Marketing Research & Analysis

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Research Proposal

Research Objective

Determine the differentiating factors that make consumers buy smartwatch in addition to having a smartphone having similar applications.

Abstract

The significance of our research is to find out if smart watch will ever be able to replace smart phones. We are trying to find out the differentiating features that make consumers buy smart watches. This research proposes to find out the consumer perception and buying intention of smart watch as opposed to smart phone. The research methodology is mostly primary and descriptive research with dominantly quantitative approach, where data collection will be carried out through structured questionnaire surveys. As a collateral outcome, this research will also help us to find out the gaps in the existing market and therefore providing opportunities for smartwatches to add new features that would help them to replace the smartphones.

Research Questions

1. What are the differentiation features that make consumers perceive/buy a smart watch as opposed to a smart phone having similar applications?
2. How do consumers perceive smartwatch to be a different product as opposed to a smartphone?
3. What are the dominant factors that impact the buying intention of consumers for a smart watch as opposed to a smartphone?

Factors	**Rank**	**Rate**
Status Consciousness & Fashionable Presentation		
Accuracy of Health Data & Range of Health Features Available on the Smartwatch		
Waterproof Device		
Getting updated about the notifications instantly without taking out the phone from the pocket		
Easy to Carry & All in One Device		
Used to be a user of the Conventional Watches, bought it since it came with many more features		

Hypotheses:

I. H_0: The accuracy of Health data is not a factor that impacts the decision of buying Smartwatch over Smartphone.
H_1: The accuracy of Health data is a factor that impacts the decision of buying Smartwatch over Smartphone.

II. H_0: Range of health parameters given by smartwatch is not better than those given by smartphones.
H_1: Range of health parameters given by smartwatch is far better than those given by smartphones.

III. H_0: Status Consciousness is not a factor for people making purchases between brands.
H_1: Status Consciousness is a factor for people making purchases between brands.

IV. H_0: Fashionable Presentation is not a factor for buying Smartwatch vis a vis Smartphone.
H_1: Fashionable Presentation is a factor for buying Smartwatch vis a vis Smartphone.

V. H_0: Being updated all the time (notifications) is not a factor that makes people buy smartwatches.
H_1: Being updated all the time (notifications) is a factor that makes people buy smartwatches.

VI. H_0: Most of the smartwatch users are the People who are not the users of the conventional watches.
H_1: Most of the smartwatch users are the People who are the users of the conventional watches.

VII. H_0: Income is not a factor that influences people to buy a smart watch.
H_1: Income is a factor that influences people to buy a smart watch.

VIII. H_0: The buying decision of people to buy smart watches is not influenced by their belonging to big metropolitan cities.
H_1: The buying decision of people to buy smart watches is influenced by their belonging to big metropolitan cities.

IX. H_0: Ownership of Smart Watches doesn't depend on the Working Conditions of an individual.
H_1: Ownership of Smart Watches does depend on the Working Conditions of an individual.

X. H_0: Mostly people in the age bracket 13-65 years do not tend to buy Smartwatches.
H_1: Mostly people in the age bracket 13-65 years tend to buy Smartwatches.

XI. H_0: There are some people who still don't want to try smart watches as they are happy with their conventional watches.
H_1: There are some people who want to try smart watches though they are happy with their conventional watches.

XII. H_0: Males do not buy smartwatches more than females.
H_1: Males buy smartwatches more than females.

Methodology

Primary Research

The primary research that we used was the questionnaire which had several questions related to the consumer perceptions, opinions ands usage patterns related to SmartWatches and Smartphones. These quesztionnaires were shared through Emails,WhatsApp, Instagram, SMS & Facebook Messenger.

Secondary Research

The research methodology taken to study the factors influencing customer's preference while choosing a smartwatch while owning a smartphone is a secondary research method. As per this

research methodology, the source of data collection will solely depend on the existing data during research process.

The Study:

This methodology will involve organizing data, collecting them, and analyzing the information collected and deriving the valid research conclusion. The data will be taken from Internet, and scholarly articles.

The Tool:

a) For Data Collection: The data for the present study is collected with the help of all the secondary resources that includes articles, journals, sales data, and figures.
b) For Data Analysis: The collected data is analyzed with the help of Chi-Square Test and Weighted Average of Rankings of Factors.

Sampling

Sampling Size Calculations & Methods: Convenience Random Sampling. In our research, we are sharing questionnaires with our contacts who are spread across different parts of India.

Sampling Size: 101 Participants

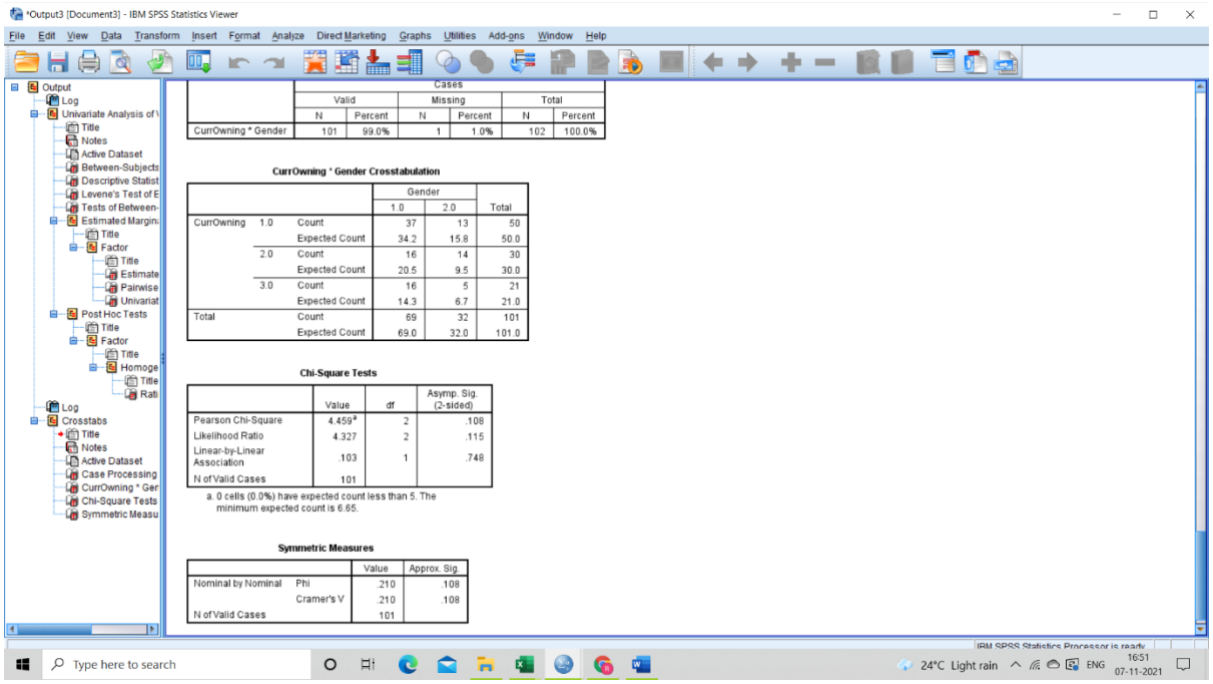
Sampling Type: Self Employed, Students, Professionals & Government Employed

Sampling Area: All over India

Data Analysis

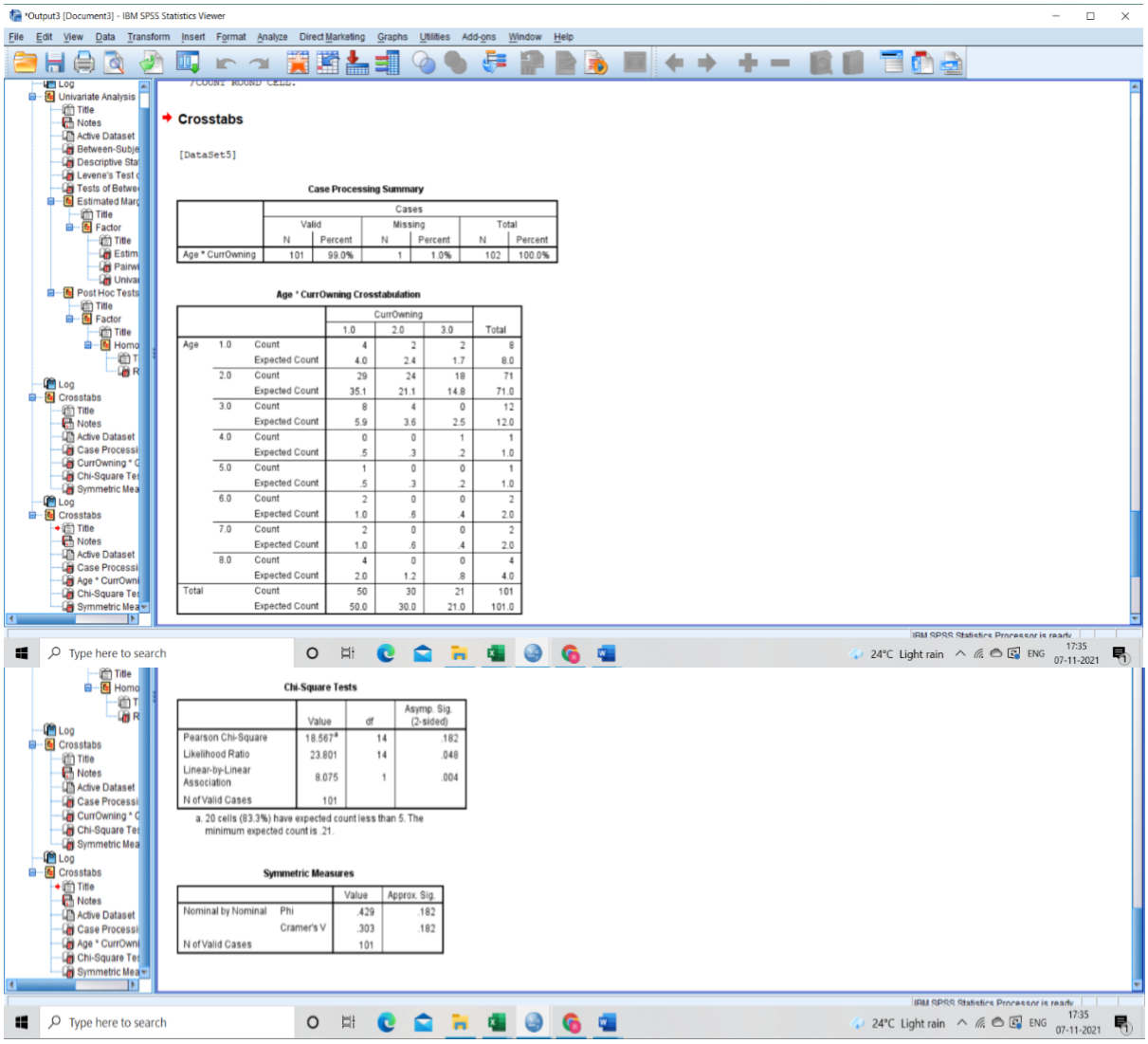
Chi-Square tests

1) Between gender and decision to own or buy a smartwatch



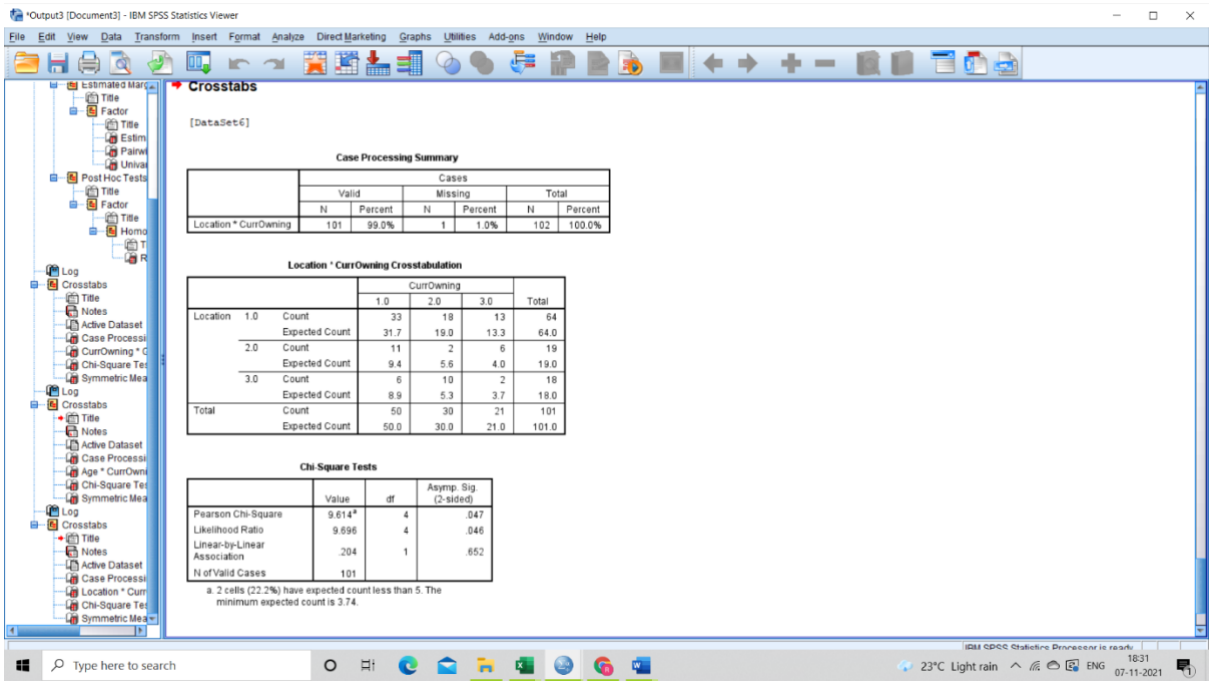
The p value (0.108) is greater than the standard alpha value (0.05), so it means the preference of owning or buying a smart watch is not influenced by gender. Also, the phi and Cramer's V value (.0210) tells us that gender has only the small effect on customers' decision regarding smart watch.

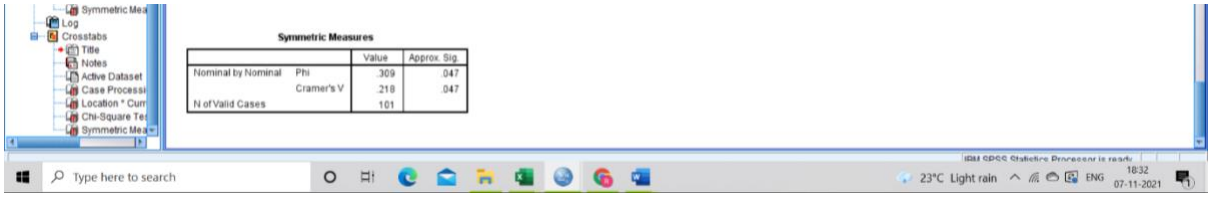
2) Between age and decision to own or buy a smartwatch



Here it is seen that 83.3% (which is greater than 20%) cells have expected count less than 5. This means that we have to consider the likelihood ratio. The significance value of likelihood ratio is 0.048 which is less than standard alpha value (0.05). It means there is significant difference between age groups in terms of buying or owning smartwatch. We can conclude that age influences the decision of persons to buy or own smartwatch. Also, the Cramer's V value (0.303) tells us that age has a moderate effect on the decision of customers.

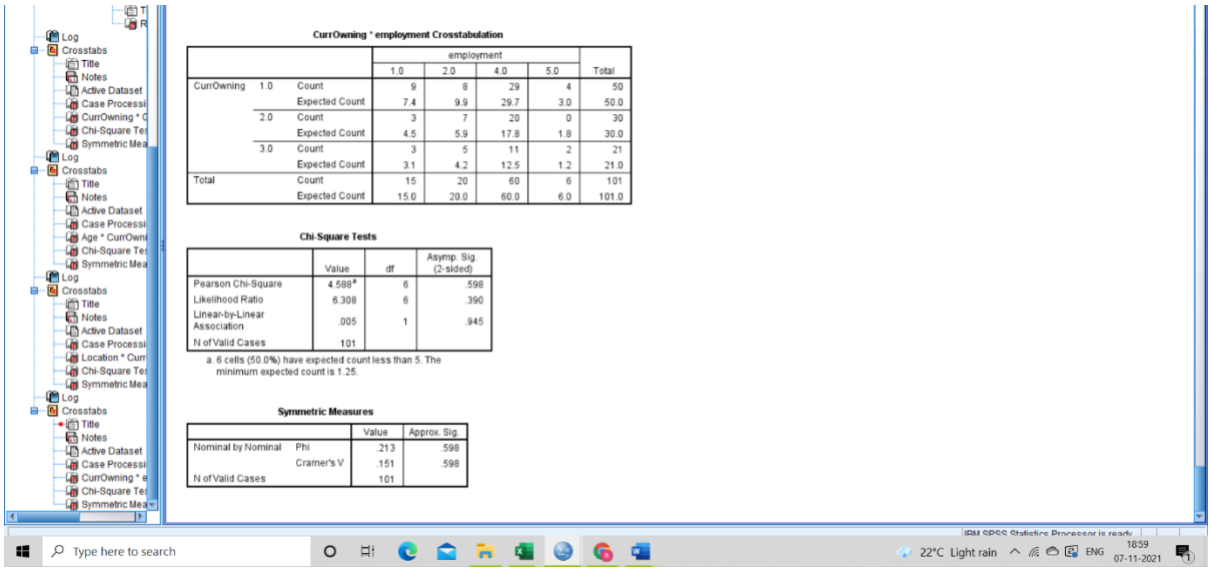
3) Between location and decision to own or buy a smartwatch:





Here it is seen that 22.2% (which is greater than 20%) cells have expected count less than 5. This means that we have to consider the likelihood ratio. The significance value of likelihood ratio is 0.046 which is less than standard alpha value (0.05). It means there is significant difference between location in terms of buying or owning smartwatch. We can conclude that location influences the decision of persons to buy or own smartwatch. Also, the Cramer's V value (0.218) tells us that age has a low effect on the decision of customers.

4) Between employment category and decision to buy or own a smartwatch



CurrOwning * employment Crosstabulation

			employment				Total
			1.0	2.0	4.0	5.0	
CurrOwning	1.0	Count	9	8	29	4	50
		Expected Count	7.4	9.9	29.7	3.0	50.0
	2.0	Count	3	7	20	0	30
		Expected Count	4.5	5.9	17.8	1.8	30.0
	3.0	Count	3	5	11	2	21
		Expected Count	3.1	4.2	12.5	1.2	21.0
Total		Count	15	20	60	6	101
		Expected Count	15.0	20.0	60.0	6.0	101.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.588[a]	6	.598
Likelihood Ratio	6.308	6	.390
Linear-by-Linear Association	.005	1	.945
N of Valid Cases	101		

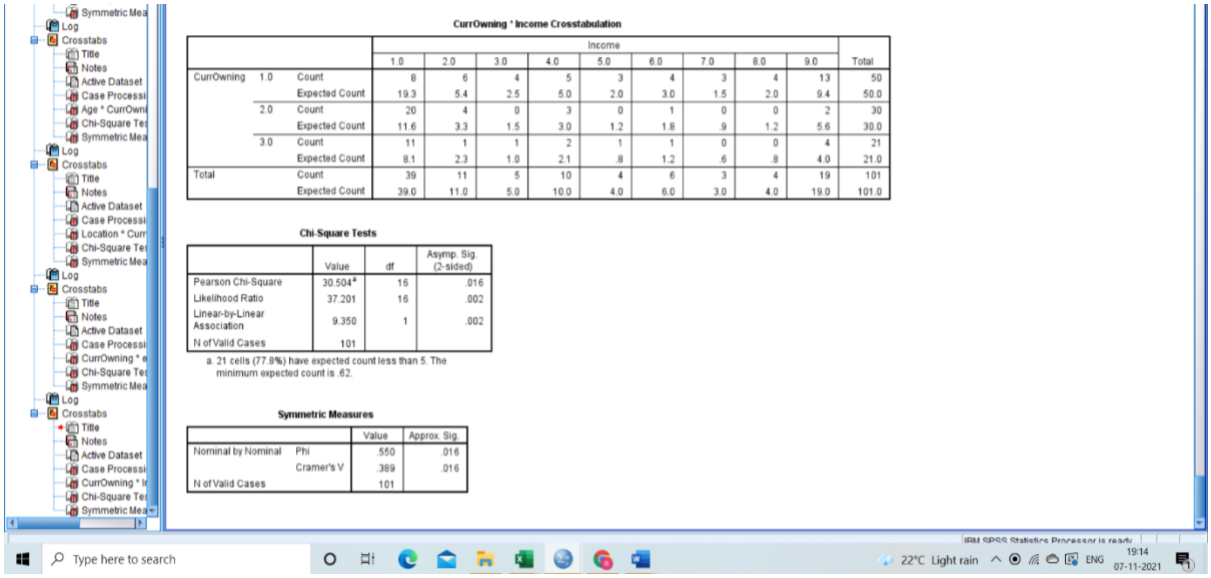
a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is 1.25.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.213	.598
	Cramer's V	.151	.598
N of Valid Cases		101	

Here it is seen that 50.0% (which is greater than 20%) cells have expected count less than 5. This means that we have to consider the likelihood ratio. The significance value of likelihood ratio is 0.390 which is greater than standard alpha value (0.05). It means there is no significant difference between employment category in terms of buying or owning smartwatch. We can conclude that employment category does not influence the decision of persons to buy or own smartwatch. Also, the Cramer's V value (0.151) tells us that employment category has low effect on the decision of customers.

5) Between income and decision to buy or own smartwatch:



CurrOwning * Income Crosstabulation

			Income									Total
			1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	
CurrOwning	1.0	Count	8	6	4	5	3	4	3	4	13	50
		Expected Count	19.3	5.4	2.5	5.0	2.0	3.0	1.5	2.0	9.4	50.0
	2.0	Count	20	4	0	3	0	1	0	0	2	30
		Expected Count	11.6	3.3	1.5	3.0	1.2	1.8	.9	1.2	5.6	30.0
	3.0	Count	11	1	1	2	1	1	0	0	4	21
		Expected Count	8.1	2.3	1.0	2.1	.8	1.2	.6	.8	4.0	21.0
Total		Count	39	11	5	10	4	6	3	4	19	101
		Expected Count	39.0	11.0	5.0	10.0	4.0	6.0	3.0	4.0	19.0	101.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.504[a]	16	.016
Likelihood Ratio	37.201	16	.002
Linear-by-Linear Association	9.350	1	.002
N of Valid Cases	101		

a. 21 cells (77.8%) have expected count less than 5. The minimum expected count is .62.

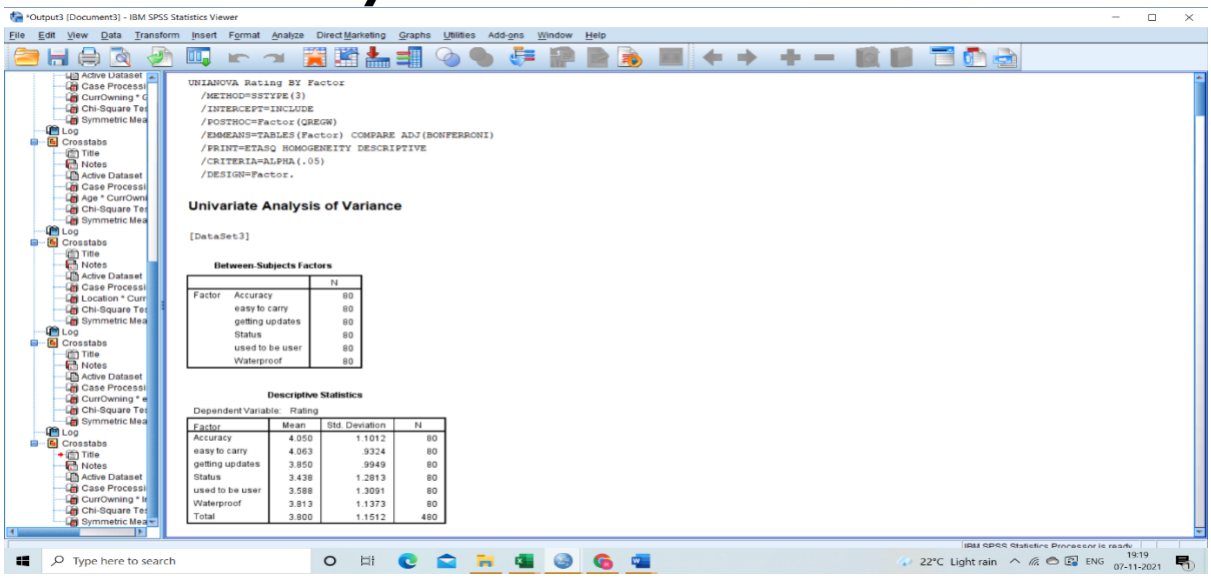
Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.550	.016
	Cramer's V	.389	.016
N of Valid Cases		101	

Here it is seen that 77.8% (which is greater than 20%) cells have expected count less than 5. This means that we have to consider the likelihood ratio. The

significance value of likelihood ratio is 0.002 which is less than standard alpha value (0.05). It means there is significant difference between income in terms of buying or owning smartwatch. We can conclude that income influences the decision of persons to buy or own smartwatch. Also, the Cramer's V value (0.389) tells us that income has moderate effect on the decision of customers.

Univariate Analysis:



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UNIANOVA Rating BY Factor
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  /INTERCEPT=INCLUDE
  /POSTHOC=Factor(QREGW)
  /EMMEANS=TABLES(Factor) COMPARE ADJ(BONFERRONI)
  /PRINT=ETASQ HOMOGENEITY DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=Factor.
```

Univariate Analysis of Variance

[DataSet3]

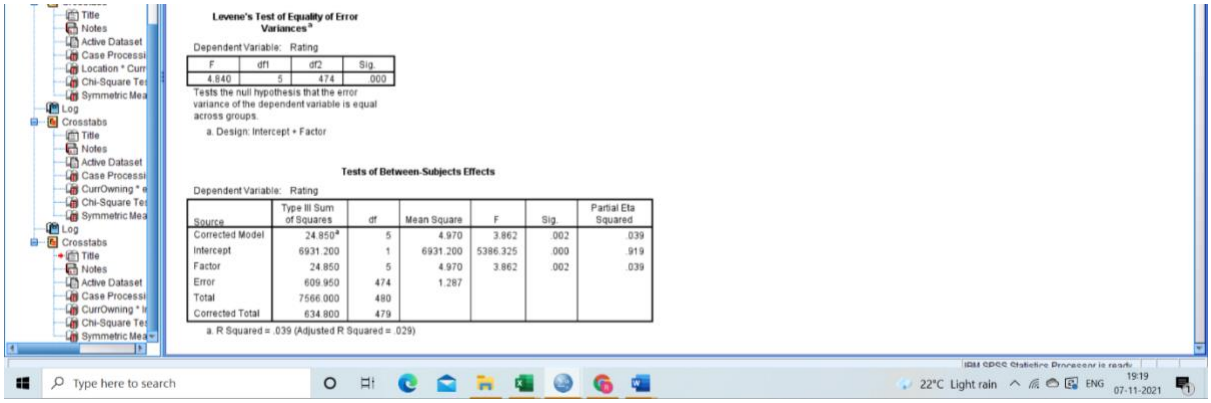
Between-Subjects Factors

		N
Factor	Accuracy	80
	easy to carry	80
	getting updates	80
	Status	80
	used to be user	80
	Waterproof	80

Descriptive Statistics

Dependent Variable: Rating

Factor	Mean	Std. Deviation	N
Accuracy	4.050	1.1012	80
easy to carry	4.063	.9324	80
getting updates	3.850	.9949	80
Status	3.438	1.2813	80
used to be user	3.588	1.3091	80
Waterproof	3.813	1.1373	80
Total	3.800	1.1512	480



Levene's Test of Equality of Error Variances[a]

Dependent Variable: Rating

F	df1	df2	Sig.
4.840	5	474	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

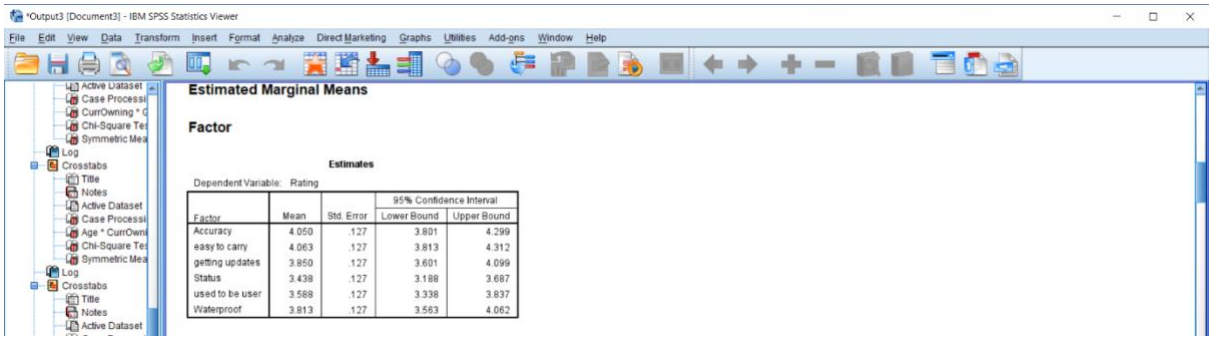
a. Design: Intercept + Factor

Tests of Between-Subjects Effects

Dependent Variable: Rating

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	24.850[a]	5	4.970	3.862	.002	.039
Intercept	6931.200	1	6931.200	5386.325	.000	.919
Factor	24.850	5	4.970	3.862	.002	.039
Error	609.950	474	1.287			
Total	7566.000	480				
Corrected Total	634.800	479				

a. R Squared = .039 (Adjusted R Squared = .029)



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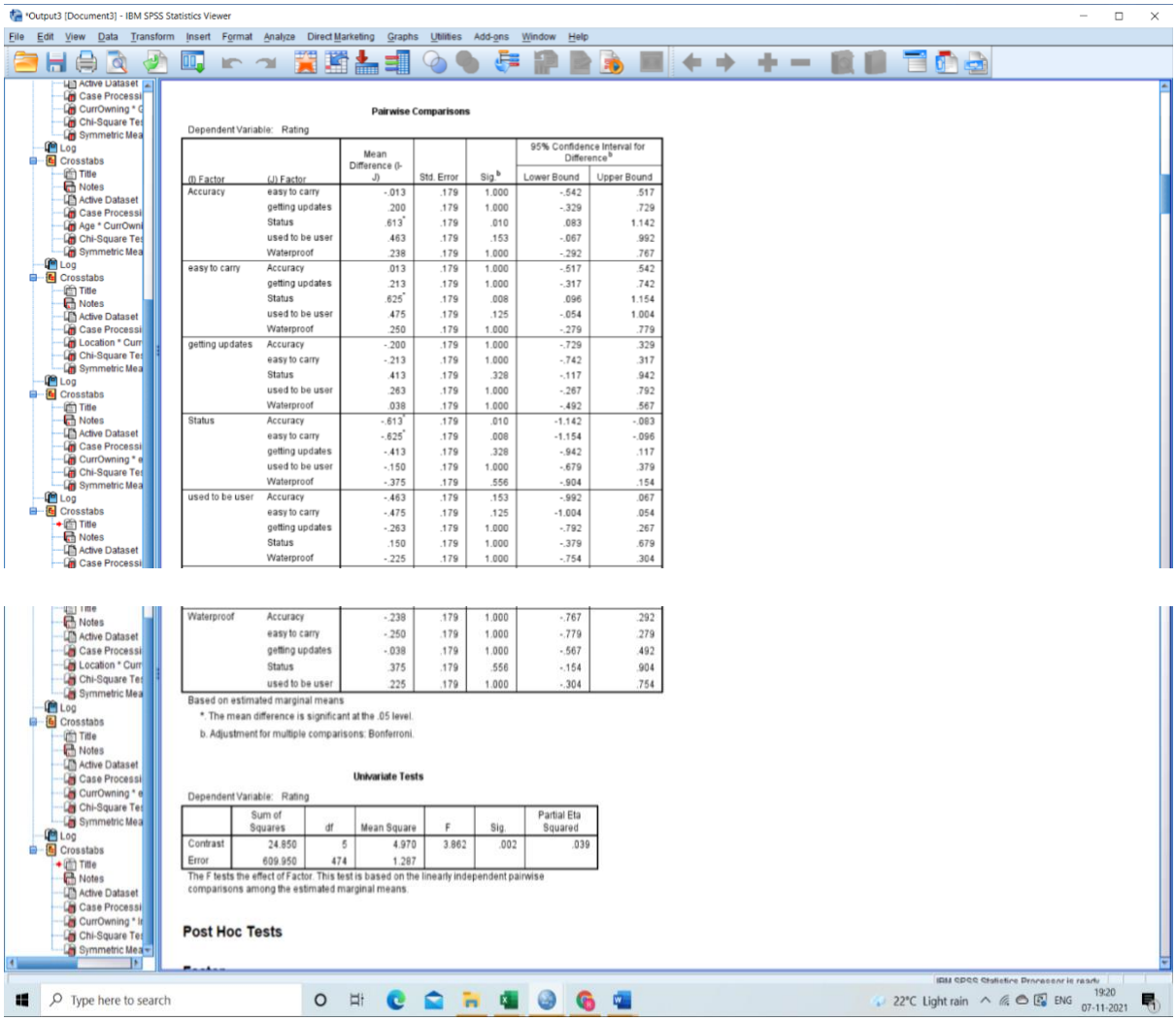
Estimated Marginal Means

Factor

Estimates

Dependent Variable: Rating

Factor	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Accuracy	4.050	.127	3.801	4.299
easy to carry	4.063	.127	3.813	4.312
getting updates	3.850	.127	3.601	4.099
Status	3.438	.127	3.188	3.687
used to be user	3.588	.127	3.338	3.837
Waterproof	3.813	.127	3.563	4.062



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Pairwise Comparisons

Dependent Variable: Rating

(I) Factor	(J) Factor	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
Accuracy	easy to carry	-.013	.179	1.000	-.542	.517
	getting updates	.200	.179	1.000	-.329	.729
	Status	.613*	.179	.010	.083	1.142
	used to be user	.463	.179	.153	-.067	.992
	Waterproof	.238	.179	1.000	-.292	.767
easy to carry	Accuracy	.013	.179	1.000	-.517	.542
	getting updates	.213	.179	1.000	-.317	.742
	Status	.625*	.179	.008	.096	1.154
	used to be user	.475	.179	.125	-.054	1.004
	Waterproof	.250	.179	1.000	-.279	.779
getting updates	Accuracy	-.200	.179	1.000	-.729	.329
	easy to carry	-.213	.179	1.000	-.742	.317
	Status	.413	.179	.328	-.117	.942
	used to be user	.263	.179	1.000	-.267	.792
	Waterproof	.038	.179	1.000	-.492	.567
Status	Accuracy	-.613*	.179	.010	-1.142	-.083
	easy to carry	-.625*	.179	.008	-1.154	-.096
	getting updates	-.413	.179	.328	-.942	.117
	used to be user	-.150	.179	1.000	-.679	.379
	Waterproof	-.375	.179	.556	-.904	.154
used to be user	Accuracy	-.463	.179	.153	-.992	.067
	easy to carry	-.475	.179	.125	-1.004	.054
	getting updates	-.263	.179	1.000	-.792	.267
	Status	.150	.179	1.000	-.379	.679
	Waterproof	-.225	.179	1.000	-.754	.304
Waterproof	Accuracy	-.238	.179	1.000	-.767	.292
	easy to carry	-.250	.179	1.000	-.779	.279
	getting updates	-.038	.179	1.000	-.567	.492
	Status	.375	.179	.556	-.154	.904
	used to be user	.225	.179	1.000	-.304	.754

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Dependent Variable: Rating

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	24.850	5	4.970	3.862	.002	.039
Error	609.950	474	1.287			

The F tests the effect of Factor. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Post Hoc Tests

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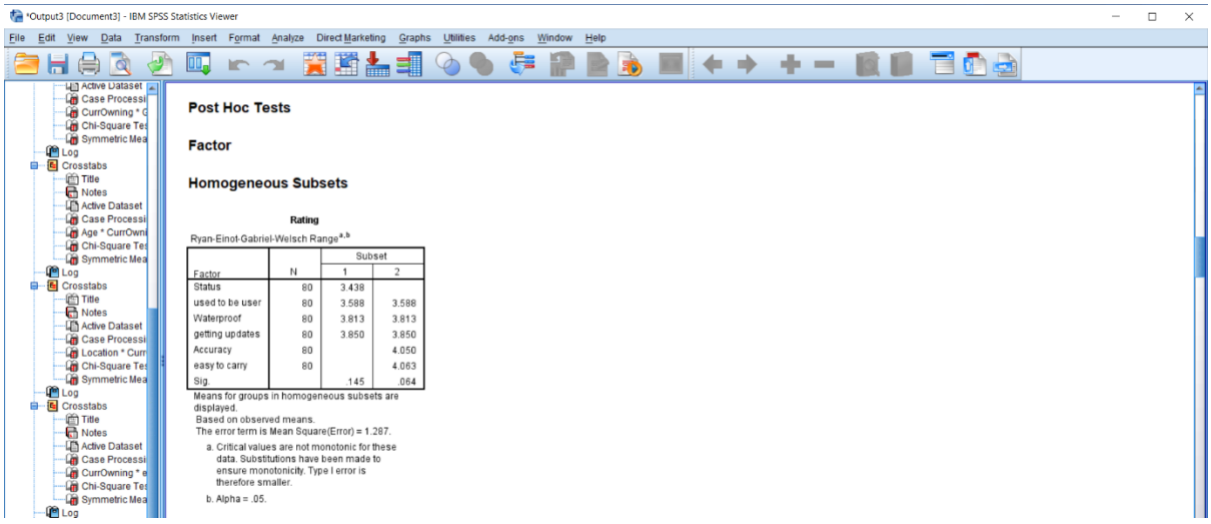

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Post Hoc Tests

Factor

Homogeneous Subsets

Rating

Ryan-Einot-Gabriel-Welsch Range[a,b]

Factor	N	Subset 1	Subset 2
Status	80	3.438	
used to be user	80	3.588	3.588
Waterproof	80	3.813	3.813
getting updates	80	3.850	3.850
Accuracy	80		4.050
easy to carry	80		4.063
Sig.		.145	.064

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 1.287.

a. Critical values are not monotonic for these data. Substitutions have been made to ensure monotonicity. Type I error is therefore smaller.

b. Alpha = .05.

From the descriptive statistics we see that easy to carry has highest mean rating (4.063) followed by accuracy (4.050). All the factors have standard deviation closer to 1 that means the ratings are not much dispersed.

The levene statistic significance is 0.000 which is less than standard alpha value (0.05). It means it is significant. So, generally we can't use Anova, but as we used R-E-G-W-Q it will take care of it.
From test of between subject effects, the significance of factors is 0.002 which is less than the standard alpha value (0.05). It means that the ratings are significantly affected by factors.

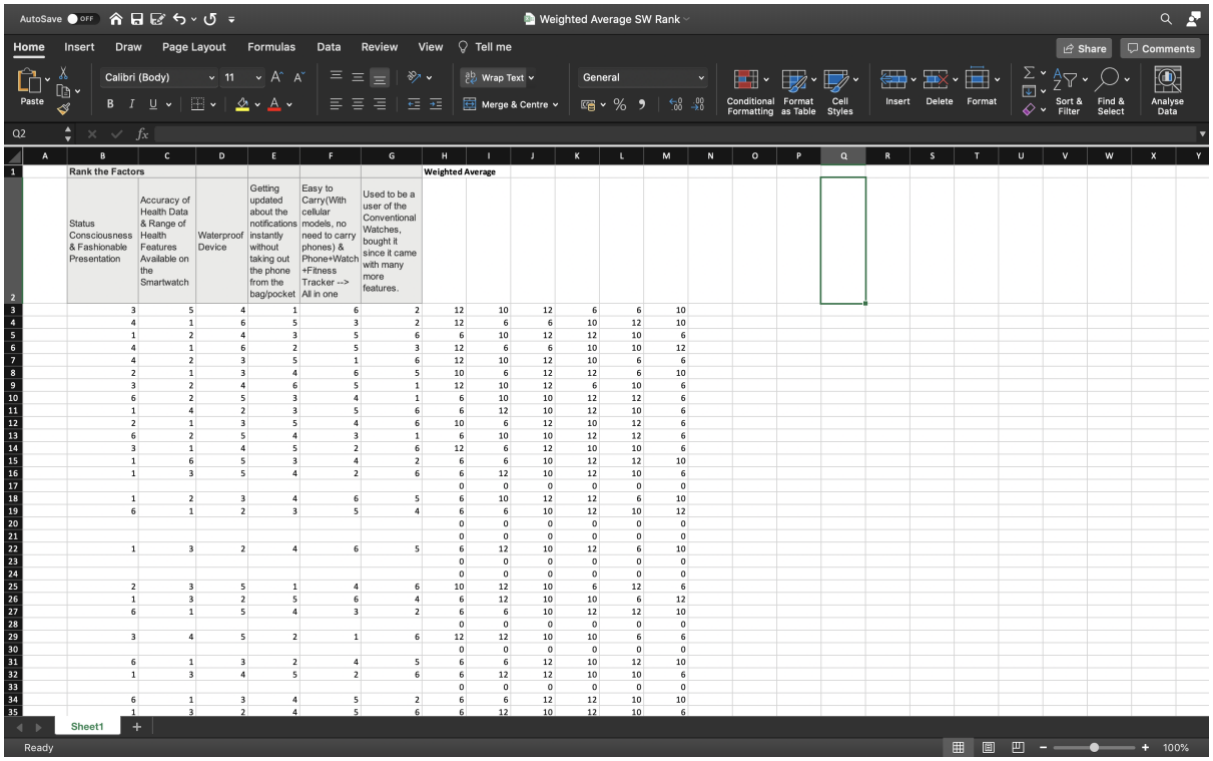
Pair wise comparisons:

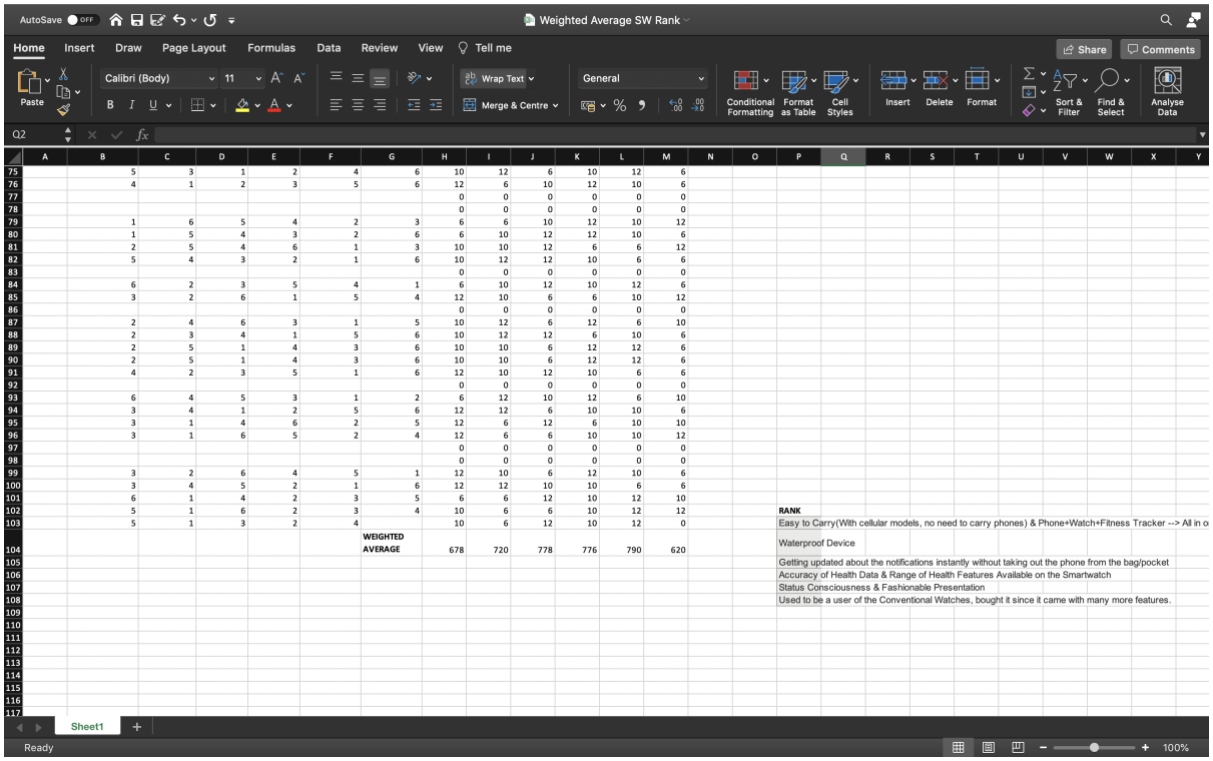
There is significant difference among the effect of accuracy and status on the ratings.
There is significant difference among the effect of easy to carry and status on the ratings.
There is no significant difference among the effect of other factor pairs on the ratings.

Post Hoc Tests:

Subset-1 has {status, used to be user, waterproof, getting updates}. It means there is no statistically significant difference between the factors of subset-1.
Subset-2 has {used to be user, waterproof, getting updates, accuracy, easy to carry}. It means there is no statistically significant difference between the factors of subset-2.

Weighted Average Method





As it seen by the calculation that the rankings of factors come out to be:

1. Easy to Carry(With cellular models, no need to carry phones) & Phone+Watch+Fitness Tracker --> All in one
2. Waterproof Device
3. Getting updated about the notifications instantly without taking out the phone from the bag/pocket
4. Accuracy of Health Data & Range of Health Features Available on the Smartwatch
5. Status Consciousness & Fashionable Presentation
6. Used to be a user of the Conventional Watches, bought it since it came with many more features.

Conclusion

The Hypotheses “The accuracy of Health data is a factor that impacts the decision of buying Smartwatch over Smartphone”, “Range of health parameters given by smartwatch is far better than those given by smartphones.”, “Status Consciousness is a factor for people making purchases between brands.”, “Fashionable Presentation is a factor for buying Smartwatch vis a vis Smartphone.” are true, since majority of the respondents gave these factors importance.

The Alternative Hypothesis “Being updated all the time (notifications) is a factor that makes people buy smartwatches.” turned out to be true but Null Hypothesis “Most of the smartwatch users are the People who are not the users of the conventional watches.” came out to be true since it scored the least rank according to the weighted average of the ranking of the factors.