A Study on- The Impact of Covid-19 on the Consumer Purchase Behavior for Household Refrigerators with Special Reference to Delhi-Ncr

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RESEARCH ABSTRACT:

COVID-19 has significantly affected the global economy and has also significantly hampered the functioning of certain industries all over the world. Since summers have always been crucial for the whole consumer durables industry, this pandemic must have also impacted the growth of FMCD market too. As a result of highly volatile economic ups and downs, even the consumer has become more price sensitive as compared to earlier scenarios. Hence, this research is conducted in order to specifically understand and study the customer purchase behavior during this COVID period, specifically for the refrigerator segment. The research is equally oriented towards studying the factors which impact the purchase behavior of consumers for refrigerators. This research would also be helpful in measuring the degree of change occurred in this covid-19 scenario, in terms of purchase behavior towards refrigerators . The research would be purely based upon the primary and secondary data collected from the existing consumers of FMCD products. This would include data collection tools including questionnaire , literatures and telephonic interviews. The expected outcome of the research will help us understand the customer purchase behavior of refrigerators during this very period.

INTRODUCTION

During the outbreak of covid-19, all the business, both small and large have been adversely affected across the globe. In the current scenario, a generous coverage has been dedicated for its impact upon purchases of fast moving consumer goods. However, very less focus has been dedicated towards the impact of covid on consumer durables purchases. Consumer behaviour is that process which involves, how individuals make their decisions for spending the resources they have such as money, effort on consumption-related items and time. The summer season has always been a lucrative and crucial phase for the industry, and hence the current lockdown has impacted negatively on the industry. February to June period contributes to more than $1/3^{rd}$ fraction in terms of total turnover of the industry. In fact, March and April contribute to nearly 12 per cent each in sales turnover to the industry. Covid outbreak and the consequent lockdown has significantly dampened the consumer sentiments, the industry has witnessed a significant drop in sales during the months of March, April and May. The similar trend is uncertain to be predicted as it could still persist ahead, since the outbreak is still not under control and lockdowns might take place again. Since, the past decade, consumer durables have emerged as one of the fastest growing sectors in the country. Once perceived as luxury items, consumer durables today have become as an indispensable part of everyday use for the Indian families. Especially, refrigerators are such equipment which every urban household considers as important , irrespective of the economic class. The very segment holds a major sales share within the Indian white goods industry. Indian appliance and consumer electronics (ACE) market has touched Rs 76,400 crore (US$ 10.93 billion) in 2019 and it was being expected that it might get doubled to reach Rs 1.48 lakh crore (US$ 21.18 billion) by 2025.

Since, this is a big and a major revenue generating industry, it is really important for us to understand the behavior of consumer towards buying CD products. Moreover in the current scenario it wont be easy for the marketers to infer the consumer trends on the basis of previous years. The scenario is changed and customers are getting highly informed, educated and price sensitive. This research will have a strong emphasize on the factors which impact the consumer purchase behaviour for refrigerators such as their needs, desires, preferences, price sensitivity , brand preference, medium of purchase and many more.

INDUSTRY BACKGROUND

- The appliance and consumer electronicsmarket in India hascrossed Rs.76,300 crores (US$ 10.90 billion) in 2019. This very market is expected to get doubled and reach Rs 1.45 lakh crore by 2025. However, due to the disruptions generated by the covid outbreak, the predicted figures might not match with the actual results in the near future.
- The CD industry in India has witnessed a steady growth after a continuous flat of two years.
- Refrigerator market in India was estimated at around Rs 19,500 crore (US$ 3.03 billion) and is expected to reach Rs 344 trillion (US$ 5.34 billion) by 2022.
- In the Indian household refrigerator market, the top five players hold more than 75 per cent of the total market share.
- As per the experts, ahuge room for growth in the rural market exists in India, when it comes to the rural market. There has been witnessed a growth in the demand for white goods such as refrigerators and air conditioners in the rural areas with the increasing penetration of brands. The demand for durables like refrigerators and consumer electronic goods is expected to increase even more witness an increased demand in the coming years, with the upcominggovernment projects for rural electrification.
- Apart from that enhancement in awareness, ease in access, and constantly changing lifestyle changing lifestyle would also act as the major driving agents for the industry in the upcoming future.
- Relaxation in license rules and approval of 51% FDI by the Indian regulatory framework in multi-brand and 100 per cent in single-brand retail, can also act as an opportunity for the key market players to strengthen their foothold in the country.
- India is expected to touch the 5th rank in the global consumer durable market. Apart from the above mentioned factors, increasing disposable income, evolution of metro lifestyle and reduction in the GST rates for essential goods are likely to contribute in the proliferation of the market size.
- As per IBEF, loans taken for consumer durable products haveaugmented 43 per cent y-o-y to nearly Rs 6,495 crore in financial year 2020.
- Key players of the Indian household refrigerator market are Whirlpool, Samsung, Voltas Beko, Electrolux, LG ,Haier and Kelvinator.

RESEARCH PROBLEM

1. The sales of consumer durables has collapsed drastically during the nationwide lockdown due to pandemic. The months of summers where refrigerators are high in demand, have shown a worldwide dip in sales for the consumer durable companies.
2. This nationwide lockdown has hit the market by generating the negative sentiment due to which consumer buying behaviour has changed from seasonal basis to situational basis. A sharp reduction in the footfall of customers in the retail and chain stores, either due to lockdown or due to insecurity..
3. Hence, this research will help in concluding the reasons which have caused a drastic shift in the buying behaviour of consumers towards consumer durables.
4. Apart from that this research is equally beneficial in inferring and understanding the consumer buying behaviour of refrigerators during this pandemic period.

OBJECTIVE:

1. To study the various factors influencing the buying behavior of the consumers for refrigerators in Delhi NCR region.

2. To study the impact of Covid-19 on the importance of brand name while making a purchase

3. To study if there is any change in the selection of Medium of Purchase in both pre and during Covid-19 scenario

4. To study whether the geographic origin of the company impacts the purchasing decision of the customer.

HYPOTHESES

1. **Null Hypothesis H_0:** There is no significant difference in the selection of MOP, pre and during COVID-19
   Alternate Hypothesis H_1: There is a significant difference in the selection of MOP, pre and during COVID-19

2. **Null Hypothesis H_0:** There is no significant correlation in the importance of brand name while making a purchase decision in both pre and during-covid scenario
   Alternate Hypothesis : H_1: There is a significant correlation in the importance of brand name while making a purchase decision in both pre and during-covid scenario

3. **Null Hypothesis H_0:** There is no significant difference between the relative importance of the factors, while making a purchase decision for a refrigerator, pre and during covid-19 scenario

   Alternate Hypothesis H_1: There is a s
   ignificant difference between the relative importance of the factors, while making a purchase decision for a refrigerator, pre and during covid-19 scenario.

4. **Null Hypothesis H_0:** There is no significant difference in the geographic origin preference for buying a refrigerator, pre and during covid-19

   Alternate Hypothesis H_1: There is a significant difference in the geographic origin preference for buying a refrigerator, pre and during covid-19

REVIEW OF LITERATURE

1) P.SATHYA AND DR.R.INDIRAJITH (FEBRUARY, 2018)

- The research was done to observe the purchase behavior of consumer durable goods in Tiruvarur district.This research is anempirical study on the relationship between consumer behavior and purchase decision. The selection of variables in this current study were selected mainly on the basis of consumer durable goods, isolated studies done on consumer durable goods and other various other demographic features.
- The researcher has tried to confine its scope to a few selected and particular consumer durable items such as Air conditioners, Television, Refrigerator, Washing machine and, Grinder. The study has been done to study and analyze the factors and agents which influence and impacts the consumers' perception towards purchase behavior for FMC goods. In addition to this, the research has also helped in identifying the purchase behavior of certain rural and urban consumer durable goods in the very district.
- This study has helped in understanding that brand loyaltyis not sufficiently present when it comes to Consumer durable goods scenario. Customers anticipate ahigh level of satisfaction from the brand they purchase. If not matched, this further leads tothe orientation towards changing the brand to acquire more benefits from the product.
- The study clarified that consumers durable goods is all important products but available for all. This study also indicates the level of importance attached to the various quality characteristics of

the product by the different segments of consumers, who differ in economic, educational, emotional and other characteristics.

- One major finding of the research is that the brand loyalty is not sufficiently found among the consumers durable goods. Enhancement in product choice and decline in real prices, matched by increased consumer incomes have driven the market growth rate to dizzy heights. In the current scenario, brands have become the most valuable assets that businesses can possess

2. MR. PARAMANAND DASAR*, DR. S.G. HUNDEKAR** & MR. MALLIKARJUN MARADI

- The study clarified that respondents are highly nfluenced by company's advertisements which are imparted through various medias like radio, TV, news papers and magazines, another important influencing factor is dealers and good name.
- The study also depicts the lead time between purchase decision and actual purchase of durables. In case of less valued items, the lead time is within fortnight and less than a week i.e. 34.50% reason behind it is that it is lesser in value as well as necessary for its urgent requirement when compared with other durables. In case of high worth and costlier durables like Washing machine and Refrigerator the lead time is more as compared to other durables i.e. 65.50% and 47.50%
- Consumer durables are normally more valued, high priced products and not frequently purchased products. Hence, during purchasing these consumer durables, brand awareness becomes a significant factor which provides assurance of quality, good performance and durability. Higher awareness regarding the brands of the durables indicates that customers are more conscious and they have good knowledge about different company's products.
- In the case of washing machine, refrigerator brand awareness among the respondents is very low only purchased brand known by all the respondents. It is rarely found that consumers' familiarity with other same products brands of the durables.However, In the case of more familiar, more and highly frequently visible consumer durables like fan/iron box and TV, consumers well aware of more than three brands of companies.

3. MIR JAVEED IQBAL and PRADEEP KUMAR SHARMA,(March,2018)

- The study is focused at consumer buying behaviour of durable goods in Bhopal District of MP. Scope of the research is limited to selected durable goods such as Washing Machines, Televisions, Refrigerators, and Computers. So the focal point of the study is perception of consumers and before and after purchase behavioral activities.
- The study has also been aimed to analyse and compare the buying behaviour of consumers on the basis of Income. Further, it was also found that people with higher qualification and professionals show greater interest in purchasing the durable goods in contrast to the non-professional and consumers with lower qualification. It is also worth mentioning here that income has an impact on the decision of purchasing durable goods. The people having higher income prefer durable goods in comparison to the people having less monthly income.

4. Dr. Umesh R. Dangarwala& Ms. Jaspreet B. Minhas (may, 2018)

- The research paper deals with the study on pre purchase and post purchase behaviour of consumer durable goods in selected territories. The objective of this research paper was to analyse the factors influencing consumers' perception towards pre purchase behaviour and post purchase behaviour of consumer durable goods.
- The study suggests that the consumer is brand-conscious, but not necessarily brand-loyal, and might even pick up a reliable private label if it offers good price and quality values

- It is found that customers with high and medium income level prefer to buy the products from the private costly brands.

5. Seema Johar, (Deccember, 2015)

- The consumer behaviour while purchasing durable products is strongly affected by some economic, social, cultural and psychological factors. The present research is being done for an intensive empirical survey of the various factors influencing the buyer's behavior on consumer durables in Loni town (Ghaziabad)
- The study has found that, the distinctive feature of the higher income group respondents is that, they shop as and when they like. Similarly, the housewives shop almost weekly but the career going female do shop; only when need arises.
- Factor influencing the purchase of white good are quality of the product rather than the any attribute followed by brand name, price, and features and after sales service. Among all other brands LG stands first. Thus the buyer behaves positively when Quality and branded product is purchased by them.

6. Dr.G.Sudharasan Reddy and Ms. Rajarashmi. P.S (2004)

- The objective of this study are to study the brand awareness of the buyers, toknow the income level of microwave buyer, to extract the source of information throughwhich buyers came to know aboutmicrowave, to know buyers preference of brandedproduct, to determine the decision maker, to identify the factors influencing the buyers whilepurchasing microwave product, to identify the most favourable choice of microwave, toprovide suggestions to microwave companies.
- Based on the objectives the findings are: theincome levels of the buyer are above 15,000.The print media is the important source ofinformation for the purchaser. Almost all the respondent prefers the branded product. Thestudy reveals that the wives are the decision maker's followed by the husband and wifediscussion.
- Factor influencing the purchase of microwave are Quality of the product ratherthan the any attribute followed by brand name, price, and features and after sales service.Among all other brands LG stands first. Thus the buyerbehaves positively when Quality andbranded product is purchased by them.

7. Priti Jha, Dav Centenary College, Faridabad, Haryana, India (December-2017)

- The objectives of this paper was to understand the concept of consumer durable (white) products, to study the socio-economic profile of the selected consumers , to identify the important attributes impacting consumer buying behaviour in the purchase of consumer durable (white) products.
- This research was undertaken in Delhi NCR, for a total of 150 respondents residing in the Delhi National Capital region. Convenience sampling technique was followed for collecting response from the respondents.
- The research came to a conclusion that, for 64.0% of the respondents, price is a very important attribute while purchasing durable products. In the study, 58% of the respondents gave energy saving attribute as very important attribute, for 52.0% of the respondents, guarantee was very important attribute, and 58.7% of the respondents gave very much importance to after sale service attribute.
- For 48.0% of the respondents, brand name was very important attribute for them. For 42.0% of the respondents, durability was very important attribute for them. For rest of the respondents, model, features, color, show room location, credit facility, maintenance was very important attributes for them when they purchase consumer durable (white) products.

8.) Johanna Kardel (vzbv) and the DigiLabel Team (June, 2016)

- This study is a Europe based research. In this study, the consumers were exposed during their purchase decision to a large number of labels. The European energy label is one of them and is generally quite familiar to consumers. More than 80% of European consumers know the energy label or have noticed the label before. 15 ' 16 ' 17 In Switzerland 70% of consumers were able to correctly identify the product groups carrying an energy label.18

- Besides the fact that the energy label is recognized, various researches have shown that the energy label is generally seen as a label for quality. As a result, consumers are ready to pay more for the products concerned. Moreover, it has also been proved that the energy label increases the focus on energy-related information.

- During the research, four out of ten consumers state that the environmental impact of a product or service influences their purchasing decision . Energy related performance such as consumption or efficiency has an important impact for consumers and often it is given a much higher priority than the design or the brand in surveys. Socio-economic parameters have an impact on the knowledge of the energy label.

- When looking at sales data throughout Europe an impact of household income on the choice of energy-efficient products seems very likely as the share of A+++-products cannot be fully explained by the level of energy prices or awareness for environmental concern.

- As per the research, consumers were willing to pay more for the highest efficiency class. A recent survey found out that 6 out of 10 Italian consumers would pay up to 100 euro more for energy-efficient products. However, it has been found that consumers are willing to pay more than twice as much for an A-product in the A-G-scale than for an A++-product in the A+++-D-scale.

9.) ChamhuriSiwarb , Er Ah Choyc and NorshamlizaChamhuri

- This paper was designed to explore the influence of energy labelling toward the consumer purchasing behavior. Based on information from a total of 117 samples, this paper finds mean correlations between consumers' awareness, knowledge, attitude, social norm and energy efficiency labels with purchase intention. Energy labelling shows a negative correlation with green purchasing behaviour.

- This finding states that energy labelling turned out to be useless to deliver a good message in encouraging consumer buying decision. Energy labels have to be understood, trusted and valued as a tool for consumers' decision making. It is believed that the use of energy labels alone is not considered enough to protect the environment. Thus, all the stakeholders should enhance some other factors as a complementary to the energy labelling programs.

- As per the research, public financing is essential to jump start a green economic transformation, since cost is still major concern of consumer especially for lower income group to purchase green products innovation.

10) Manisha Jain, Anand B Rao, and Anand Patwardhan

- The study has been done to approximate implicit value for different levels of star rating in air conditioners and refrigerators using discrete choice experiment on a sample of households in India. The difference in implicit values of two levels of star rating was taken as the marginal willingness to pay for one level of star rating over the other. This value indicates consumers' willingness to pay for incremental capital cost and is calculated for the overall population and for consumer specific segments based on awareness of star rating. The savings in operating cost was calculated using the information on electricity consumption on labels and assumptions on usage and marginal rate of electricity.

- A trend of decline in long-term appliance purchase prices has also been witnessed, despite increase in energy efficiency (IEA, 2015). A number of studies have estimated consumers' willingness to pay for labels and for higher efficiency as indicated on labels. Ward et al. (2011) estimated that consumers are willing to pay $250-$350 more for a refrigerator that has energy star label as compared to others. Shen and Saijo (2009) found that the consumers are willing to pay 7pprox. $40 for a unit increase in efficiency rank in air conditioners.

11. Tanushri Banerjee Arindam Banerjee (W.P. No. 2015-06-01 June 2015)
- The aim of this research is to study the growing energy saving consciousness and environmental friendly considerations while making purchase decision in India. This is in the context of the purchase of 2 home appliances – the refrigerator and the air-conditioner in Gujarat post 2010t.
- It was observed that during purchase of household appliances, customers have also taken into consideration the "green" aspects of the product. Hence, the decision to purchase got influenced by the advantages offered by the energy efficient product, in the long and short run.
- The research has provided an understanding of the various parameters that are considered and to what degree during the purchase of air-conditioners and refrigerators. Which particular parameters provide towards the consumer choosing an energy efficient (star rated) product during the purchase.

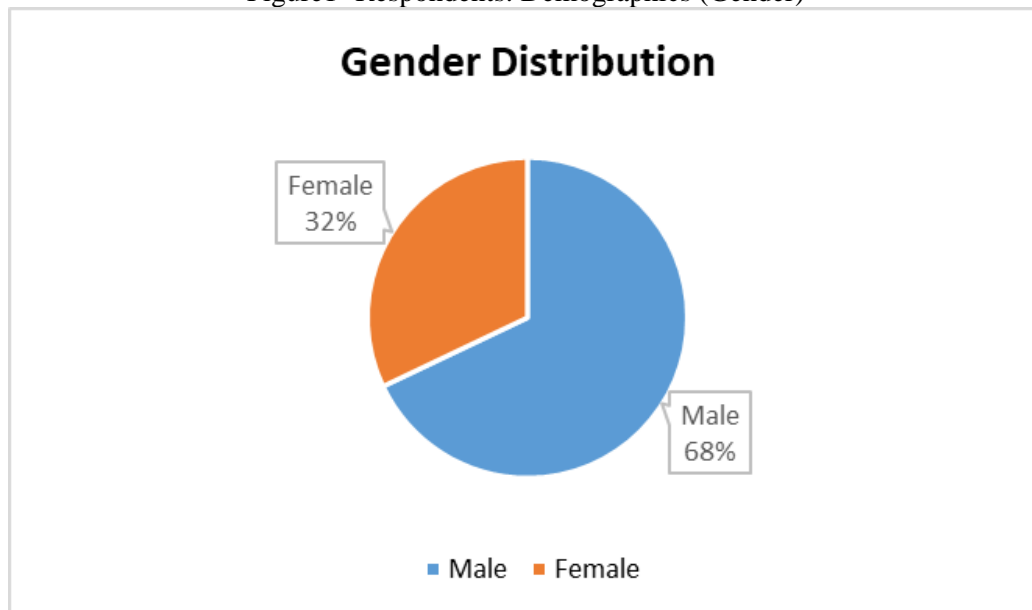## DATA ANALYSIS

Figure1- Respondents: Demographics (Gender)

Gender Distribution

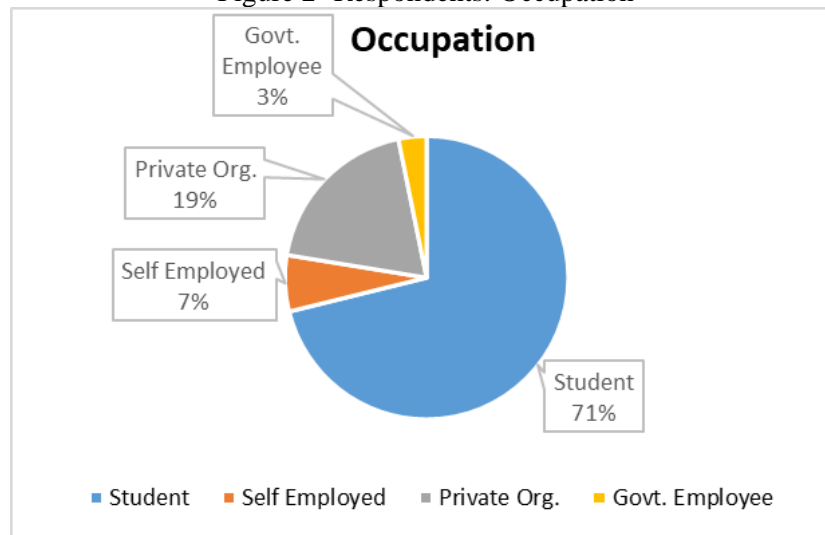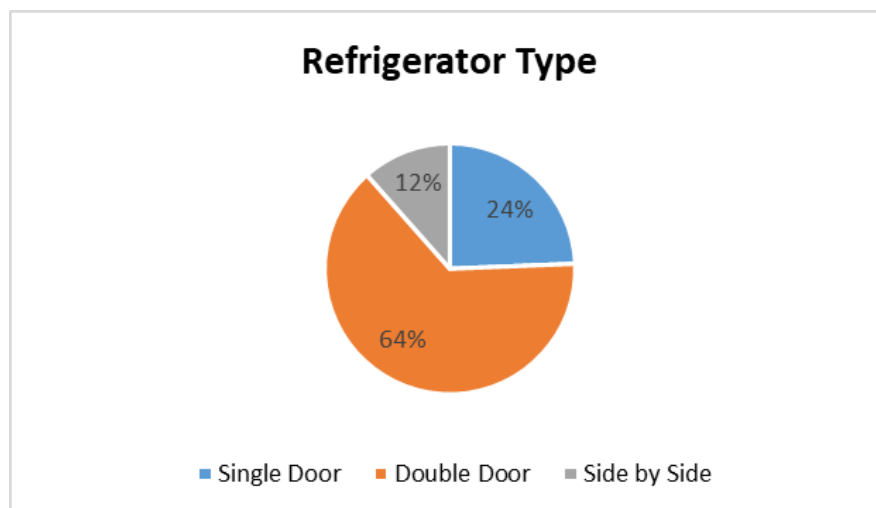Female 32%

Male 68%

■ Male ■ Female

Figure 2- Respondents: Occupation

Figure 3- Respondents: Choice of Refrigerator type

RELIABILITY TEST

Table 1: Case Processing Summary

		N	%
Cases	Valid	155	99.4
	Excluded[a]	1	.6
	Total	156	100.0

 a. Listwise deletion based on all variables in the procedure.

Table 2 : Reliability Statistics

Cronbach's Alpha	N of Items
.540	6

Table 3: Item Statistics

	Mean	Std. Deviation	N
Medium of purchase (generally)	1.70	.658	155
Medium of purchase during C-19	1.99	.830	155
Geographic-origin-brand preference (pre-covid)	2.13	1.252	155
Geographic-origin-brand preference during Covid-19	2.62	1.359	155
Brand Importance level (pre-covid)	4.32	.700	155
Brand Importance during Covid-19	4.23	.761	155

Here, only those items have been considered for the reliability test which have a role to play in the objective of the research and hypotheses. Unrelated items have not been taken for reliability tests.

Table 4: Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Medium of purchase (generally)	15.28	8.747	.260	.511
Medium of purchase during C-19	14.99	8.350	.241	.514
Geographic-origin-brand preference	14.85	6.119	.405	.425
Geographic-origin-brand preference during C19	14.35	6.023	.348	.470
Brand Importance level	12.66	8.577	.275	.504
Brand Importance during C-19	12.75	8.566	.236	.516

Interpretation

a. Cronbach's alpha is 0.540, which is greater than 0.5. Since, this is an ideally acceptable value, hence this is a strongindication of a considerable reliability and a good degree of internal consistency in data.

b. Also, except two values in the correlation table, all other values are greater than 0.5. Hence, this depicts that there is a convergent relationship between them.

HYPOTHESES TESTING:

1) Null Hypothesis H_0: There is no significant difference in the selection of MOP, pre and during COVID-19.

Alternate Hypothesis H_1: There is a significant difference in the selection of MOP, pre and during COVID-19

Crosstabs

Table 5: Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Medium of purchase (generally) * Medium of purchase during C-19	156	100.0%	0	.0%	156	100.0%

Table 6: Medium of purchase (pre-covid) * Medium of purchase during Covid-19 Crosstabulation

Count

		Medium of purchase during Covid-19			Total
		Chain Stores	Retail Stores	E-Commerce	
Medium of purchase (pre-covid)	Chain Stores	41	6	17	64
	Retail Stores	11	43	20	74
	E-Commerce	2	0	16	18
Total		54	49	53	156

Table 7: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	77.647[a]	4	.000
Likelihood Ratio	78.988	4	.000
Linear-by-Linear Association	30.095	1	.000
N of Valid Cases	156		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.65.

Interpretation

1. Since, the level of significance or the p value Is equal to 0.000 and is less than 0.05, hence the null hypotheses is rejected.

2. This clearly indicates that there is a significant difference in the selection of MOP pre and during covid-19, while buying a refrigerators.

2)**Null Hypothesis H_0:** There is no significant correlation in the importance of brand name while making a purchase decision in both pre and during-covid scenario

Alternate Hypothesis : H_1: There is a significant correlation in the importance of brand name while making a purchase decision in both pre and during-covid scenario

Table 8: Correlations

		Brand Importance level	Brand Importance during C-19
Brand Importance level	Pearson Correlation	1	.706**
	Sig. (2-tailed)		.000
	N	156	155
Brand Importance during C-19	Pearson Correlation	.706**	1
	Sig. (2-tailed)	.000	
	N	155	155

**. Correlation is significant at the 0.01 level (2-tailed).

Interpretation:-

1. Since the correlation is significant and the **Pearson correlation coefficient (0.706)** is greater than **0.5**, hence the null hypothesis is **rejected.**

2. This implies that **there is a significant correlation** in the importance of brand name while making a purchase decision in both pre and during-covid scenario.

3) Null Hypothesis H_0: There is no significant impact of covid-19 lockdown on demand of e-learning websites/certification courses

Alternate Hypothesis H_1: There is a significant impact of covid-19 lockdown on demand of e-learning websites/certification courses

Table 9: CHI-SQUARE TEST (USING EXCEL CHITEST Fn)

PRE-COVID	Rank-1	Rank-2	Rank-3	Rank-4	Rank-5	Total
Aesthetics	39	15	21	23	58	156
Price	47	49	17	26	17	156
Star Rating	14	43	67	22	10	156
After sales services	13	25	35	61	22	156
Technology Used	43	22	16	25	50	156

During Covid	Rank-1	Rank-2	Rank-3	Rank-4	Rank-5	Total
Aesthetics	43	19	29	18	47	156
Price	55	42	14	27	18	156
Star Rating	13	40	63	25	15	156
After sales services	11	29	32	59	25	156
Technology Used	37	23	18	27	51	156

P-Value (Using excel chitest function) = 0.4458

1.Since the p-value(level of significance) is 0.445, and is greater than 0.05, hence, null hypotheses is accepted.

2.This clearly depicts that, there is no significant difference between the relative importance of the factors, while making a purchase decision for a refrigerator, pre and during covid-19 scenario.

4) **Null Hypothesis** H_0**:** There is no significant difference in the geographic origin preference for buying a refrigerator, pre and during covid-19
Alternate Hypothesis H_1**:** There is no significant difference in the geographic origin preference for buying a refrigerator, pre and during covid-19

CROSSTABULATION

Table 10: Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Geographic-origin-brand preference * Geographic-origin-brand preference during C19	156	100.0%	0	.0%	156	100.0%

Table 11: Geographic-origin-brand preference * Geographic-origin-brand preference during C19 Crosstabulation
 Count

		Geographic-origin-brand preference during C19			
		South Korea (LG and Samsung)	US (Whirlpool)	India (Voltas)	Total
Geographic-origin-brand preference	South Korea (LG and Samsung)	58	5	19	82
	China (Haier)	0	1	2	3
	US (Whirlpool)	4	24	14	42
	India (Voltas)	0	1	27	28
	Sweden (Eletrolux)	0	0	1	1
Total		62	31	63	156

Table 12 Chi-Square Test

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	113.290[a]	8	.000
Likelihood Ratio	116.260	8	.000
Linear-by-Linear Association	62.351	1	.000
N of Valid Cases	156		

a. 6 cells (40.0%) have expected count less than 5. The minimum

expected count is .20.

INTERPRETATION

1. Here, since the level of significance or the p value is equal to 0.000 and is less than 0.05, hence the null hypotheses is rejected.
2. This implies that there is a significant difference in the geographic origin preference(among consumers) for buying a refrigerator, during pre and during covid-19

FINDINGS

- The study has been conducted keeping in focus the Delhi-NCR region. A majority of the total of 156 respondents are students and private organization employees holding nearly 90% of the total sample size.
- Nearly 70% of the total respondents are males and 30 percent are females. The study has also shown that more than 60% of the respondents prefer double door refrigerators both pre- and during covid scenarios. This shows that people still stick to their choices when it comes to the purchase of a white good such as a refrigerator, be it pre or during covid conditions.
- The research also helped us find out that for nearly 94% of the total sample size find "brand" as a very important factor for making a purchase decision, while for remaining 6%, brand is not important while purchasing a refrigerator.
- After testing the first hypotheses, it got pretty much clear that there has been a significant difference in the preference of people towards medium of purchase when the pre-covid and during-covid scenarios are considered.

Here is a comparative bar chart attached which shows the change in the preference towards medium of

purchase pre and during-covid.

Figure 4- Medium of purchase comparison
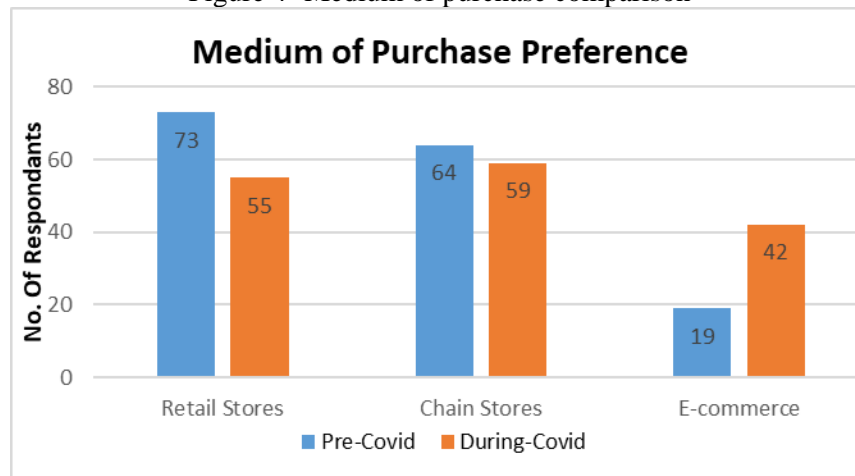
This chart clearly depicts that there has been a drastic change in the preference of MOP while buying a refrigerator in pre-covid and during-covid scenario. Especially, E-Commerce preference has got more than doubled in the Covid- scenario.

- The research has also shown that more than 40% of the total respondents prefer south Korean brands such as LG and Samsung when it comes to the purchase of refrigerators during both pre and during-covid scenarios.
- The research has also cleared that there is not much difference in the perception of people towards the importance of brand while purchasing the refrigerator (pre vs. during covid). However a significant shift towards the online mode of purchase has been witnessed during the study due to COVID-19.
- After testing the 4th hypothesis, the level of significance or the p value comes out to be equal to 0.000 and is less than 0.05, hence the null hypotheses is rejected.This implies that there us a significant difference in the geographic origin preference(among consumers) for buying a refrigerator, during pre and during covid-19. This is also supported by a graph which is as follows.

Figure 5
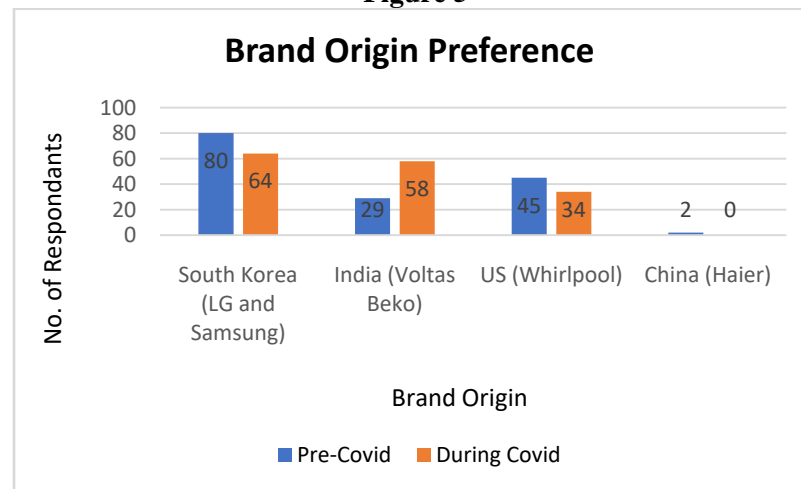
In this graph, it is very much visible that there is a drastic shift of consumers towards Voltas Beko in the during-covid scenario, as compared to that of pre-covid scenario. The preference for Voltas Beko has exactly doubled in the during covid scenario.

CONCLUSION

The mainobjective of the research paper was to study the impact of COVID-19 upon the consumer buying behaviour for refrigerators. However such a study has never been done in the past, but some relevant studies related to consumer behaviour towards purchase of white goods and other consumer durables are available. These studies were taken into consideration in order to understand a general trend and seasonal scenarios for the purchase of such products. Some of the literatures have been found quite helpful and relatable , however, some have turned out to be completely opposite to what the results of this current studies depict. This is because of a completely different pandemic scenario and a tough economic environment.

- In the research, there are various variables which have been studied, but only 8 factors have been studied which have a major role in the objectives of the research and the hypotheses being studied. These factors are all independent of each other.
- The impact of COVID-19 has been studied by studying the differences in the responses given by the respondents for certain variables (pre and during-COVID scenario). SPSS and MS-Excelsoftware have been used to conduct the data analysis.
- In order to test the first hypotheses, Cross Tabs and Chi-Square test has been used considering Medium of Purchase (MOP) in pre-covid scenario, in rows and MOP(during COVID), in columns. The significant value which is lesser than 0.05, clearly indicates that the null hypothesis has to be rejected. This depicts, that there is a significant difference in the selection of Medium of purchase for refrigerators in pre and during-COVID scenario. In order to clarify this, here is a chart which clearly shows, that there has been a significant drift of MOP preference
- For the Second Hypothesis, Correlation analysis has been used and a positive correlation was found between brand importance level (pre-COVID) and brand importance LEVEL (during COVID).
- For the third hypothesis, Chi-Square analysis has been used in order to infer whether there is a significant difference in the perception of consumers towards the rank-wise importance of 5 factors including price, brand, aesthetics, technology and star rating, in both pre-covid and during-covid scenarios.Since the p-value(level of significance) is greater than 0.05, hence, null hypotheses is accepted. Hence there is no significant difference in the ranks given to various

factors), pre and post covid scenario. In hypothesis-4, Chi-square test has been used in order to study the difference in the perception of respondents, towards the geographic-origin of the brands of refrigerators (pre and during-COVID). Since, the level of significance or the p value Is equal to 0.000 and is less than 0.05, hence the null hypothesis got rejected.

- Apart from the Chi square test done for the same hypothesis, Garrett Ranking test has also been applied for the same. The figure is as follows.

Table14: Gareett Ranking

PRE-COVID		Rank-1	Rank-2	Rank-3	Rank-4	Rank-5	Total
Aesthetics		39	15	21	23	58	156
Price		47	49	17	26	17	156
Star Rating		14	43	67	22	10	156
After sales services		13	25	35	61	22	156
Technology Used		43	22	16	25	50	156

During Covid		Rank-1	Rank-2	Rank-3	Rank-4	Rank-5	Total
Aesthetics		43	19	29	18	47	156
Price		55	42	14	27	18	156
Star Rating		13	40	63	25	15	156
After sales services		11	29	32	59	25	156
Technology Used		37	23	18	27	51	156

Table 15: Garrett Ranking 2

Rank	$100(R_{ij}-0.5)/N_j$	Garrett Value
1	10	75
2	30	60
3	50	50
4	70	40
5	90	25

Rank	$100(R_{ij}-0.5)/N_j$	Garrett Value
1	10	75
2	30	60
3	50	50
4	70	40
5	90	25

Table 16: Garrett Ranking Final

PRE-COVID	Rank-1 *75	Rank-2 *60	Rank-3*50	Rank-4*40	Rank-5*25	Total	Average Score	RANK
Aesthetics	2925	900	1050	920	1450	7245	46.44231	4
Price	3525	2940	850	1040	425	8780	56.28205	1
Star Rating	1050	2580	3350	880	250	8110	51.98718	2
After sales services	975	1500	1750	2440	550	7215	46.25	5
Technology Used	3225	1320	800	1000	1250	7595	48.6859	3

DURING-COVID	Rank-1 *75	Rank-2 *60	Rank-3*50	Rank-4*40	Rank-5*25	Total	Average Score	RANK
Aesthetics	3225	1140	1450	720	1175	7710	49.42308	3
Price	4125	2520	700	1080	450	8875	56.89103	1
Star Rating	975	2400	3150	1000	375	7900	50.64103	2
After sales services	825	1740	1600	2360	625	7150	45.83333	5
Technology Used	2775	1380	900	1080	1275	7410	47.5	4

- On applying Garrett ranking test, we got to calculate the rankings given to various attributes which influence the purchase decision of customers while buying a refrigerator. It is very clearly visible that during both pre-covid and during-Covid scenarios, respondents have given a nearly similar ranking to these five factors. In fact, the first and second rank have remained the same for price and star rating respectively for both the scenarios. Even the least important attribute has remained consistent in both pre and during covid scenarios. Hence, this clearly states that the null hypotheses is accepted. This also states that there is no significant difference between the relative importance of the factors, while making a purchase decision for a refrigerator, pre and during covid-19 scenario.

- Since the p-value(level of significance) is greater than 0.05, hence, null hypotheses is accepted. Hence there is no significant difference in the ranks given to various factors), pre and post covid scenario. In hypothesis-4, Chi-square test has been used in order to study the difference in the perception of respondents, towards the geographic-origin of the brands of refrigerators (pre and during-COVID). Since, the level of significance or the p value Is equal to 0.000 and is less than 0.05, hence the null hypothesis got rejected.
- This implicates that there is a significant difference in the preferences of customers regarding the geographic-origin of brands due to COVID-19.

RECCOMENDATIONS

- One of the most important findings from hypotheses-1 state that there is a significant difference in the preference of customers for medium of purchase.
- The preference towards e-commerce as a medium of purchase for refrigerators has doubled from 12% to more than 25%. Companies operating in the FMCD goods must take a hint from this. They can actually work upon their distribution strategies and an focus upon lucrative schemes to

allure their customers by providing them highly accessible and user friendly e-commerce platforms. This can help them get back on the track in terms of sales.

- Apart from this, since the second hypothesis has cleared that the importance of brand has not been impacted much by the covid-19, the key market players shall still keep working upon maintaining their brand equity and can come up with better marketing strategies in order to keep their customer base sustained and eradicating their weak competitors.
- A strong inclination of respondents has been seen towards Indian refrigerator brands such as Voltas Beko, which is a collaboration of an Indian and European company. This can be due to COVID and having a bad perception towards Chinese products.The study suggests that the number of respondents preferring Indian brands for buying a refrigerator during Covid-19(18.2%), is nearly double of that of pre-covid-19 (36.7%). This result can be inferred as an opportunity by Indian brands to enhance their marketing strategies and expand their customer base, eventually increasing their market share in the local market.

LIMITATIONS

- The research is based on data collected from Google-Forms where maximum respondents belonged to a single city/region, so future research can cover the cities nationwide throughout a particular state and Entire Country to get accurate results.
- The sample used cannot be representative of the entire population of the country, thus it was difficult to draw a conclusion on this small sample.
- In addition to this future research could include the role of gender, occupation and age as well in studying the same variables.
- Apart from that, this one time study to infer the impact of covid-19 is not sufficient to conclude a solid outcome. There is a scope of further studies for the same aspects in the future to come, and there are very high chances that the responses and preferences might differ as the time passes and the situations get back to the normal.
- Neither this type of study nor such a pandemic situation has ever occurred before in the past. Hence, the current study is one of its kind and should be considered in its nascent stage. Moreover, this duration is not sufficient to conclude the research and consider the results as highly accurate and final. The results might differ if the study is done in a different time phase due to vigorously changing economic and political environments.

FUTURE SCOPE

- Future research can cover colleges throughout a particular state and Entire Country to get more accurate results.

- In addition to this future research could include the study of various other correlations including the role of gender, income, sex and even occupation and education.

- This research can act as a basis for further such researches to be done, with special reference to epidemics, pandemics, natural calamities and disasters and even political tensions.

- This research can also be continued for a prolonged time span to get even accurate and reliable results.

QUESTIONNAIRE

Disclaimer: *The data shared in this survey will be used for academic purpose only. It will remain confidential and will not be shared with any third party.*

INSTRUCTIONS:
- Kindly tick any one option only unless indicated otherwise.

1. Name :- _____

2. Gender: Male ☐   Female ☐   Other ☐

3. Age Group: ☐ 19-24   ☐ 25- 35   ☐ 35-45   ☐ above 45

4. Annual Income of the Individual/Household
☐ 0 lac-2lac   ☐ 2 lac- 4 lac   ☐ 4 lac-8 lac   ☐ 8 lac and above

Q5. Occupation
☐ Student
☐ Self Employed
☐ Government Employee
☐ Homemaker
☐ Other

Q6. Which type of refrigerator do / would you prefer to make a purchase for your household?
☐ Single Door
☐ Double Door
☐ Side by Side
☐ French Door
☐ Bottom Freezer

Q7. Considering the current COVID scenario, and its adverse impacts, which type of refrigerator would you prefer to purchase now?
☐ Single Door
☐ Double Door
☐ Side by Side
☐ French Door
☐ Bottom Freezer

Q8 . Is brand an important aspect for you while making a purchase decision
☐ Yes
☐ No

Q9. How much importance does the "brand name" hold while buying a refrigerator?
Least Important ☐ ☐ ☐ ☐ ☐ Most Important

Q10. Considering the current COVID scenario, and its impacts, how much importance would the "brand name" hold, if you buy a refrigerator now? *

    Least Important☐ ☐ ☐ ☐ ☐Most Important

Q12. On the basis of their importance, rank the following five aspects while making the purchase of a refrigerator of your choice/requirement (Without repetition)

	Rank-1	Rank-2	Rank-3	Rank-4	Rank-5
Aesthetics	☐ ☐	☐	☐	☐	
Price	☐ ☐	☐	☐	☐	
Star rating	☐	☐	☐	☐	☐
After sales	☐ ☐	☐	☐	☐	
Technology	☐ ☐	☐	☐	☐	

Q13. Considering the current COVID scenario, and its adverse impacts, how would you rank the following aspects, if you plan a refrigerator purchase now? *

	Rank-1	Rank-2	Rank-3	Rank-4	Rank-5
Aesthetics	☐ ☐	☐	☐	☐	
Price	☐ ☐	☐	☐	☐	
Star rating	☐	☐	☐	☐	☐
After sales	☐ ☐	☐	☐	☐	
Technology	☐ ☐	☐	☐	☐	

Q14.Select the geographic origin of the brand which you would generally prefer to select while buying a refrigerator *
☐ South Korea (LG and Samsung)
☐ China (Haier)
☐ US (Whirlpool)
☐ Sweden(Electrolux)
☐ India(Voltas)

Q15. Considering the current COVID scenario, and its adverse impacts, which brand (as per its geographic origin) would you prefer, if you have to purchase a refrigerator in the present.
☐ South Korea (LG and Samsung)
☐ China (Haier)
☐ US (Whirlpool)
☐ Sweden(Electrolux)
☐ India(Voltas)

Q16. What medium of purchase do/would you generally opt to by a refrigerator or any other such consumer durable product
☐ Retail Stores
☐ Chain Stores
☐ E- Commerce

Q17. What medium of purchase would prefer in the current COVID scenario in order to buy a refrigerator or any other such consumer durable product
☐ Retail Stores
☐ Chain Stores
☐ E- Commerce

Q18. Rank "accessibility"(availability of the product near you) as a factor, in terms of its importance while purchasing a refrigerator
Least Important☐ ☐ ☐ ☐ ☐Most Important

Q.19How much important is your family's social class &societal status while selecting a model/brand of refrigerator to purchase?
Least Important☐ ☐ ☐ ☐ ☐Most Important

Q20. Will social class and societal status still play an important role while you purchase a model/brand of refrigerator in the current COVID scenario?
Definitely Yes☐ ☐ ☐ ☐ ☐Not at all

Q21. Do you think that the COVID-19 outbreak and the subsequent lock down has impacted your decisions while buying a refrigerator or other similar products?
☐Yes it has drastically impacted my decisions
☐Yes, but very moderatelyimpacted
☐No, my purchase decisions are still the same

Q22.In what way would covid-19 impact your purchase decisions in the present scenario

☐I will rather purchase a similar yet cheaper refrigerator now
☐I might think of switching the brand if the price is low
☐ would delay my purchase for a couple of months
☐ I will compromise on a refrigerator having lesser features, yet similar capacity
☐ I would simply cancel my plan of purchase and save money

Q23. What are the reasons which might hinder or significantly impact your purchase decisions while you purchase a refrigerator (considering the current COVID conditions) ?
☐Financial uncertainty for future conditions
☐Risk of getting infected if I go out for shopping
☐ would delay my purchase for a couple of months
☐ Inconvenience in getting out during lock down
☐ Lack of disposable income

SOURCES AND CITATIONS

•   P.Sathya and Dr.R.Indirajith (February, 2018) ; A Study on Purchase Behavior of Consumer Durable Goods with Special Reference to Tiruvarur District; International journal of Scientific Research and Management

•   MR. PARAMANAND DASAR, DR. S.G. HUNDEKAR & MR. MALLIKARJUN MARADI; CONSUMER BEHAVIOUR ON CONSUMER DURABLES WITH REFERENCE TO BIJAPUR DISTRICT; Global Institute of Research and Education.

•   MIR JAVEED IQBAL and PRADEEP KUMAR SHARMA (March 2018) ; CONSUMER BUYING BEHAVIOUR OF DURABLE GOODS: A CASE STUDY OF BHOPAL ; International Journal of Management and Applied Science, ISSN: 2394-7926

•   Seema Johar; (2015) TO STUDY THE CONSUMER DECISION MAKING BEHAVIOR TO PURCHASE OF DURABLE GOODS (WITH SPECIAL REFERENCE TO FEMALE IN LONI TOWN); International Journal of Applied And Pure Science and Agriculture

•   Priti Jha (2017); A STUDY OF CONSUMER BUYING BEHAVIOUR TOWARDS SELECTED CONSUMER DURABLE (WHITE) PRODUCTS (WITH SPECIAL REFERENCE TO DELHI NCR); International Research Journal of Management and CommerceJohannaKardel (vzbv) and the DigiLabel Team; (30 June, 2016); Consumer Understanding of the Energy Label; DigiLabel-Project (Pocket Watt)

•   ChamhuriSiwarb , Er Ah Choyc and NorshamlizaChamhuri; Evaluating the Role of Energy Efficiency Label on Consumers' Purchasing Behaviour (ICESD 2014: February 19-21, Singapore)

•   Manisha Jain1 , Anand B Rao and Anand Patwardhan, Impact of standards and labeling program on consumer discount rate: An experimental study in India; International Association for Energy Economics

•   Tanushri Banerjee, Arindam Banerjee (W.P. No. 2015-06-01 June 2015); Evaluating the Purchase Process of Household Appliances Accounting for Consumers' Attitudes towards Eco-Friendly and Sustainable Consumption Behavior; Indian Institute of Management, Ahmedabad, India