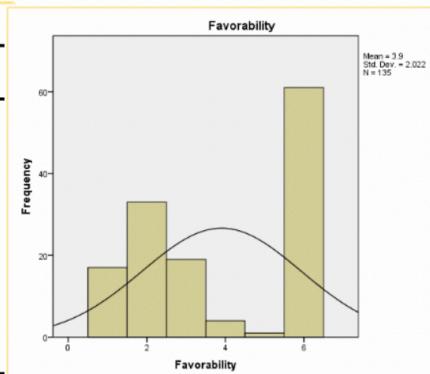
Familiarity					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	1	11	7.9	8.1	8.1
	2	25	17.9	18.5	26.7
	3	22	15.7	16.3	43.0
	4	18	12.9	13.3	56.3
	5	59	42.1	43.7	100.0
Total		135	96.4	100.0	
Missing	System	5	3.6		
Total		140	100.0		



Familiarity data breakdown in the table above shows that 43.7% people are not at all familiar with WHOOP, and only 26.7% of respondents are very familiar with this brand. The data points in ‘familiarity’ are pretty skewed either toward one side or another, which is an important indicator to the business. It means the brand name does not “ring a bell”. Improving this could be a big breakthrough, even if a company is targeting a niche, the brand should still be recognized when mentioned.

Favorability

Favorability					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	1	17	12.1	12.6	12.6
	2	33	23.6	24.4	37.0
	3	19	13.6	14.1	51.1
	4	4	2.9	3.0	54.1
	5	1	.7	.7	54.8
	6	61	43.6	45.2	100.0
Total		135	96.4	100.0	
Missing	System	5	3.6		
Total		140	100.0		



Except, for people who have never heard about WHOOP before, people who are familiar with WHOOP, 67.6% of people are very favorable about this brand and only 12.1% of people don't like this brand. We can conclude that there is potential of this brand to grow since the current users find a lot of satisfaction from using the product.

Perception

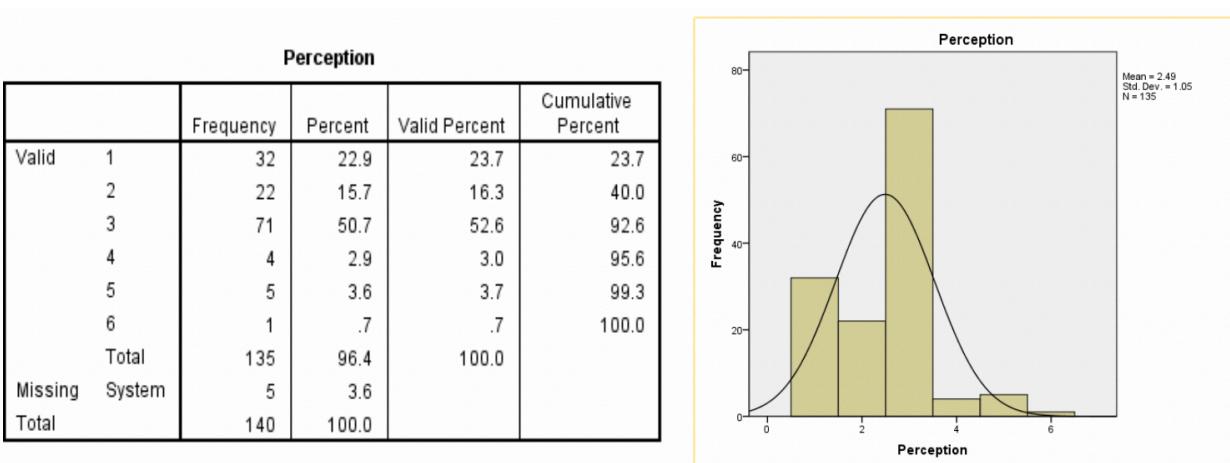
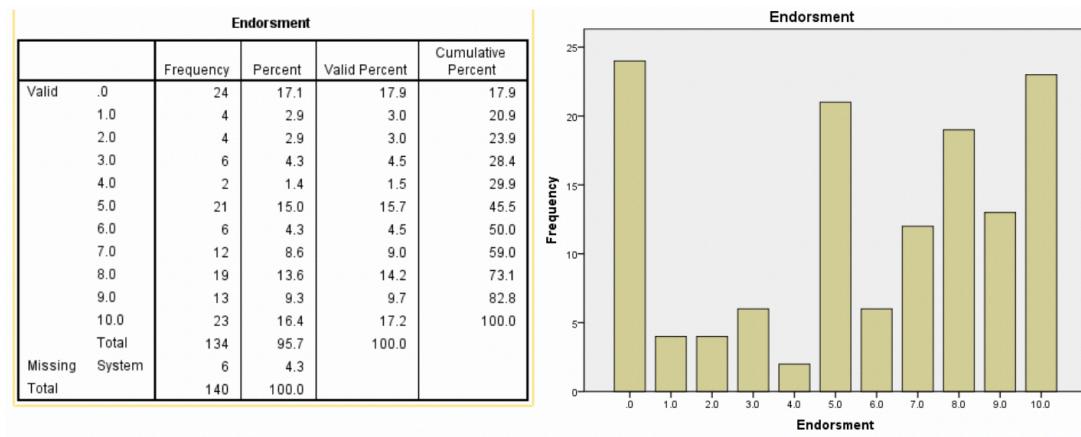


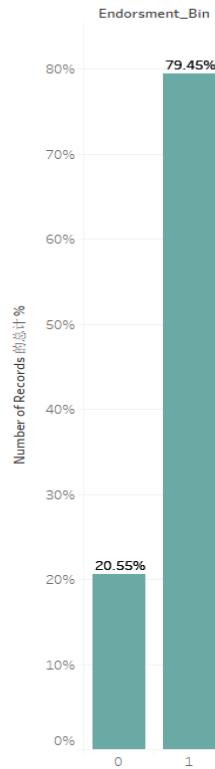
Table and chart show that 40% of respondents think that the brand is more favorable (group No.1 and No.2), while 52.6% of respondents think that their perception towards this brand stay unchanged.

Endorsement



About 50% of respondents are willing to recommend WHOOP to their friends and colleagues (group 7,8,9,10). At the same there are a lot of people who have not heard WHOOP before. We should focus our attention on people who have heard of WHOOP. At the same time, again we have potential evidence that there is a lot of room to target new customers for WHOOP.

Endorsement of People who heard of Whoop



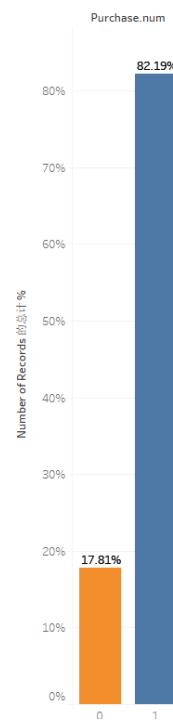
We define that respondents who give score of at least 7 have high possibility of recommending this brand to their friends and colleagues and denotes them 1, while respondents who give score of less than 7 don't seem to recommend this brand and we denote them 0. The graph shows that among people who heard of WHOOP before, nearly 80% of them are willing to recommend WHOOP, indicating that WHOOP has a high popularity among its customers.

Purchase



74% of people consider purchasing WHOOP. But we should also consider that there are some people who even don't know this brand. So we can split those people out.

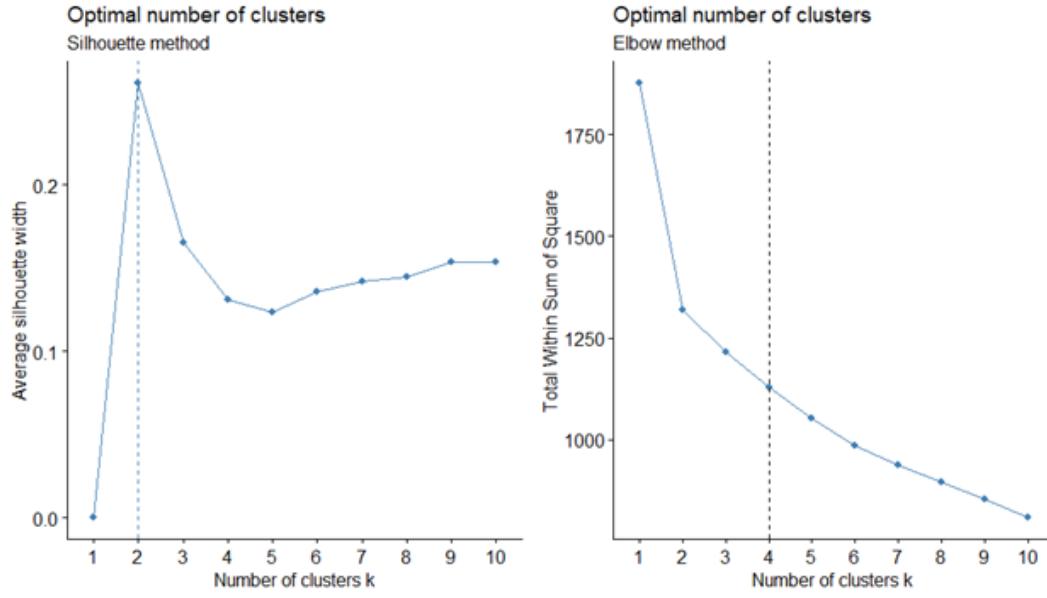
% of People Who Know Whoop



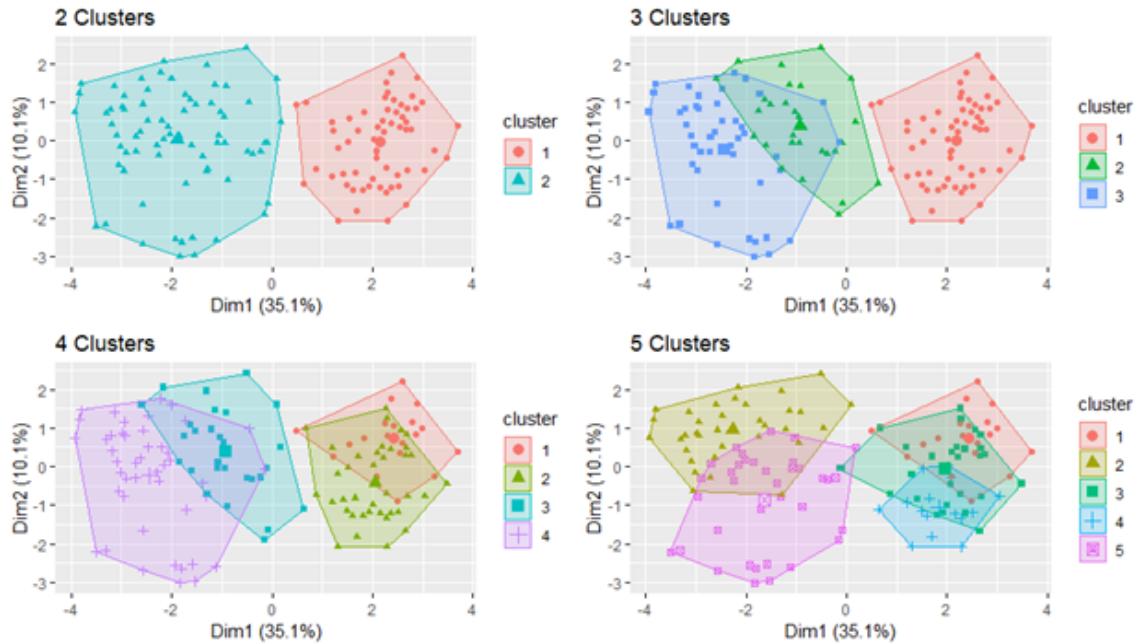
People who have already known WHOOP, 82% of them are willing to purchase their products.

Clustering Analysis

From a marketing perspective clustering analysis is fundamental to discover unique groups in the market and use the insights that characterize each of these groups to execute tailored and effective marketing campaigns. This classification technique will allow us to segment the respondents of our survey based on their demographics and responses to the various questions around product popularity and brand recognition. For this cluster analysis, we will use a K-Means cluster which gives us the ability to assign the number of clusters we want to segment our population by. The first step is to determine what is the correct number of groups. For this task we have executed two different statistical tests that determine the optimal number of clusters. The Silhouette method indicates that optimal number is 2 clusters, while the Elbow method results in 4 clusters.

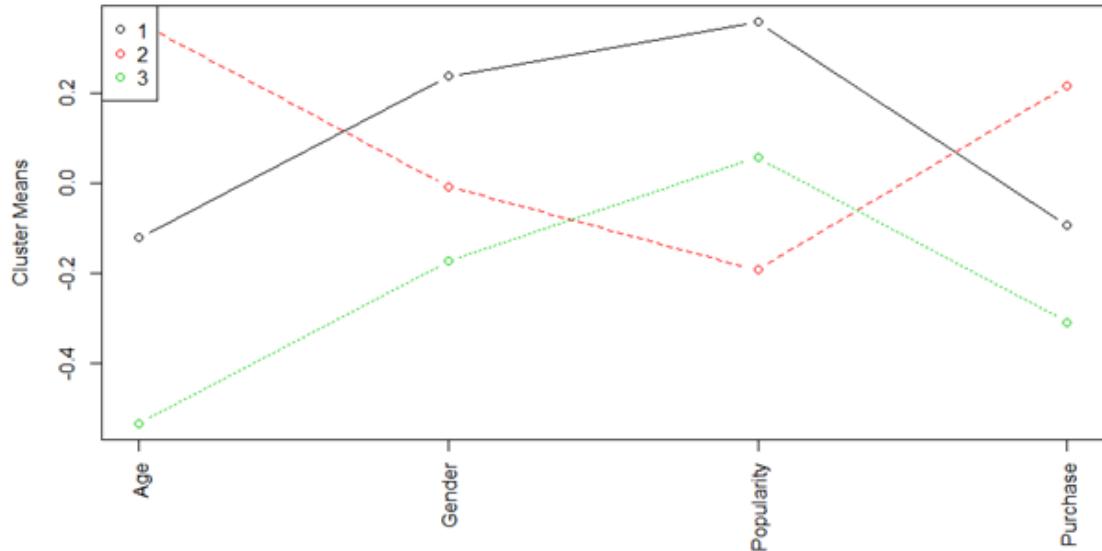


To make a final determination on what is the optimal number of clusters, we have developed 4 plots that show our population segmented by 2, 3, 4 and 5 clusters. The bottom graphs, with 4 and 5 clusters, clearly exhibit too many overlaps between the groups, indicating that we don't need to segment our data by these many clusters. The 2 Clusters visualization located on the top left corner shows two well defined groupings, however the first cluster in this graph seems too large, and we may lose the granularity we are looking for.

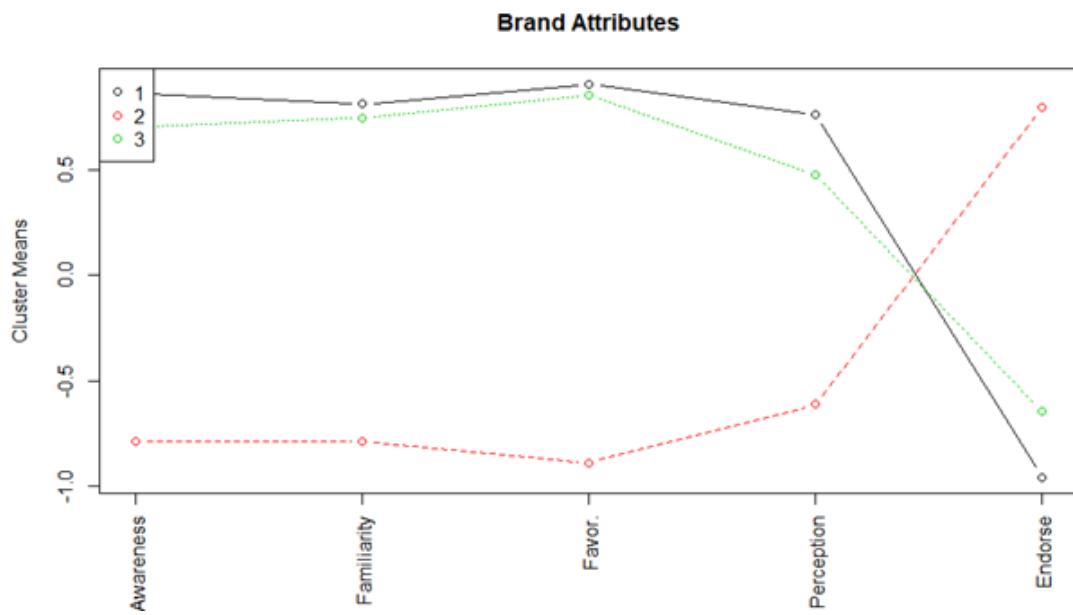


Below we have produced a series of plots that compare the 3 clusters among the variables that measure their brand position in the market. The first plot shown below compares the groups in demographics, product popularity and willingness to purchase a fitness tracker.

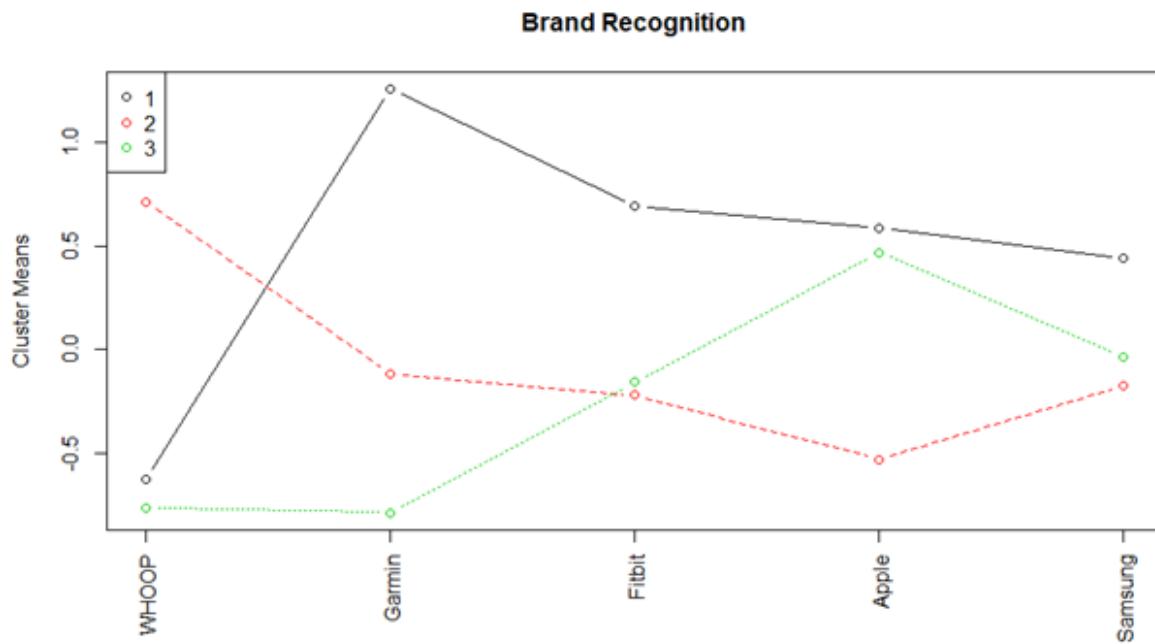
Demographic & Product Popularity Per Segment



The second plot stacks the three clusters around Awareness, Familiarity, Favorability, Perception and Endorsement. These five brand attributes are key components of how we measure WHOOP's brand equity. The range of the cluster means (Y-axis) for brand recognition goes from –1 (low attribute score) to 1 (high attribute score).



The third plot gives us insight on what fitness tracker brands the segmented groups recognize in the market place. The brands seen in this graph are WHOOP, Garmin, Fitbit, Apple & Samsung. The range of the cluster means for recognition goes from –1 (low brand recognition) to 1 (high brand recognition).



Based on the insights gathered from the plots above we have created three cluster profiles based on the attributes and preferences of each group:

Cluster 1: Active Low Interest Users

The respondents from cluster 1 are active users of fitness tracker devices. These individuals are using a tracker regularly and have a strong willingness to purchase these types of products. Cluster 1 groups score high in brand attributes such as awareness, familiarity, favorability and perception of tracking devices, however they are mostly interested in traditional brands in the market such as Garmin and Fitbit. Additionally, despite being very active on this space, they show very little recognition of the WHOOP brand, and would refrain from endorsing this brand in their social circles. From a demographic perspective Cluster 1 characterized groups of young adults, which are generally more health conscious and oriented to track their performance results in exercise.

Cluster 2: New High Interest Users

The individuals from cluster 2 are new users that haven't used fitness trackers, but that show high interest and willingness to buy a device and get into this space. As new users in this space, they show low scores in most brand attributes, especially in familiarity and awareness. However, they seem to have a stronger brand preference for WHOOP than the rest of its competitors and are willing to endorse this brand to their friends and family. Cluster 2 is mostly made up of older demographic groups, which indicates their low awareness of fitness tracking products, and their high interest in getting more involved in products that are beneficial to their health and wellbeing.

Cluster 3: Average Low Interest Users

Cluster 3 is characterized by respondents who are intermediate users of fitness trackers and show low willingness to buy these types of products. These individuals score high on brand attributes such as familiarity and perception, but this recognition is mostly focused on newer brands such as Apple and Samsung, while WHOOP is not in their consideration. Based on the Age variable, this group is made up of younger consumer groups and that would explain their preference for modern and popular brands like Apple and Samsung, as well as their lack of interest for more innovative fitness tracking devices.

Regression Analysis

Logistic Regression analysis was performed on the chunk of data to examine which variables and factors statistically influence endorsement of customers and the word of mouth marketing among surveyed participants. For the purposes of this analysis we deleted missing 9 missing values and looked at the sample of 131 individual. As discussed earlier the data was collected through a survey to measure brand awareness of WHOOP customers and their attitude towards fitness trackers.

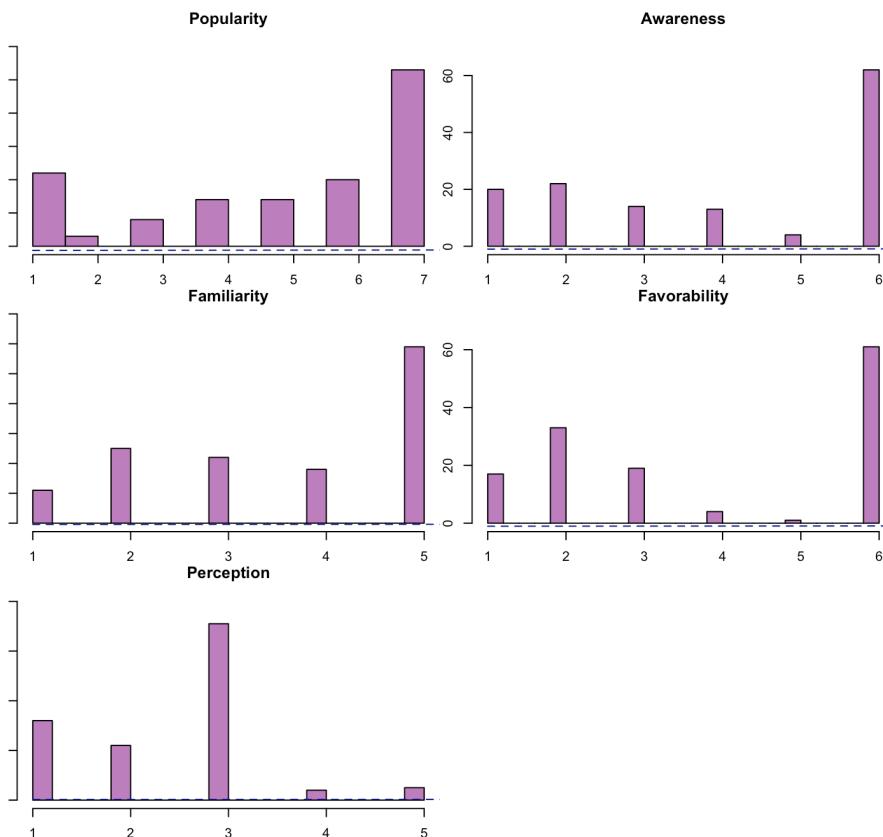
Data Modification and T-test:

T-test was performed to analyze if there is a relationship in means between customers that would recommend the product to others vs. customers that are less likely to recommend the product to friends or family. Means in variables indicating brand recognition ‘Awareness’, ‘Perception’, ‘Familiarity’ and ‘Favorability’ were compared. This is important to know for the business because we are more likely to buy a product that is recommended to us through someone that we know or a celebrity that we follow on social media. Word of Mouth marketing is among one of the most important areas of marketing and it is challenging to measure.

H0: The null hypothesis is that there is no significant difference in means between the two groups.

H1: The alternative hypothesis is that there is a significant (true) difference in means between two groups.

First, we visually looked at frequency count of the variables of interest and also we looked at differences in averages for ‘Endorsement’.



Interesting takeaways, for '*Favorability*', customers vary much either very favorable or not. There is not much discrepancy which is a good thing but also shows that we might have touched on only two types of customers. Also, '*Perception*' does not have much volatility which could imply that WHOOP has been stagnant in their marketing strategy and brand awareness efforts. From table1 below we can infer that older customers are more likely to recommend WHOOP to others and also if users are familiar with Apple Watch there are less likely to recommend to a friends. Which could point to that WHOOP needs to beware that customers that are likely to like and purchase Apple Watch could possibly switch or upgrade to WHOOP since there is a possibility that higher income consumers invest in Apple Watch.

Comparison of means of the variable Endorsement:

```
> table1
   Would Recommend      Std Would not Recommend      Std
Gender          0.5074627 0.5037175          0.46478873 0.5023086
Age             3.6363636 1.6607354          2.88888889 1.2509777
Popularity     4.7575758 1.9850255          5.22058824 2.4240437
Awareness       2.9253731 1.6358987          5.20588235 1.6441559
Familiarity    2.7014925 1.1679421          4.60294118 0.8833401
Favorability   2.2835821 1.3235166          5.50000000 1.1130166
Perception      1.8208955 0.8863506          3.10447761 0.6544562
Purchase        0.8656716 0.3435784          0.61764706 0.4895753
WHOOP           0.6865672 0.4673898          0.05479452 0.2291537
Garmin          0.2985075 0.4610569          0.43835616 0.4996193
Fitbit          0.5074627 0.5037175          0.69863014 0.4620285
AppleWatch     0.5373134 0.5023689          0.87671233 0.3310424
SamsungGear    0.3582090 0.4830927          0.38356164 0.4896182
> |
```

'*Awareness*'

```
Welch Two Sample t-test
```

```
data: whoop_num$Awareness by whoop_num$Endorsment_Bin
t = 8.0782, df = 132.99, p-value = 3.506e-13
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 1.722119 2.838899
sample estimates:
mean in group 0 mean in group 1
 5.205882      2.925373
```

'*Perception*'

```

Welch Two Sample t-test

data: whoop_num$Perception by whoop_num$Endorsment_Bin
t = 9.536, df = 121.48, p-value < 2.2e-16
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
1.017108 1.550057
sample estimates:
mean in group 0 mean in group 1
3.104478      1.820896

```

'Familiarity'

```

Welch Two Sample t-test

data: whoop_num$Familiarity by whoop_num$Endorsment_Bin
t = 10.657, df = 122.9, p-value < 2.2e-16
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
1.548271 2.254627
sample estimates:
mean in group 0 mean in group 1
4.602941      2.701493

```

'Favorability'

```

Welch Two Sample t-test

data: whoop_num$Favorability by whoop_num$Endorsment_Bin
t = 15.271, df = 128.54, p-value < 2.2e-16
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
2.799679 3.633157
sample estimates:
mean in group 0 mean in group 1
5.500000      2.283582

```

From the tests above, $p < t$ therefore we reject the null at 5% level of confidence and conclude that there is a true difference in means between two groups being measured.

In '*awareness*' we infer that people who are likely to recommend brand to others, has been a relatively new customer (mean = 2.9 , which means that on average they only heard about WHOOP within past 12 months), in '*perception*' we can infer that people who are more likely to recommend the brand to a friend has change their view about the company to more favorable and they are also more familiar with the brand.

Regression Analysis

The variable Endorsement was binned to identify two groups: consumers who are likely to recommend the brand to others and consumers who are less likely to recommend the brand to others.

“1” → consumers who scored {7-10} ;

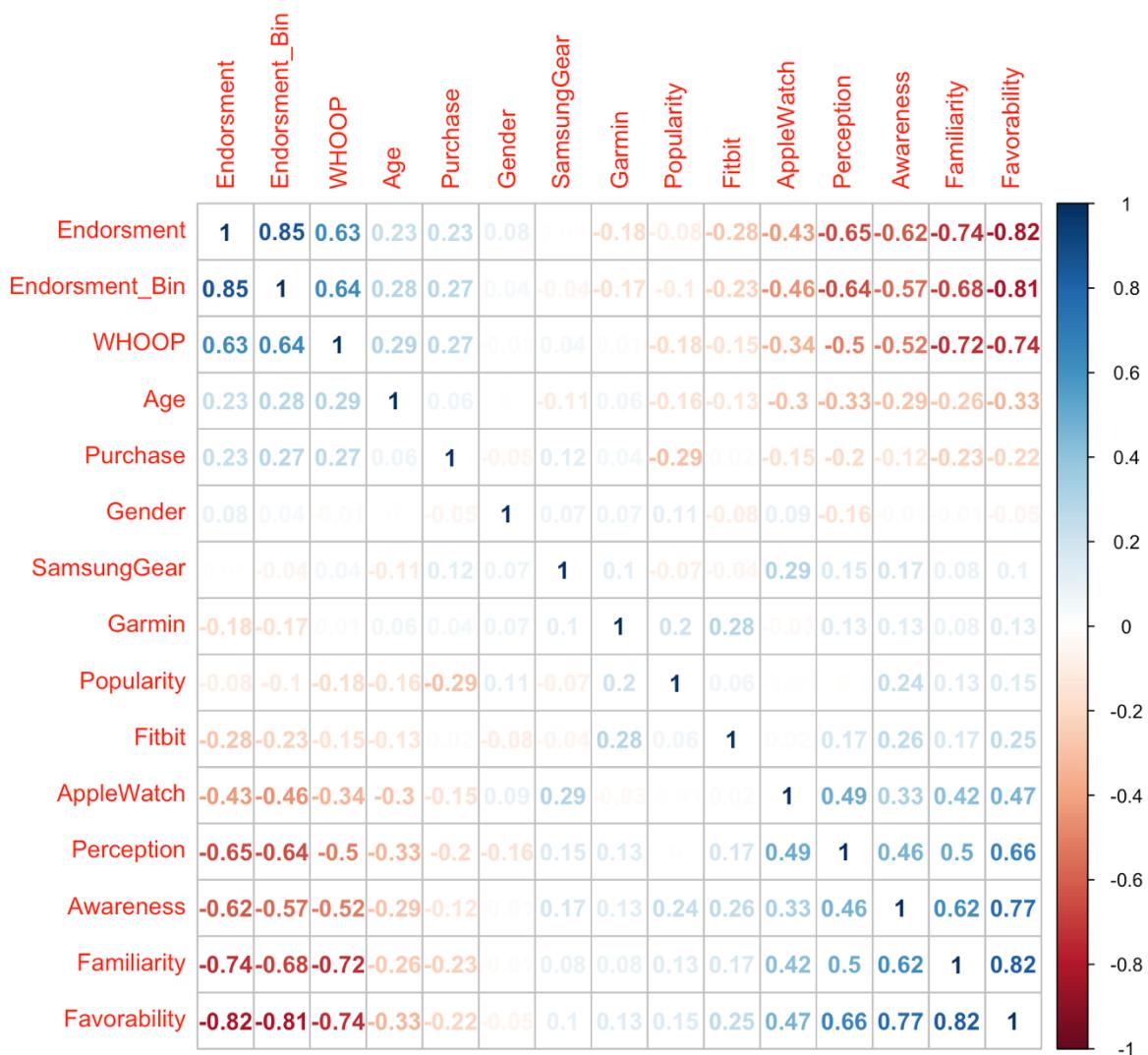
“0” → consumers who scored {1-6} ;

For the purpose of logistic regression we created a binary variable. The correlation plot was constructed to spot relationships and strength of the relationships between the variables. Anova was modeled to test variance between the variable. Function Anova() in R takes care of unbalanced objects.

Correlation Plot:

Relationship Matrix between variables was introduced below to look into positive and negative association between variables before performing regression analysis. The most impactful insights of the correlation plots: High negative correlations of brand awareness variables (this makes sense because we have reversed scale)

- When we increase endorsement the customer is more engaged.
- When we increase the scales in awareness (6 = never heard of it) endorsement will decrease.



Hypothesis:

H0: There is no relationship between independent variables X and dependent variable Y.

H1: There is relationship between independent variable X and dependent variable Y.

```

Call:
glm(formula = Endorsment_Bin ~ AgeGroup.num + Gender.Num + Popularity.num +
    Awareness.num + Familiarity.num + Perception.num + Purchase..Y.N. +
    WHOOP.num + Garmin.num + fitbit.num + AppleWatch.num + SamsungGear.num,
    family = "binomial", data = whoop)

Deviance Residuals:
    Min      1Q  Median      3Q     Max 
-2.30602 -0.31856 -0.03192  0.21700  2.11907 

Coefficients:
            Estimate Std. Error z value Pr(>|z|)    
(Intercept) 7.17955   2.73165  2.628  0.00858 **  
AgeGroup.num 0.03457   0.27328  0.127  0.89933    
Gender.Num   0.30683   0.74758  0.410  0.68149    
Popularity.num 0.10521   0.15990  0.658  0.51055    
Awareness.num -0.12195   0.22199 -0.549  0.58276    
Familiarity.num -0.84153   0.36963 -2.277  0.02281 *   
Perception.num -1.51658   0.49056 -3.092  0.00199 **  
Purchase..Y.N.Yes 1.32069   0.83135  1.589  0.11215    
WHOOP.num     1.83605   0.93154  1.971  0.04873 *   
Garmin.num    -1.67399   0.85666 -1.954  0.05069 .    
fitbit.num    -0.64253   0.72732 -0.883  0.37701    
AppleWatch.num -1.57979   0.95757 -1.650  0.09899 .    
SamsungGear.num 0.81713   0.79379  1.029  0.30329    
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 181.597 on 130 degrees of freedom
Residual deviance: 63.907 on 118 degrees of freedom
AIC: 89.907

Number of Fisher Scoring iterations: 7

```

Null Deviance is high, but adding predictors decreases the deviance and indicates and better goodness of fit for the model. To measure how well the model fits vs. observed data we perform GOF test:

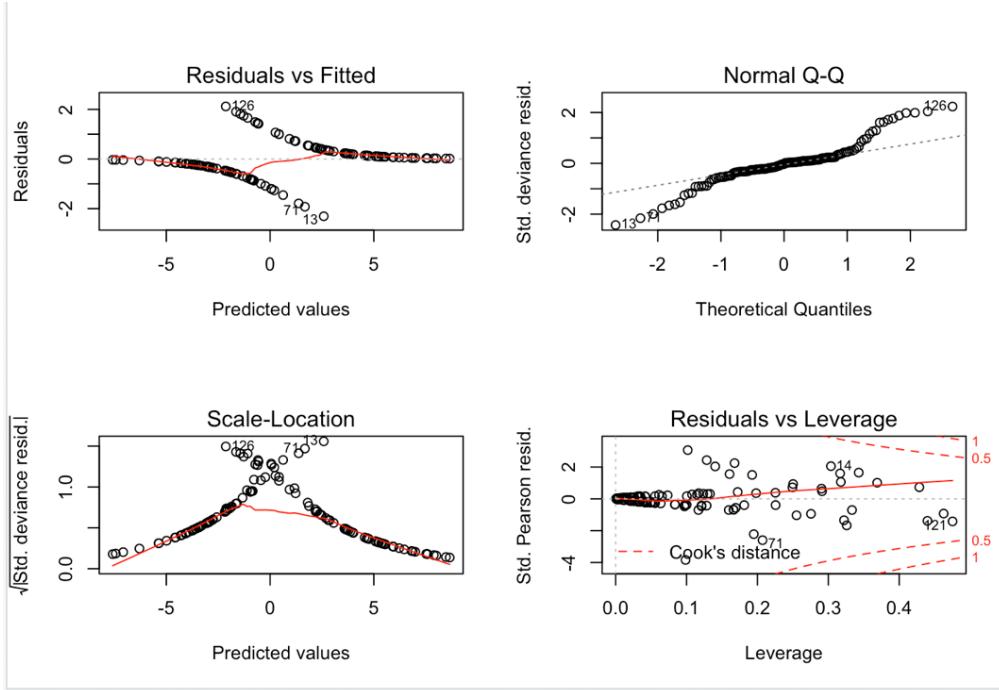
```

Hosmer and Lemeshow goodness of fit (GOF) test

data: whoop_num$Endorsment_Bin, fitted(model1)
X-squared = 6.2226, df = 8, p-value = 0.6223

```

The model fits relatively well because we have no significant differences between the model and the observed data since the p value is above the level of significance of 5%.



Regression Equation:

$$\begin{aligned}
 Y(\text{Endorsment}) = & 7.17955 + \text{AgeGroup.num}(0.03457) + 0.30683(\text{Gender.Num}) + 0.10521 \\
 & (\text{Popularity.num}) - 0.12195(\text{Awareness.num}) - 0.84153(\text{Familiarity.num}) - \\
 & 1.51658(\text{Perception.num}) + 1.32069(\text{Purchase..Y.N.Yes}) + 1.83605(\text{WHOOP.num}) - \\
 & 1.67399(\text{Garmin.num}) - 0.64253(\text{fitbit.num}) - 1.57979(\text{AppleWatch.num}) + \\
 & 0.81713(\text{SamsungGear.num})
 \end{aligned}$$

There is a positive and statistically significant intercept. Variable Familiarity, Perception, WHOOP, Garmin and Apple watch are significant with p- value smaller than .05. Therefore for those variables we can reject the null and conclude that there are significant at 5% level. Perception being most significant, we can interpret the X variable as one unit increase in perception(inverse scale, 1 being the highest) will decrease Endorsment by ~ 1.52;

Odds ratio:

```

> oddsratio::or_glm(whoop_num, model1, CI = .95)
    predictor   oddsratio CI_low (2.5 %) CI_high (97.5 %)      increment
1     AgeGroup.num    1.035    0.602      1.795 Indicator variable
2       Gender.Num    1.359    0.309      6.154 Indicator variable
3   Popularity.num    1.111    0.816      1.544 Indicator variable
4   Awareness.num    0.885    0.572      1.388 Indicator variable
5 Familiarity.num    0.431    0.197      0.846 Indicator variable
6   Perception.num    0.219    0.075      0.532 Indicator variable
7 Purchase..Y.N.Yes   3.746    0.801     22.104 Indicator variable
8      WHOOP.num     6.272    1.094     45.786 Indicator variable
9      Garmin.num    0.187    0.030      0.909 Indicator variable
10     fitbit.num     0.526    0.121      2.192 Indicator variable
11 AppleWatch.num     0.206    0.027      1.269 Indicator variable
12 SamsungGear.num    2.264    0.490     11.833 Indicator variable
>
  
```

There is positive relationship between popularity and gender and age, which could imply that popularity of the brand increases the odds of WHOOP being recommended to a friend. Also users that are familiar with Samsung are more likely recommend product to a friend whereas if users are familiar with Apple Watch or Garmin, it makes the odds of recommending WHOOP to others unlikely. This variable was also statistically significant, therefore we should pay closer attention to it. Perception is also highly significant, the less the perception of the brand has changed in the recent months the smaller the odds of recommending it to a friend.

Anova:

Further , we analyzed variance among categorical variables from the logistic binary regression.

Hypothesis:

H0: There is no difference in means.

H1: There is difference in means.

```
> anova(lm(Endorsment ~ AgeGroup.num + Gender.Num + Popularity.num + Awareness.num +
+ Familiarity.num + Perception.num + Purchase..Y.N. + WHOOP.num + Garmin.num +
+ fitbit.num + AppleWatch.num + SamsungGear.num))
Analysis of Variance Table

Response: Endorsment
            Df Sum Sq Mean Sq F value    Pr(>F)
AgeGroup.num     1  88.07  88.07 22.3190 6.428e-06 ***
Gender.Num       1   11.14   11.14  2.8245  0.09548 .
Popularity.num   1    4.71    4.71  1.1934  0.27686
Awareness.num     1 526.55  526.55 133.4466 < 2.2e-16 ***
Familiarity.num   1 319.63  319.63  81.0044 4.606e-15 ***
Perception.num     1 130.40  130.40  33.0484 7.180e-08 ***
Purchase..Y.N.      1    3.14    3.14   0.7946  0.37453
WHOOP.num         1    4.90    4.90   1.2412  0.26751
Garmin.num        1   14.76   14.76   3.7395  0.05553 .
fitbit.num        1   11.64   11.64   2.9498  0.08851 .
AppleWatch.num     1    2.77    2.77   0.7009  0.40416
SamsungGear.num     1   25.59   25.59   6.4853  0.01216 *
Residuals        118 465.60    3.95
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

There are multiple variables that variance in means in significantly associated with others therefore we can reject the null and conclude that there is a relationship between the variables at 5 % level of significance.

Anova Takeaways: Taking variables into account to test for variance, the variables Fitbit becomes significantly associated with the variation in endorsement between customers. Perception, awareness and familiarity are highly significant. The intercept is also significant.

Conclusions and Recommendations

Evaluation Matrix

Levels of attributes	Weights (1-5)	Cluster 3	Cluster 2	Cluster1
Age Group	2	2	1	3
Gender	1	1	2	3
Popularity	4	1	3	2
Purchase (Y/N)	5	2	1	3
BR-WHOOP	5	2	1	3
BR-Apple	3	1	3	2
BR-Samsung	3	1	2	2
BR-Garmin	3	1	2	3
BR-Fitbit	3	1	3	2
Awareness	3	1	3	2
Familiarity	5	1	3	2
Favorability	5	1	3	2
Perception	5	1	3	2
Endorsement	5	3	1	2
Unweighted sum		19	31	33
Weighted sum		74	115	120

The evaluation matrix ranks each category of the survey as it pertains to their position in each cluster. For example, age group was subjectively weighed as a 2 out of a total of 5 importance due to the idea that any age group could potentially have use for a fitness tracker although there may be more use for older age groups, who are more professionally active, than younger age groups. The survey results show that Age was ranked as the most important in cluster 3 compared to the other two clusters. Another example could be made from the familiarity, favorability, and perception attributes where each attribute was weighed as a 5 out of 5 importance level when analyzing the brand value of the company. In each, cluster 1 had the least brand recognition, and cluster 2 had the highest brand recognition. All in all, it was calculated that respondents in both cluster 2 and cluster 3 had the better characteristics that would be beneficial for WHOOP to target. While cluster 3 had respondents with favorable demographics to the WHOOP brand, cluster 2 consisted of respondents who were more knowledgeable about the brand.

SWOT Analysis

<u>Strengths</u> Celebrity Partnerships Collaboration with NBA Ease of use Exclusivity Innovative Technology	<u>Weaknesses</u> Prohibitive price for average consumer Design Lack of Brand Awareness Weak distribution Not enough online presence
<u>Opportunities</u> Unique product offerings High disposable income of users	<u>Threats</u> Strong competition from other brands

When creating a SWOT analysis of WHOOP, it is important to note that they have many strengths especially with maintaining their high-profile users and their innovative technology. On the down side, they do have weaknesses when within certain aspects of their brand especially in the design of their product and their lack of brand awareness. The fact that the typical users of the product have high disposable incomes is definitely an opportunity for WHOOP when word of mouth spreads and the company is figuring out who to target. The largest threat to WHOOP is their competitors who do offer similar services for a lower price point.

Advertising Drivers to Increase Market Share

According to the econometric model, there is a distinct, statistical relationship between advertising and consumer brand awareness. Therefore, in order to make their brand more valuable, WHOOP must recognize the 6 advertising value drivers and calculate the percent sales contribution of each driver.

1. Creative. WHOOP could alter the look or model of their product and test the effectiveness of each depending on the creative design.
2. Scope of advertising. WHOOP could allocate their deliverables through different outlets such as magazines and online
3. Brand Recognition. The value added to the WHOOP brand due to its name as endorsed by consumer loyalty must increase.
4. Targeting. WHOOP currently targets celebrity athletes, trainers, and CEO's of Fortune 500 companies. The company should define whether the target audience for their fitness tracker is professionals, or everyone.

5. Recency. Whoop should evaluate the difference between the brand awareness they encountered during their recent technological advancement and their current brand awareness to gauge whether anything has changed.
6. Context. WHOOP's advertisements must be relevant to the audience they seek.

Furthermore, creating a partner analysis of WHOOP, it is important to note that the major connections are with David Stern, the commissioner of the National Basketball Association, as well as each celebrity professional featured on their website. When popular influencers, such as these select individuals, who have an established audience that knows and trusts them, their testimonials of the effectiveness of WHOOP will increase awareness and drive sales. Along with professional athletes, WHOOP has also been featured on ESPN, CNN, and the MLB Network.

Business Implications

WHOOP can expand its brand awareness by increasing their Net Promoter Score. Many of the current users of the product happen to be top athlete's and fortune 500 CEO's. If WHOOP exploits their partnerships with these individuals and transforms them from passive users to promoters, the company would benefit from more word-of-mouth advertising. The company must improve customer satisfaction as a means to drive up loyalty and offset the negative reviews from detractors of the product.

WHOOP should place their advertisements in areas where they can receive the highest levels of exposure from athletes such as gyms and sports arenas. It is clear that WHOOP's target is professional athletes and professionals in general because these individuals are the most concerned with optimizing their daily performance. These individuals are more likely to be concerned with the regulation of "wear and tear" that their bodies undergo. Their recovery is vital in order for them to stay in the best shape both physically and mentally.

Another business recommendation for WHOOP would be to identify their all of the other brands within their network. In order for WHOOP to better understand their value creation network, they must understand that companies like Garmin, Fitbit, Apple Watch, and Samsung gear have products that offer some of the same services to the same audience. These companies are potentially a threat for WHOOP.

Regression Analysis showed that perception and familiarity are more important than awareness and popularity. How customers *perceive* the brand is actually significant vs. how well known the brand is. The perception and reputation of the brand is extremely important, more than awareness of it itself. WHOOP must leverage that according to the odd ratio interpretation, the stagnation in the variable 'perception' (3 = stayed the same) decreased word of mouth marketing. Customers expect constant changes and upgrades.

Cluster analysis indicated however that customer segment 1: active users of fitness tracker devices. Individuals that are using a tracker regularly and have a strong willingness to purchase these types of products. The main challenge is their interest in lower cost product, this could be due to low effectiveness of Fitbit or Garmin, therefore customers WTP is lower. Increase in the awareness of product added value and accuracy might expand those customers willingness to pay WHOOP needs better advertising channels.

Recommendations

It is recommended that WHOOP change their design and establish themselves as a luxury brand in the fitness watch category. The company must also improve how they engage with consumers. Social media is a mass market that WHOOP should take advantage of due to the sheer power and influence that this virtual community carries. Along with these changes, WHOOP should find a sensible balance between exclusivity and accessibility of their product. This will result in strong financial results and a greater brand awareness.

While our survey results were limited in quantity, we do believe that they were an appropriate representation of the general population of the WHOOP. Majority of respondents have never heard of WHOOP, and many respondents are also willing to purchase WHOOP after learning about the product during the course of the survey. If given the opportunity, next time when running the survey, we would ask survey respondents for their income. This would allow us to gauge the average income of users who use the product. We would also incorporate customer reviews of the product in order to understand current customer's thoughts on the product.

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