1.Introduction

In the present era, as countries develop, consumers have adapted to a higher standard of living[1]. This entails higher incomes, better education and better healthcare. Bangalore perfectly portrays this development. It is one of the biggest metropolitan regions in India and houses consumers that have grown accustomed to its increased standard of living in comparison to other states in India. In order to maintain this quality of life, consumers have become increasingly wary of the goods and services they are consuming. Another aspect that has led to increased consciousness among consumers is the alarming number of diseases that have occured in the past decade. Ranging from the H1N1 influenza pandemic in 2009 to the Ebola epidemic in 2014 and most recently, the COVID-19 in 2019-20[2]. As such, the desire in consumers to use the highest quality and the safest of goods has strengthened, consequently, leading to the success of the organic food sector in Bangalore, as well as throughout the world.

India has one of the largest growing organic food markets. It currently ranks 9th in the world, with 1.49 million hectares devoted to the market[3]. From 2012 to 2016, the Indian Organic Food industry was projected to grow at a compound annual growth rate (CAGR) of 21.34%. In 2017-18, the industry saw a greater rise at a CAGR of 23%[4]. Lastly, in light of recent events such as COVID-19, the industry has seen a boom in the growth rate, surpassing the 23% of 2018 to a

[1]"India - World Bank Data - World Bank Group." https://data.worldbank.org/country/india. Accessed 28 Apr. 2022.
[2]"How the 4 biggest outbreaks since the start of this ... - WHO." https://www.who.int/csr/disease/ebola/ebola-6-months/myths/en/. Accessed 28 Apr. 2022. [3]"Organic market may touch ₹12,000 cr by 2020 - The Hindu ...." 21 Mar. 2018, https://www.thehindubusinessline.com/economy/agri-business/organic-market-may-touch-12000-crore-by-2020/article23314105.ece. Accessed 28 Apr. 2022.
[4]"India Organic Food Market - IMARC Group." https://www.imarcgroup.com/indian-organic-food-market. Accessed 30 Apr. 2022.

25% in 2019-20[5].

Presently, the Organic Food industry of India is valued at a staggering 1.36 billion dollars[6].

The purpose of this paper is to explore the degree to which the increased standard of living (better healthcare, education and income) of consumers has impacted their consumption of organic food. Consequently, the research will provide a conclusion regarding the effect of standard of living on the recent growth of the organic food industry in India. Furthermore, by investigating the impact of each factor individually, the research will elucidate whether factors commonly believed to play a big role in consumer decisions, actually do so or not. In doing so, the research will also determine which factor has the most influence over consumers when it comes to consumption of organic food.

Hence, the research question - **"To what extent does standard of living (healthcare, education and income) affect consumption of organic food in Bengaluru, India in 2021?"**

1.1 Hypothesis

In a study conducted on the relationship between income and purchase of organic food in 2009, it was found that it is more likely for a household to consume organic food if their incomes increased[7]. Furthermore, organic foods are luxury goods and hence are generally more expensive

[5]"Global Organic Food Market To Reach 262 85 Billion By 2022 ...." 4 Jul. 2019, http://www.businessworld.in/article/Global-Organic-Food-Market-To-Reach-262-85-Billion-By-2022/04-07-2019-172824. Accessed 29 Apr. 2022.
[6]"• India - organic food market size 2020 | Statista." 23 Sep. 2019, https://www.statista.com/statistics/793563/india-organic-food-market-size/. Accessed 29 Apr. 2022.
[7]"Does Price or Income Affect Organic Choice? - Semantic ...." https://pdfs.semanticscholar.org/816c/142e6d87f747d3aa0660515239e0fc1bf0ce.pdf?source=post_page---------------------------. Accessed 25 Sep. 2022.

than regular or inorganic foods. Therefore, it is hypothesized that consumers with higher income would purchase more organic foods.

Based on multiple *in vitro* studies comparing organic and inorganic foods, it has been seen that there exist numerous health benefits of consuming organic food[8]. Furthermore, based on a survey conducted by Whole Foods Market, organic food consumers stated that one of the reasons they purchased organic foods was due to health concerns[9]. Therefore, it is hypothesized that consumers with health issues, minor and major, will purchase more organic food than those without.

A study conducted by Richael L. Dettmann through the Economic Research Service in 2008 found that consumers with higher levels of education were more likely to purchase organic food[10]. Hence, it is hypothesized that there will be a direct relationship between consumers' education and their consumption of organic food.

1.2 Methodology for Data Collection

To conduct an apt investigation to answer the research question, both primary and secondary sources were used for data collection. However, because the research question corresponds to a specific location and standard of living differs from consumer to consumer, primary resources were considered the best method and therefore mainly used for analysis.

[8] "Organic food and impact on human health - ScienceDirect.com." https://www.sciencedirect.com/science/article/pii/S1573521411000054. Accessed 25 Sep. 2022.
[9] "Organic Produce: Who's Eating it? A Demographic ... - Core." https://core.ac.uk/download/pdf/7052481.pdf. Accessed 27 Sep. 2022.
[10] "Organic Produce: Who's Eating it? A Demographic ... - Core." https://core.ac.uk/download/pdf/7052481.pdf. Accessed 27 Sep. 2022.

To obtain primary data that reflected the standard of living and demand for organic food of consumers, a survey was conducted with a population size of 102 consumers living in Bangalore. The data collected included details regarding the maximum level of education received by each consumer, their awareness of organic food and its benefits, respective incomes and any health issues that the respondents were diagnosed with. This information was used to obtain an understanding of the consumer's standard of living. In addition, the respondents were also asked about the number and age of people in their household and any health issues they may have as this would help form a clearer relationship between health and consumption of organic food. Microsoft Excel's analysis tools were used to perform bivariate regression to determine the relationship between income and consumption of organic food as well as health and consumption of organic food. Due to the nature of the data collected for education, it was not possible to conduct an investigation through bivariate regression. Hence, the Chi-square test was used for investigating the relationship between education and consumption of organic food. Also, in order to conduct an in-depth analysis for income as a factor, the income data collected was divided into classes, consequently allowing exploration of the impact of income across the following classes:

Higher-income class: Greater than 5300000 rupees

Middle-income class: 2500000 to 5000000 rupees

Lower-income class: Lower than 2400000 rupees

Furthermore, the survey also contained questions that showed the relationship between an income decrease (or increase) and consumption of organic foods. This allowed comparison of the importance of income (for each income class) through income elasticity of demand (YED).

Additionally, respondents were given options for various common organic foods and asked how their consumption for each would differ if their income were to increase or decrease. This information was used to observe if certain organic foods carried greater importance than others for different income classes, consequently showing which organic food's consumption was most impacted by a change in income.

Secondary sources such as websites, research papers and books were used to support claims made in the research. In addition, they were also used to determine the size of the organic industry in numerous countries, as well as the real GDP, GNI and population of these respective countries (to calculate real GDP per capita and GNI per capita). This information was used to reach a conclusion regarding the relationship between standard of living and consumption of organic food on the macro level.

2. Discussion

2.1: Macroeconomic relationship between standard of living and consumption of organic food

Since real GDP (rGDP) is an indicator or measure of the total value of goods and services produced in a country in a certain year, rGDP per capita of a country can be understood as an approximate indicator of how much of the total output in the economy corresponds to each person in the population. Consequently, acting as a measure of the standard of living for every individual in a country[11].

Upon research, the following data for the rGDP and rGDP per capita in the year 2015 was found and calculated respectively for the countries USA (United States of America), Germany, Spain,

[11]"Ellie Tragakes, Economics for the IB Diploma, Second ed., (Cambridge University Press, 2012), P. 212 Accessed 3 Oct. 2022.

France, Italy, China and United Kingdom. The formula used for calculation of rGDP per capita is given as follows:

$$rGDP\ per\ capita_{2015} = \frac{(rGDP_{2015})}{population}$$

Country	Real GDP (in billion USD)[12]	Population (in thousands)[13]	Real GDP per capita
USA	18,225	320,635.16	56840.3041
Germany	3,362	81,686.61	41157.29616
Spain	1,200	46,444.83	25837.10609
Italy	1,833	60,730.58	30182.48797
France	2,439	66,548.27	36650.08873
China	11,226	1,371,220.00	8186.870086
United Kingdom	2,897	65,116.22	44489.68322

Table 1: Calculation of rGDP per capita (Source: World Bank Data)

As can be seen in *Table 1*, the real GDP per capita of the USA was the highest, indicating that the USA had to have the largest organic food industry compared to the other six countries. The lowest standard of living was observed in China, implying that the organic industry in China had to be the smallest out of the seven countries. Upon observing the data researched (recorded in *Table 2*), it was found that the USA supported the hypothesis with the highest retail sales value of organic foods in 2015. However China, despite having the lowest rGDP per capita, was seen to have the fourth-highest retail sales value. Whereas, the country with the second lowest rGDP

[12]"World GDP Ranking 2015 | Data and Charts - Ministry of ...."
http://zambiamf.opendataforafrica.org/oyhqaqc/world-gdp-ranking-2015-data-and-charts. Accessed 4 Oct. 2022.

[13]"Population, total - World Bank Data - World Bank Group."
https://data.worldbank.org/indicator/SP.POP.TOTL. Accessed 4 Oct. 2022.

per capita i.e. Spain had the lowest retail sales out of the seven countries. This discrepancy can be observed in the UK as well. Despite having the second-highest value of rGDP per capita, it is seen to have the fourth-highest value of retail sales.

Country	**Value of retail sales in organic food market in 2015 (in billion euros)**[14]
USA	36
Germany	8.62
Spain	1.49
Italy	2.32
France	5.53
China	4.59
United Kingdom	2.60

Table 2: Size of organic food market for chosen countries (Source: Secondary Data)

GNI or Gross National Income can be defined as the total income earned by the residents of a country and its businesses[15]. Hence, the GNI per capita of a country is an indicator of how much of this total income corresponds to each inhabitant, and can therefore be considered an approximate measure of the standard of living of each consumer in the country. Consequently, it can be used to make conclusions about the relationship between income and consumption of organic food on a macroeconomic level.

[14]"European organic market data 2015." 15 Feb. 2017, https://orgprints.org/31200/31/willer-2017-european-data-2015.pdf. Accessed 4 Oct. 2022. [15]"Gross National Income (GNI) Definition - Investopedia." 9 Sep. 2020, https://www.investopedia.com/terms/g/gross-national-income-gni.asp. Accessed 9 Oct. 2022.

The GNI and GNI per capita values in 2015 were found and calculated respectively for the same seven countries. The formula used for calculation of rGDP per capita is given as follows:

$$GNI\ per\ capita_{2015} = \frac{(GNI_{2015})}{population}$$

Country	GNI (in million USD)[16]	Population (in thousands)[17]	GNI per capita (in USD)
USA	18,704,317.00	320,635.16	58,335.20254
Germany	3,437,023.46	81,686.61	42,075.72649
Spain	1,194,850.88	46,444.83	25,726.24079
Italy	1,823,207.19	60,730.58	30,021.2379
France	2,490,863.06	66,548.27	37,429.41868
China	11,019,762.34	1,371,220.00	8,036.465585
United Kingdom	2,861,593.37	65,116.22	43,945.93805

Table 3: Calculation of GNI per capita (Source: World Bank Data)

As can be seen in *Table 3,* the GNI per capita was largest for the USA, indicating that consumers living in the USA had larger incomes compared to the other six countries studied. Therefore, the USA had to have the largest number of sales of organic food in 2015. This was verified through *Table 2*. The intended relationship almost held true for Germany as well. It had the third-highest GNI per capita (coming third by an extremely small margin) and the second-highest retail sales in 2015. China was seen to have the lowest GNI per capita implying that China had to have the least number of retail sales in 2015. However, China was fourth in the number of retail sales in

[16] "GNI (current US$) - World Bank Data - World Bank Group." https://data.worldbank.org/indicator/NY.GNP.MKTP.CD. Accessed 11 Oct. 2022.

[17] "Population, total - World Bank Data - World Bank Group." https://data.worldbank.org/indicator/SP.POP.TOTL. Accessed 4 Oct. 2022.

2015 (can be seen *Table 2*).

This discrepancy was noted with Italy as well. Despite having the fourth-highest GNI per capita, it had the sixth-highest retail sales value.

The conclusions reached suggest that standard of living does have an impact on consumption of organic food. This is because this statement holds true for countries such as Germany and the USA. And while the GNI and GDP per capita positions for China, Italy, UK and Spain do not exactly match their positions for sales, they were only off by one or two positions. This can be explained through the limitation of the comparison. Per capita measurements do not consider unequal distribution of income, therefore providing an extremely approximate measure of standard of living. Hence justifying the slight inconsistency in per capita and sales value positions.

2.2: Relationship between income and purchase of organic food

In order to find the relationship between the income earned and consumption of organic food, consumers were asked their annual income and their expenditure on organic food. The latter was taken as a reflection of consumers' consumption of organic food. First, a basic comparison was conducted between the average income of every income class and average expenditure.

Income Class	**No. of consumers**	**Average Income (in lakh rupees)**	**Average proportion spent on organic food (in rupees)**
Low Income	41	15.39	1634.16
Middle Income	32	39.88	3103.125
High Income	20	84.03	5540

Table 4: General analysis on consumption of organic food based on income class (Source: Primary Data)

As shown in *Table 4*, low income earners spent the least proportion of their income on organic food, whereas, high income earners spent more than three times the amount spent by low income earners. In addition, as hypothesized, middle income earners spent more than low income earners but lesser than high income earners.

Furthermore, to quantify the relationship, a bivariate analysis was conducted for income earned versus the income spent on organic food and the line of best fit was plotted. This can be seen below:

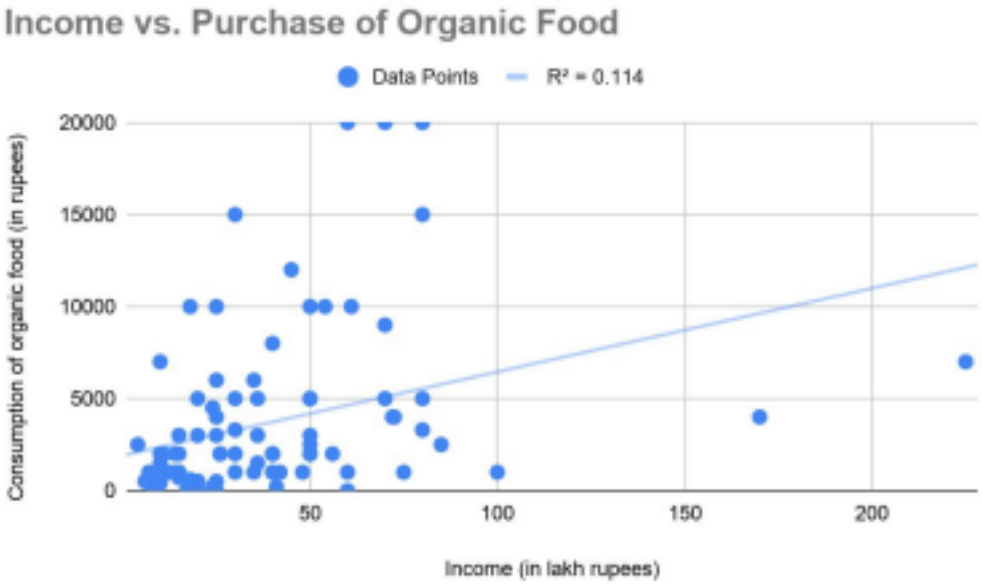

Figure 1:
Scatterplot showing the correlation between income and consumer spending on organic food (Source: Primary Data)

As shown in *Figure 1,* the relationship between income and purchase of organic food is represented by a positively sloped line, indicating that as the incomes of consumers increase, their consumption of organic food also increases. The equation for consumption spending on organic food (line of best fit) can be seen below where 'Qc' is consumption spending and 'I' is income:

$$Q_c = 45.4I + 1916$$

The consumption equation shows that if income were to increase by one lakh rupees,

consumption of organic food would increase by 45.4 rupees. While the line is positively sloped, the value of R^2(coefficient of determination) is 0.114 or 11.4%, indicating that the relationship between income and consumption is weak. This can be seen by several points plotted on the scatterplot above. While the highest income observed was 225 lakhs, the amount spent on organic food was only 7000 rupees. Whereas, there were other consumers that earned an annual income between 20 to 100 lakh rupees that spent more than 7000 rupees. An extreme outlier observed was the consumer that spent 20000 rupees despite earning an income of 61 lakhs. (reasons for these exceptions will be explored in greater detail later on in the essay).

Income Elasticity of Demand

To further explore the relationship between income and consumption of organic food, consumers were asked how their consumption would be affected if their income were to change. This data was used to observe income elasticity and gain a better understanding of this relationship. In addition, specific commonly eaten foods were chosen to study this relationship. These foods included Milk, Wheat/Rice, Fruits and Vegetables, Eggs, Pulses and Meat. Furthermore, since some of these foods are consumed at greater frequency than others, consumers were asked to classify them in the order of their importance from 1 to 6 (with one being the highest and 6 being the lowest). This data was then segregated using the income classes as this would allow for observations as to how the income elasticities for each of these goods varied across income ranges. This can be seen below:

Low Income Class:

	No. of consumers who chose 1	No. of consumers who chose 2	No. of consumers who chose 3	No. of consumers who chose 4	No. of consumers who chose 5	No. of consumers who chose 6
Milk	4	4	5	7	2	14
Rice/Wheat Flour	3	8	6	8	3	8
Pulses	3	10	6	4	5	8
Fruits and Vegetables	11	6	6	7	3	3
Eggs	7	3	2	5	6	11
Meat	7	3	4	3	3	16

Table 5: Expense distribution for low income earners (Source: Primary Data)

As shown in *Table 5,* milk, eggs and meat are the least important organic foods for consumers in the low income class. This suggests that these foods are luxurious goods (for low income consumers). As a result, they should have a relatively elastic YED(YED>1) i.e. a change in income would have a relatively larger impact on consumption. On the other hand, fruits and vegetables are the most important expense, suggesting that this good is a necessity. As a result, they should have a relatively inelastic YED(0<YED<1) i.e. a change in income would have a relatively smaller impact on consumption. Hence, the graphs for change in consumption of milk, eggs and meat as well as fruits and vegetables with respect to an increase in income would be drawn as shown below:

Demand curve for milk, eggs and meat: D_m

Demand curve for fruits and vegetables: D_v

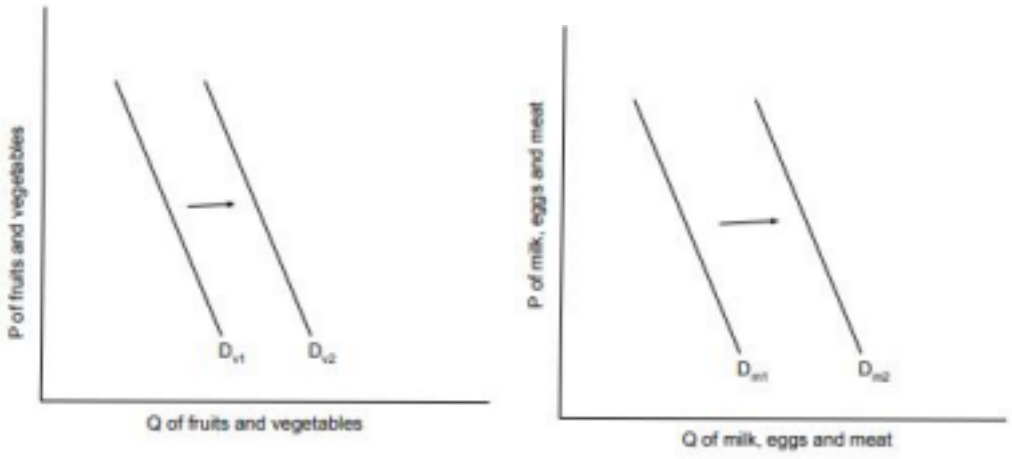

Figure 2: Diagrams showing the income elasticity for various organic foods for low income class (Source: Primary Data)

Middle Income Class:

	No. of consumers who chose 1	No. of consumers who chose 2	No. of consumers who chose 3	No. of consumers who chose 4	No. of consumers who chose 5	No. of consumers who chose 6
Milk	16	2	9	4	1	6
Rice/Wheat Flour	10	6	11	4	4	3
Pulses	10	9	8	7	4	0
Fruits and Vegetables	9	11	8	1	3	6
Eggs	7	11	2	3	7	8
Meat	8	6	1	5	2	16

Table 6: Expense distribution for middle income earners (Source: Primary Data)

As shown in *Table 6*, Milk is the most important expense for organic food consumers of the middle income class. This implies that milk is a necessity and should therefore have a relatively inelastic YED. The second most important expenses observed are rice/wheat, pulses and fruits and vegetables (all three have almost the same demand). This suggests that these goods are also necessities and hence will also have a relatively inelastic YED. However, the impact of income

on these goods will be slightly greater than the impact of income on milk. In addition, it can be seen that meat is the least important expense. Accordingly, it can be said that meat is income elastic and will have a YED>1. An anomaly observed is the value of organic eggs. 18 consumers(in total) have put it as their first and second most important expense, and a close 15 consumers(in total) have put it as their least and second to least important expense. Hence, it can be said that demand for eggs for middle income consumers is not highly dependent on income. The diagrams for the respective organic foods can be seen below. Both diagrams are drawn with respect to an increase in income.

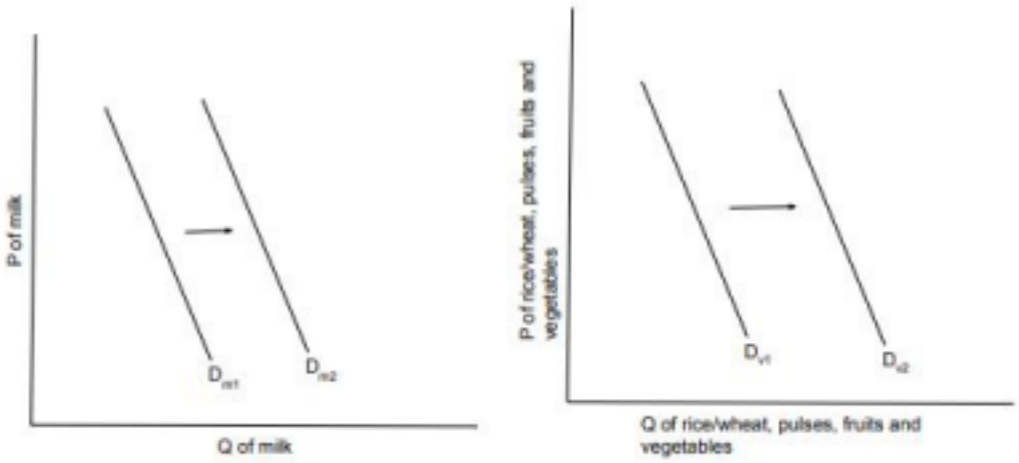

Figure 3: Diagrams showing the income elasticity for various organic foods for middle income class (Source: Primary Data)

As can be seen in the diagrams, the impact of an increase in income was slightly more in the latter goods, showing the difference in income elasticity.

High Income Class:

	No. of consumers who chose 1	No. of consumers who chose 2	No. of consumers who chose 3	No. of consumers who chose 4	No. of consumers who chose 5	No. of consumers who chose 6
Milk	9	1	2	1	0	7
Rice/Wheat Flour		1	3	5	1	6
Pulses	3	5	2	4	2	4

Fruits and Vegetables	7	2	2	2	2	5
Eggs	4	4	1	3	2	6
Meat	4	3	1	1	1	10

Table 7: Expense distribution for high income earners (Source: Primary Data)

For high income consumers, almost the same number of people have chosen milk and fruits and vegetables as their most important expense and their least important expense (9 and 7 respectively). In addition, 8 consumers have put eggs as their first and second most important expense, followed by 8 consumers who have put eggs as their least and second to least important expense. Moreover, no clear pattern can be seen for pulses as the priorities for this good's purchase are very evenly spread out. Furthermore, the majority of high income earners have placed meat as their least important expense, implying that meat is income elastic(YED>1). Hence, it can be concluded that income does not greatly impact consumption of any of the organic foods studied except for meat. Since meat is income elastic, the diagram for meat for the high income class would be similar to the diagram for meat shown for the low income class.

2.3: Relationship between education and consumption of organic food

The factor of education was investigated by comparing the level of education received by each consumer and their consumption of organic food. In order to collect this information, consumers were asked their highest level of education and the options provided were: "Highschool Graduate", "Undergraduate/Bachelors", "Graduate/Masters", "Doctorate/PHD."

Chi-Square Test

Due to the categorical nature of data collected (via the questionnaire) regarding the level of education of consumers, the chi-square test was the best statistical tool to quantify its correlation

with organic food consumption. Hence, it was used to determine the relationship between level of education and consumption of organic food. In order to conduct the test, the consumption levels of organic food were divided into three classes that are shown below:

Low consumption: 0 to 2499 rupees

Medium consumption: 2500 to 6000 rupees

High consumption: >6000 rupees

The table formed from these classes can be seen below. The table consists of the observed frequency values for consumption of organic food at different education levels.

Highest level of education	Low consumption	Medium consumption	High consumption	Total
Highschool Graduate	3	1	1	5
Undergraduate/ Bachelors	16	7	3	26
Graduate/Masters	33	17	10	60
Doctorate/PHD	2	1	1	4
Total	54	26	15	95

Table 8: Observed frequency of consumption of organic food based on education level (Source: Primary Data)

Through *Table 8,* the expected frequency table was constructed. This table communicated the mathematically expected number of consumers in each education level that would consume low, medium or high amounts of organic food and is illustrated below (the values in the table below were rounded off to whole numbers as the expected frequency of consumers cannot be a decimal number):

Highest level of education	Low consumption	Medium cons	
Highschool Graduate	3	1	1
Undergraduate/Bachelors	15	7	4
Postgraduate/Masters	34	16	9
Doctorate/PHD	2	1	1

Table 9: Expected frequency of consumption of organic food based on education level (Source: Primary Data)

Finally, through the following table, the chi-square value was calculated to be 0.602.

f_0(observed freq.)	f_e(expected freq.)	$f_0 - f_e$	$(f_0 - f_e)^2$	$(f_0 - f_e)^2$
3	3	0	0	0.0088
16	15	1	1	0.1009
33	34	-1	1	0.0358
2	2	0	0	0.0329
1	1	0	0	0.0000
7	7	0	0	0.0000
17	16	1	1	0.0625
1	1	0	0	0.0000
1	1	0	0	0.0000
3	4	-1	1	0.2500
10	9	1	1	0.1111
1	1	0	0	0.0000
chi-square Value				0.602

Table 10: Calculation of chi-square value (Source: Primary Data)

The degree of freedom(*df*) was calculated to be 6 and level of significance was taken at $p > 0.05$.

Using the chi-square probability table, it was found that at *df* = 6 and p > 0.05 (95 out of 100 cases would give the obtained result), the chi-square value should be 12.592. However, the calculated value was 0.602, and hence much lesser than 12.592. This suggested that the level of education received by a consumer and their consumption of organic food do not have any correlation(if calculated value < tabular value, there is no correlation), hence disproving the hypothesis.

2.4: Relationship between health and consumption of organic food

The relationship between health of consumers and consumption of organic food was explored by investigating the correlation between consumers who currently suffer through an illness or a past illness's repercussions and their consumption of organic food. To investigate this relationship, consumers were asked if they had/have any major health issues and if they frequently fell ill. The pie chart below represents the data collected:

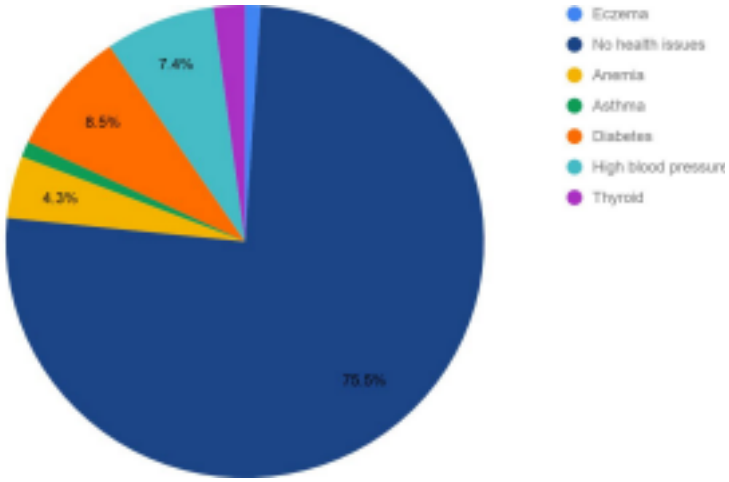

Figure 3: Pie Chart showing distribution of diseases in respondents (Source: Primary Data)

Since the data was categorical, a Point Biserial correlation measure was used to conduct a quantitative analysis. The data collected was then divided into two categories. Consumers who had still suffered the repercussions of a past illness and consumers who were presently ill were put under the category “consumers diagnosed with an illness”, which was assigned to 0. The remainder consumers were put under the category “consumers not diagnosed with an illness”,

which was assigned to 1. A scatterplot comparing the categories and consumption of organic food was then drawn and the line of best fit was constructed. This can be seen below:

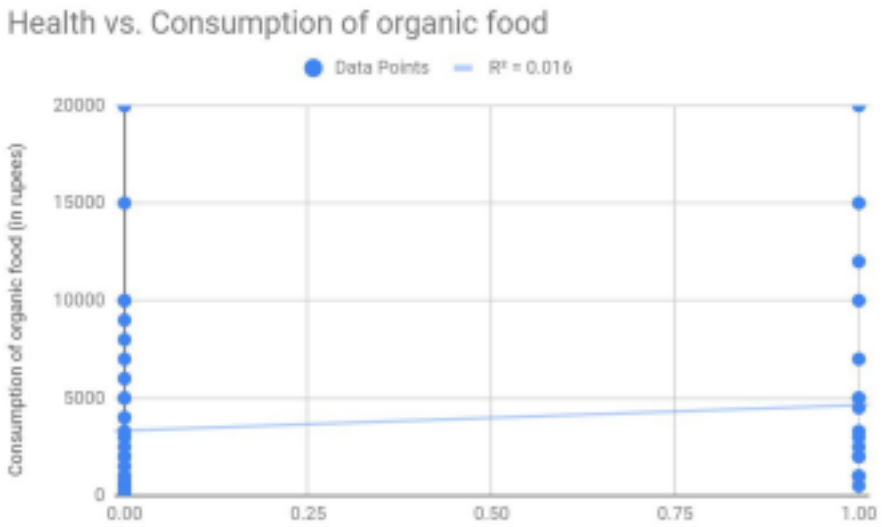

Figure 4: Scatterplot showing the correlation between health and consumption of organic food (Source: Primary Data)

As can be seen *Figure 4*, the relationship between health and consumer spending on organic food is represented by a positively sloped line, showing that consumers with health issues would consume more organic food than consumers without. While the line shows a direct relationship, the value of $R^2$is 0.016 or 1.6%, which shows an extremely weak correlation. Furthermore, if this value is compared to the coefficient of determination of the relationship between income and organic food, it is observed that it is lesser (1.6% < 11.4%). This suggests that consumers give slightly more importance to income compared to health as a factor that motivates them to consume organic food.

A general comparison was also conducted between health and consumption of organic food. This is portrayed in the table below:

	Frequency	Average consumption value of organic food (in rupees)	Average income (in lakh rupees)
Consumers diagnosed with an illness	24	4643.87	36.08
Consumers not diagnosed with an illness	71	3335.35	39.05

Table 11: Consumption of organic food for consumers diagnosed with an illness (Source: Primary Data)

As can be seen in *Table 11*, consumers diagnosed with an illness consumed 1300 rupees more worth of organic food (on an average) compared to consumers without an illness. However, a discrepancy is noted. While consumers with an illness spent more on organic food, they earned approximately three lakhs less than those who were not diagnosed with an illness. This suggests that health plays a greater role than income in purchase of organic food when the opposite is quantitatively proven above. The reason for this discrepancy are outliers that are an exception to the rule that income has a greater impact on purchase of organic food. These outliers were mentioned in the scatter plot analysis for income as well. For example, the consumer that earned an annual income of 61 lakhs but spent 20000 per month on organic food. Upon deeper inspection of the survey it was found that a family member of this consumer suffered from Anemia hence explaining the abnormal expenditure. Similarly, one of the consumers earned only 10 lakhs a year but spent 7000 on organic food. Once again, upon deeper inspection it was seen that this household had a family member that was a cancer survivor. Another consumer that had been diagnosed with thyroid and had undergone reconstructive surgery earned an annual income of 30 lakhs, but spent 12000 rupees on organic food per month. Whereas, multiple consumers that earned 70 to 80 lakh rupees spent an average of 7366.66 rupees. These anomalies imply that health may play a greater role than income in consumption of organic food in special situations

when the health concern is extremely serious.

3. Conclusion

In answering the research question - **“To what extent does standard of living (healthcare, education and income) affect consumption of organic food in Bengaluru, India in 2020?”**, the hypothesis stated that as income increased, the purchase of organic food would also increase. As shown by the regression run between income and expenditure on organic food, income and consumption of organic food have a direct relationship. However, as shown by the determination coefficient, the direct relationship between income and consumption of organic food is weak.

The hypothesis for the factor of education stated that the higher the level of education, the higher the consumption of organic food. This hypothesis was proven incorrect through the Chi-square test, which showed that there is no correlation between level of education and consumption of organic food. Furthermore, due to the level of significance at $p>0.05$, this conclusion is extremely valid.

The hypothesis for the factor of health stated that consumers with health issues would purchase a greater amount of organic food. This hypothesis was proven correct based on the Point Biserial analysis conducted, which resulted in a positively sloped line of best fit that showed the direct relationship between concern for health and consumption of organic food. Furthermore, upon comparing the determination coefficients of income and health with relation to a consumer’s purchase of organic food it was observed that income played a greater role in determining a consumer’s consumption of organic food.

Lastly, while the majority of the hypotheses formulated were proven right, the conclusions

derived from tabular data analysis are limited. For every comparison, the mean value of the respective variable being compared was used. This hid potential outliers in the data and while some of these anomalies were explored, it was not possible to explore every single data point, hindering the validity of the conclusions determined. Furthermore, a single outlier could have skewed the mean, leading to inaccurate comparisons and once again resulting in invalid conclusions. In addition, while every variable was investigated individually, other variables were not kept constant during this investigation. This could have hindered the reliability of the conclusions determined for each variable and is an improvement that should be incorporated for future investigation of the relationship between standard of living and consumption of organic food.

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5. Appendices

Appendix 1

Borrower Survey

Sex *

- ◯ Female
- ◯ Male
- ◯ Other...

Age *

Short answer text

What is your highest level of education? *

- ◯ Highschool graduate
- ◯ Undergraduate/Bachelors
- ◯ Graduate/Masters
- ◯ Doctrate/PHD

Where is your primary residence? *

- ◯ Bangalore
- ◯ Other...

How many people do you have to support in your household? Please state their respective ages and any specific health issue they may have. *

Long answer text

Awareness of Organic Food

Description (optional)

From the following options, please select the one that correctly matches your consumption of organic food. *

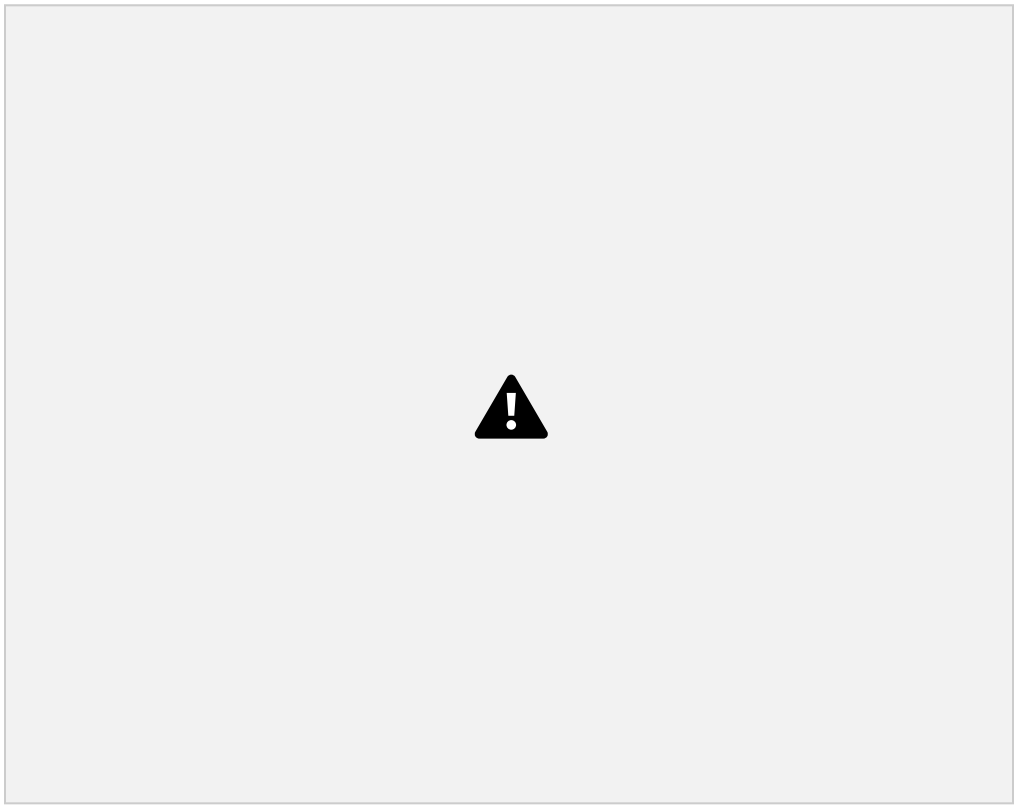
- ○ Never heard of organic foods
- ○ Heard of the health benefits of organic food, but never purchased it
- ○ Heard of the health benefits of organic food and purchase occasionally (once in a month or 2 months)
- ○ Regular buyer of organic food (once in a week or 2 weeks)
- ○ Only purchase organic food

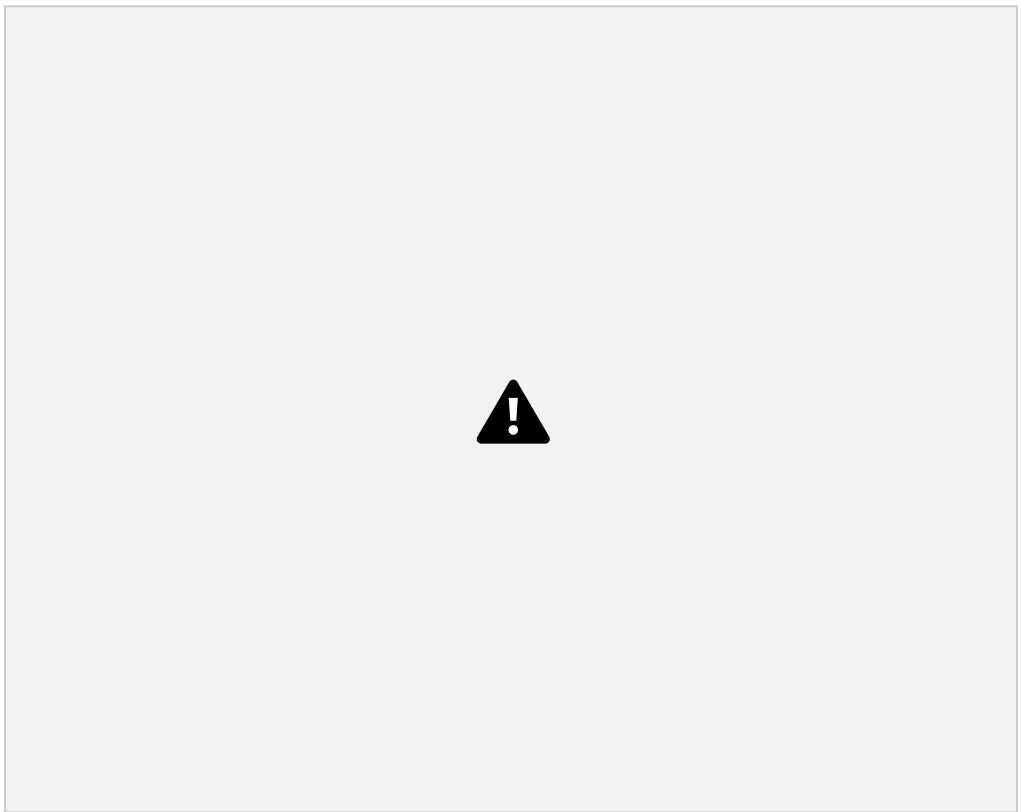
If you choose to not consume or occasionally consumer organic food despite knowing its health benefits, please specify a reason for doing so.

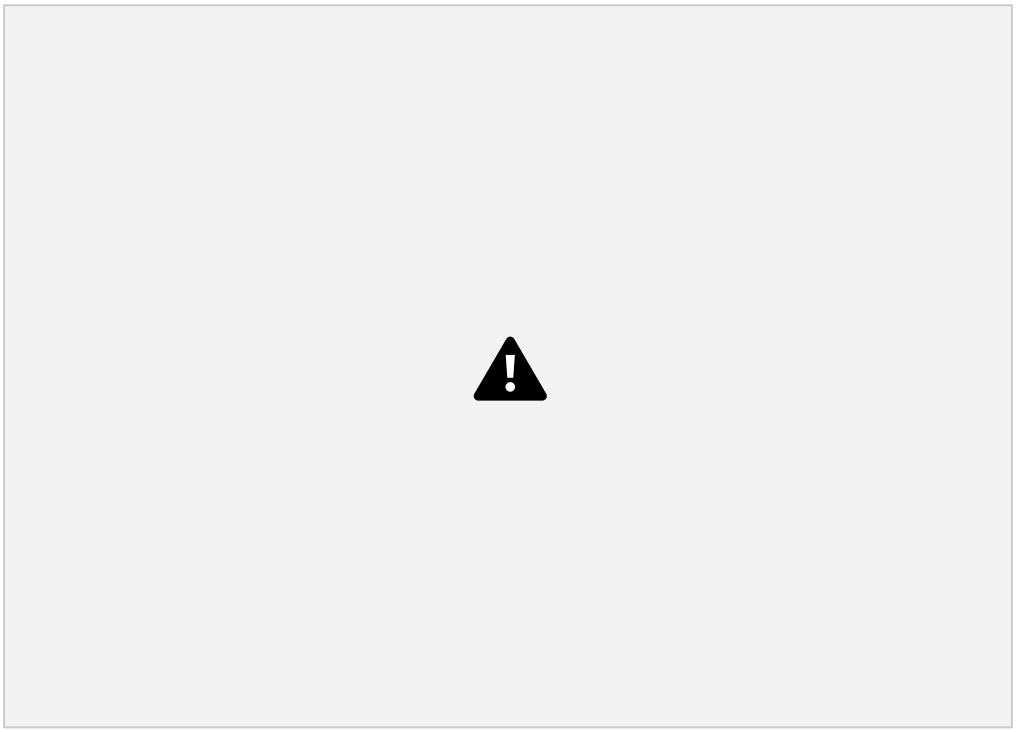
Long answer text

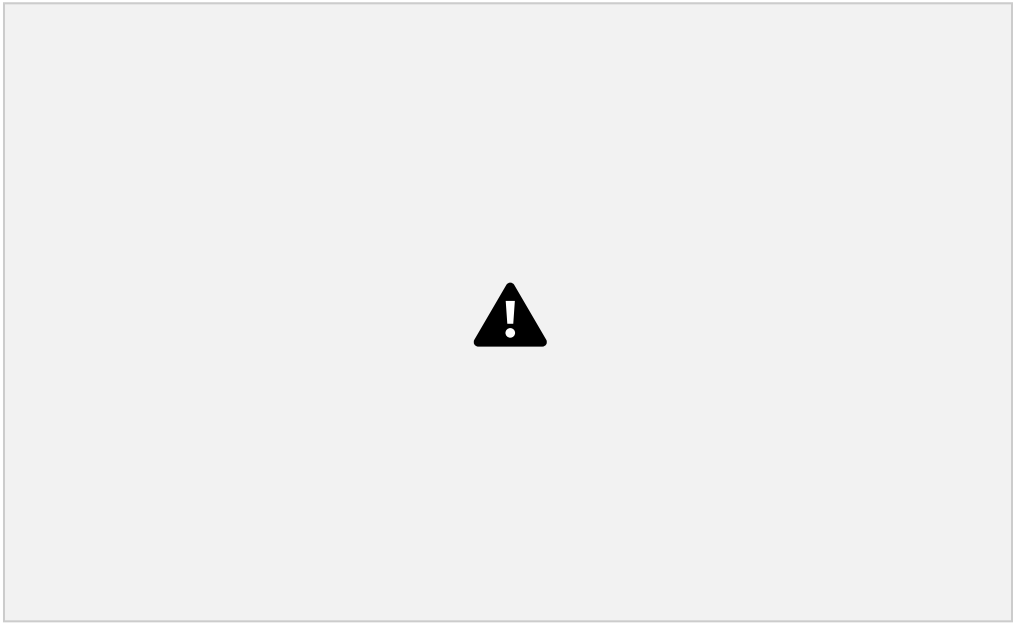
How did you come to know about organic food? *

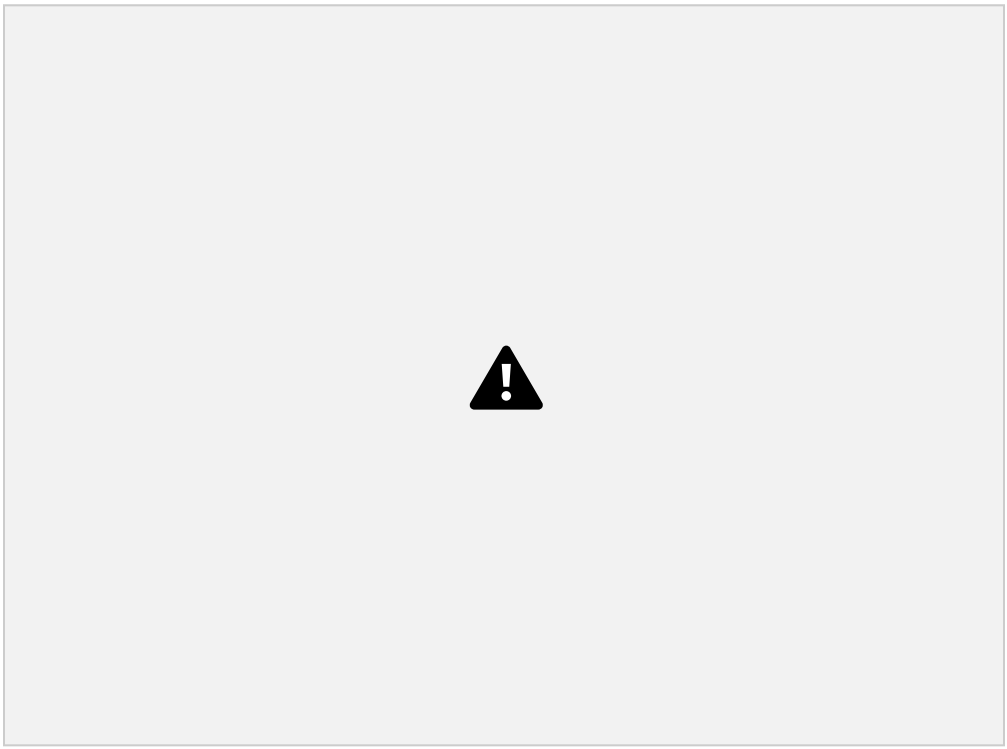
- ○ Heard about it from a friend or relative
- ○ Read or researched about it
- ○ Other...

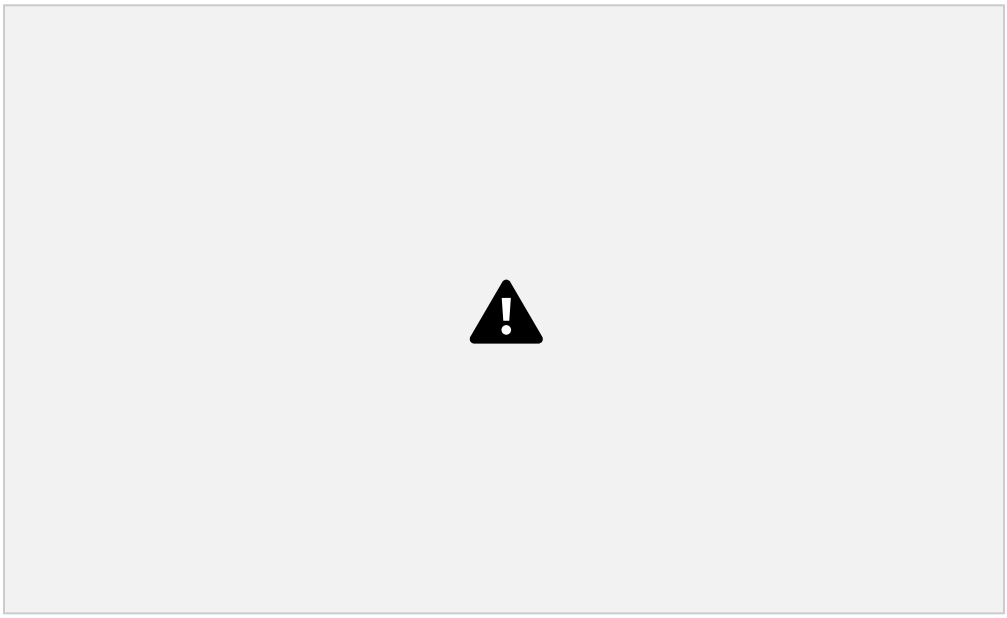


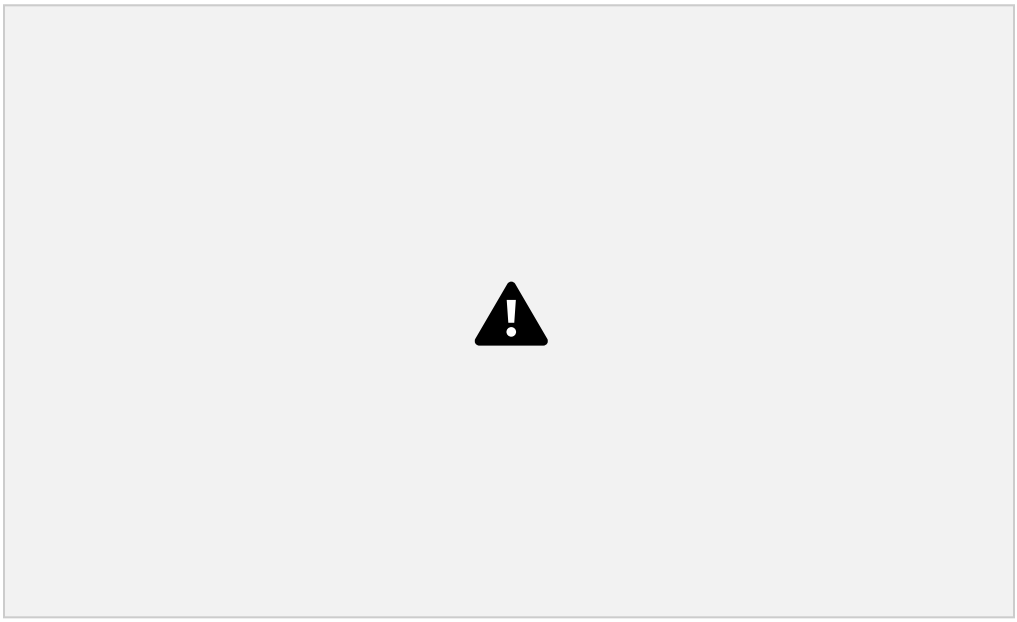


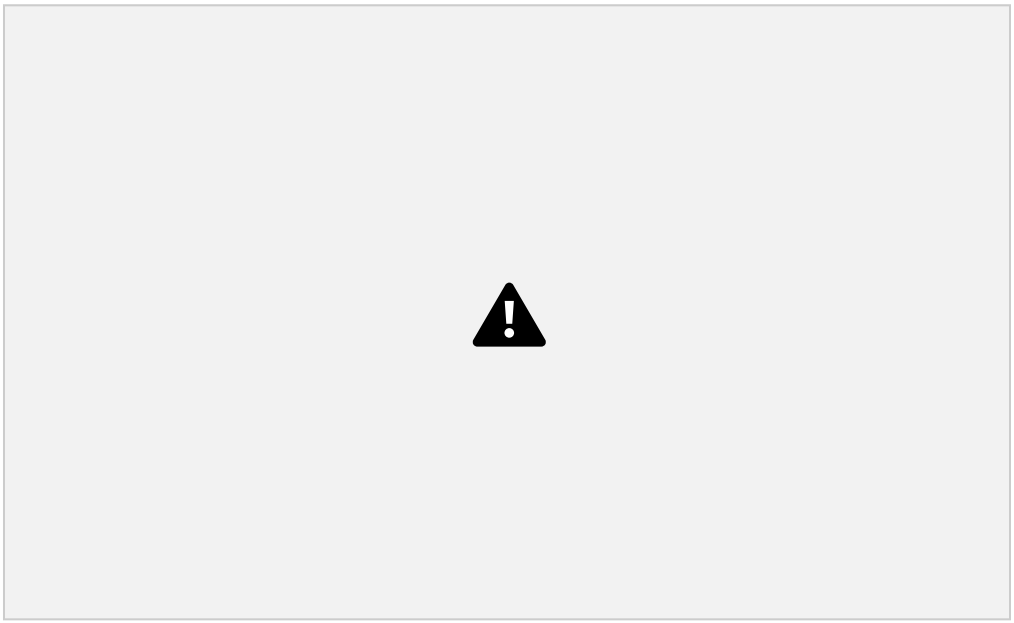












Appendix 2

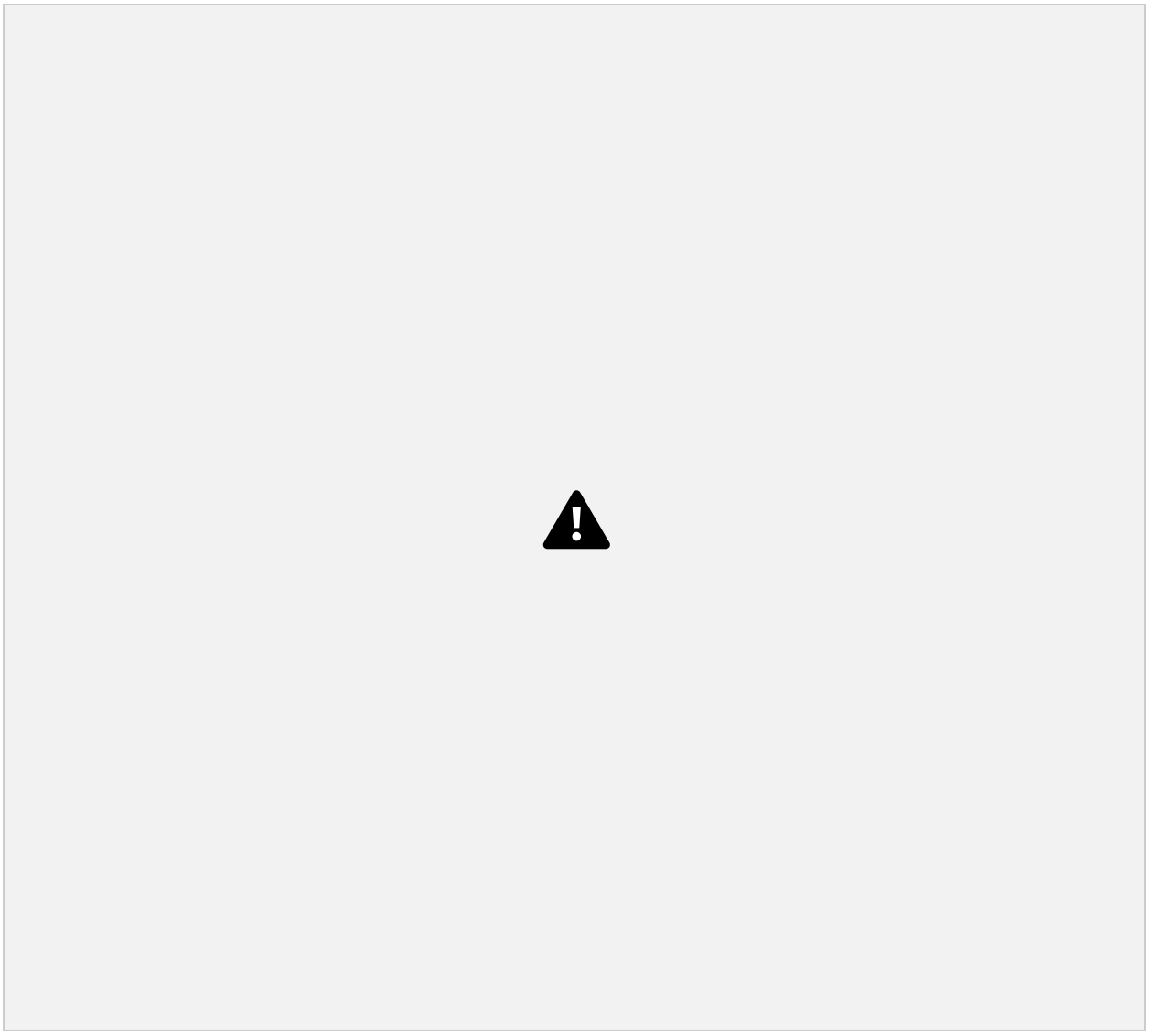
Formula for calculating degree of freedom:

$$\textit{Degree of freedom } (df) = (r - 1)(K - 1)$$

Where *'r'* is the number of rows and *'K'* is the number columns in the observed frequency table (*Table 8*).

Appendix 3

Chi-Square Probability Table



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