A Study On Customers' Loyalty And Behavioural Change For Medicinal Hygiene Products During Covid-19- With Special Reference To Kolkata And Its Adjacent Areas:

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Abstract:

The Covid-19 has become incubus across the globe and mankind is counting the date when they will get rid of such a miserable condition which has changed human behaviour and both the thinking and awareness of life have also been significantly changed. Corona virus pandemic is worsening day by day and with it even the problem of falsified and substandard medicine is increasing enormously. World Health Organisation (WHO) on 31st March published a medical alert to warm consumers and other health care professionals and health authorities regarding false medical products that surely claims to treat COVID-19. In order to reflect and analyse this current situation this paper deals with different loyalty perceptions of the respondents towards the medicinal hygiene products across the demographical, behavioural and awareness constructs. With 125 respondents and several non- parametric tests (like Wilcoxon Signed Rank Test, Mann - Whitney U Test and Kruskal Wallis Test) as well as regression and correlations tests applied to the study, different conclusions have been drawn from there. From the first construct of the analysis of behavioural and awareness changes before and during the pandemic there has been a statistically significant difference towards availability of medicinal hygiene products, effort and time, quality, price and frequency of purchase before and during covid-19. From regression analysis strong linear dependency of Loyalty index of consumers on Usefulness, Price value and Brand value has been extracted. Loyalty perceptions has also been analysed across demographic constructs. Lastly correlation matrix exactly shows the relationships between the main construct of loyalty with the brand value (indexed), price value (indexed) and usefulness value (indexed). Some managerial implications can also be found out from the study in the sense that the marketers can get an idea towards consumers' attitudes and shopping behaviour as because COVID-19 is greatly influencing the shopping of personal hygiene products with an accelerated shift to digital purchases.

Key Words: Covid-19, WHO, Medicinal Hygiene Products, Loyalty Index, Non- Parametric Tests, Wilcoxon Signed Rank Test, Mann - Whitney U Test, Kruskal Wallis Test, Behavioural Change.

Introduction:

Development, Urbanization, Scientific technology improvement etc are key objectives of society of modern days. For fulfilment of these objectives, ecological imbalance and environment degradation have become the common phenomenon which brings human beings at health danger. People should remain aware of such impending health problem and should keep themselves hygiene by performing a series of practices to keep preserving health (Wikipedia). WHO states that personal hygiene also prevents several diseases. In India, achievement in population health is not satisfactory (social.niti.gov.in). It is a duty of people to buy medicinal hygiene products so as to prevent them from environmental diseases as much as possible.

The entire world is now involved in an invisible war with a deadly merciless virus Covid-19 which is spreading rapidly and taking thousands of lives. World Health Organisation as well as other health organisations are suggesting to maintain hygiene and social distancing. This situation creates an immense importance of medicinal hygiene products to the minds of consumers who are aware and unaware of such products before the pandemic. Market of such products will be increased manifold since its demand will persist in post pandemic world as well as in India and awareness level of unaware persons also have increased(Bagaria 2020). To prevent from human health diseases during Covid-19 pandemic, safely managed water, sanitation and hygiene (WASH) are essential in resource constrained countries in a cost-effective way (The World Bank,2020).

Satisfaction and loyalty are the two main components of consumer buying decision. It takes much importance to marketers(Khan, 2013).Customer satisfaction and customer loyalty are the two sides of same coin because a satisfied customer becomes a loyal customer. When a customer gets a certain level of satisfaction, loyalty level will go up and vice versa. Positive impact will increase positive experience which is spread among other consumers, it will augment both profitability and sales of the company (AI-Maslam 2015)

Consumers will purchase all those products or services to which they have loyaltyand satisfaction and loyalty also depend on some other factors too (Ammaret.al 2015). Covid-19 pandemic has changed attitude, behaviour and buying habits of consumers because they are buying differently, living differently and thinking differently. Accenture research study found five types of consumers who are responding to this crisis in variety of ways, such as (i) the worrier consumers who are likely to be stressed and anxious about their future; (ii) the individualist consumers who think about themselves and try to maintain status quo; (iii) the rationalist consumers who keep themselves informed about the situation and purchase only advised products; (iv) the activist consumers who try to support others in the society and (v) the indifferent consumers who do not care of this situation and carry on their business as usual.

Conceptual Framework:

Products are bundle of benefits to satisfy unlimited human wants. Every product is designed to mitigate some particular needs that a human being face. If the product meets the customer's expectation, customer becomes satisfied and if the product satisfies customer more than his expectation, he becomes delighted. Such products create loyalty in mind of customers. Therefore, among other factors satisfaction is a strong factor to create loyalty (Toufaily, 2013). Loyalty means commitment of customers to a brand (Schmitt,2010). A loyal customer rebuys the same products whatever the situation comes in future (Oliver, 1999).

Gremler and Brown (1999) has bifurcated customer loyalty into three different types which include Behaviour loyalty that means repeating buying behaviour, Intentional loyalty which states possible buying intention, and Emotional loyalty that means a customer feels that the brand meets his value, ideas, and passion. Generally, customer loyalty is a behaviour aspect whereas customer satisfaction is an attitude of customer. Customer loyalty has also four stages:

1. Cognitive loyalty: It is weakest loyalty stage and is based on offering's relation to price. Consumers may switch to better price product.

2. Affective loyalty: In this stage there is strong brand awareness. That is brand is recognised. Brand is slightly preferred to others.

3. Conative loyalty: It is reinforced form of affective loyalty supported by the desire to buy the products of the same brand again and again. Three features of this stage are: willingness to recommend, cross buying intention and repurchase intention. Cognitive, affective and conative loyalty help to measure the attitudinal loyalty of consumer (Oliver, 1999).

4. Action loyalty: Here consumer can indentify brand and can relate brand to something that reflect their individual, social or financial preference.

Griffin (2002) suggested that loyalty is of four types in the market, which are: (1) No loyalty i.e. customers are not loyal with any product or service of the company and they switch very much to satisfy their needs. They have no strong attitude towards a specific product or service. (2) Inertia Loyalty i.e. consumers buy the products or service of a company because of habits and they have less attachment but rebuy intensity is high. (3) Latent loyalty i.e. consumers repeat purchase is less in spite of having high positive attitude towards the specific brand or company. This may happen due to some barriers like inconvenient store location etc. (4) Premium loyalty i.e. consumers have both high level of attachment, positive attitude as well as repeat purchase. They always have positive words of mouth and they are most preferred customers to any company. The advantages of loyal customers are: (i) less service cost; (ii) pay high price; (iii) they will act as a publicity agent. Therefore, it is better to get loyal customers than acquiring new customers (Dharmalingam et al. 2011).

Medicinal hygiene products refer to all those products that protect people from diseases. Such products include face mask, hand sanitizer, hand wash, disinfectant spray, etc. These products are altogether help to prevent the current pandemic Covis-19 until the proper vaccine or drug is discovered. These products are mostly purchased items in the market and there are lots of brands are available along with renowned brands. World Health Organisation also suggest to use hand sanitizer or hand wash as much as possible and to wear proper face mask (WHO).

Loyalty to medicinal hygiene products depends on many factors, among which there are some unique ones. Like other products, gender also may impose some effect on loyalty because women are more cautious than men. Number of old persons in home are also the important factor during covid-19, since old aged persons are more vulnerable to this disease than young members and in this regard government of India also issued guidelines for those above 60 years(www.ncdc.gov.in). Price consideration is an important element of loyalty to medicinal hygiene products. Brand value and perception of usefulness by consumers also change loyalty to these products.

Behavioural change of consumer is very crucial for marketer since consumer behaviour is very dynamic to predict. A positive change will foster the demand and vice versa. Such behavioural change may emerge due to situational externality and covid-19 acts as such for hygiene products industry. Before covid-19 set in, there were very few who used to consume hygiene products that may be due to high price, less awareness, less willingness to buy or less demonstration effect etc. During covid-19 situation, such behaviour has been changed; consumption pattern has also been changed. This study will emphasise on such behavioural changes regarding medicinal hygiene products and also focus on factors that may impact the loyalty to hygiene products.

Review of Literature:

Following research papers are studied carefully to understand the theoretical framework of the study and to find the research gap in the present study:

1. **Shih-I** (2011) stated that customer loyalty is the sense of identification of customers with a business. He also described two forms of loyalty: Behavioral loyalty and Attitudinal loyalty.. He argued that the study focused on attitudinal loyalty and behavioral loyalty. Behavioral loyalty means repurchase behavior of consumers and specific brand intension and Attitudinal loyalty means consumers' intension of specific products or service. He also asserted that loyalty is also manifested in two ways: Repeat patronage and Recommendation.

2. **Ranabhat** (2018) used the primary and secondary data in his research and found satisfaction, demographics like age, sex etc, elasticity, switching cost etc have important role on customer loyalty and stated that loyalty building gives high return to business.

3. **Abu-Alhaija** (2018) argued that three groups of loyalty determinants should be taken into consideration which are : 1) loyalty's primary determinants (PD), which include, customer's satisfaction, trust, perceived value, and perceived service quality; 2) loyalty's secondary determinants (SD), which include, other loyalty factors based on the research nature and context; and 3) loyalty's moral

determinants (MD), which include, spiritual, cultural, and religious factors of target markets. The findings of this study also stated that integrating cultural and religious influences would enhance customer's loyalty.

4.**Dash et al** (1976): In the article named "Risk and Personality-Related Dimensions of Store Choice", the researcher showed how social class is positively related to the concept of brand loyalty and how likely the people belonging to the lower class often changes the brands only to conserve their minimal resources.

5. **Hai and Seetharaman** (2009): In the paper titled "Speed of Replacement: Modelling Brand Loyalty Using Last-Move Data", the researchers tried to show that higher income consumers are very much more loyal to their brands compared to the lower income consumers. They also argued that theeffect of different income levels of the people in the study has a different effect on the brand loyalty.

6. **Zarantenello and Schmitt** (2000): In this article "Using the Brand Experience Scale to Profile Consumers and Predict Consumer Behavior", the study shows that brand experiences are the crucial factors for measuring and understanding brand trust and concepts of loyalty that can be both positively as well as negatively related, as well as durationally, affecting the brand trust and the concepts of loyalty.

7. **Waddell** (1995): in this paper "Getting a Straight Answer," the researcher established the fact that satisfaction related to a product or brand does not necessarily lead to brand loyalty that is there is an uneven relationship between satisfaction and brand loyalty.

8.**Khraim** (2011): This paper titled "The Influence of Brand Loyalty on Cosmetics Buying Behavior of UAE Female Consumers," shows that in order to make the customers brand loyal product quality plays a very important role. Consumers preferred brand name, product quality price, promotion, store environment and service quality all these factors influence and affects brand loyalty. Further analysis shows that except design all the above mentioned factors positively influences brand loyalty.

Research Gap:

After a careful analysis of existing researches, it is understood that

I.   Very less study have been conducted on medicinal hygiene products;
II.   Very less focus given on customers' loyalty on such products;
III. No such study has been found giving consideration of covid-19 situation;
IV.   Statistical tools like non parametric tests have not been used much;
V.   Study considering Kolkata and areas around it is not found enough in numbers.

Objective of the study:

a)   To study the behavioural change of consumers with regards to availability of all medicinal hygiene products, effort and time, quality, price and frequency of purchase before and during covid-19;

b)   To study the impact of gender, family size, number of old persons in family and family income on the loyalty perceptions of the respondents.

c)   To study impact of brand value, price value and usefulness value on loyalty perception of consumers towards medicinal hygiene products.

d)   To identify if there exists a correlation between loyalty value and usefulness value, brand value and price value of the respondents relating to the medicinal hygiene products (to investigate the relationship between loyalty value and usefulness value).

Research Methodology:

This study is an exploratory research in nature, with primary data collected by a well-structured questionnaire with all closed ended questions through Google form. There is also some theoretical study undertaken for the part which deals with the researchers' knowledge about the pandemic in relation with the current perceptions of the people towards the medicinal hygiene products through several existing and past research works that further led to the finalisation of the objectives. The ongoing pandemic effect that has been experienced by the respondents for at least 6 months is taken for the study. After collection of the data, the responses of 125 respondents have been kept for the analysis purpose.

The constructs of loyalty, price, brand and usefulness have been indexed by taking the means of the questions against each respondents under each prepared segment for the analysis (refer appendix). To study the effect of the behavioural and awareness changes Wilcoxon Signed Rank Test has been done using Statistical Package for Social Sciences (SPSS 16), and for analysis of the effect of demographical influence on the loyalty perceptions of respondents Mann -Whitney U Test and Kruskal Wallis Test have been applied. Further a multiple linear regression model has been formed in order to check the appropriateness of the analysis of the loyalty perceptions. Lastly correlation has been done with the indexed constructs to show the actual measurements and effects of the one variable on the other.

Limitations of the study:

a. This study takes into consideration the population from Kolkata and its adjacent areas only, covering 125 respondents. Respondents may have been more than that.

b. This study considers Loyalty, Price, Usefulness and Brand variablesonly,other variables may also be taken.

c. Sample data are collected through Google form, physical form of collection of data is not possible to collect for this study.

Significance of the study:

Covid-19 has changed the consumer behaviour and product purchase decision. The situation has brought a new era of reinforced health consciousness which create huge potential market for hygiene products industry. Therefore, it is very important to gauge the consumers' perception towards hygiene products which they are used to buying right now. There are several factors that drive their hygiene product selection, which are addition to their normal consumable products selection. It is very important to understand their loyalty to the new branded products and their experience as such a consumption situation is totally new to the consumers and early understanding of unique factors of consumers' loyalty is crucial for the industry for customer satisfaction and customer retention as well.

Data finding and analysis:

Demographic statistics:

Table 1: gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	66	52.8	52.8	52.8
	Male	59	47.2	47.2	100.0
	Total	125	100.0	100.0	

Source: SPSS

From the above table 1, it is found that out of total 125 respondents, 52.8% are Female i.e. 66 are Female and 47.2 % are Male i.e. 59 respondents are Male.

Table 2: family income per month

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rs. less than 10000	17	13.6	13.6	13.6
	10001 to 20000	18	14.4	14.4	28.0
	20001 to 30000	14	11.2	11.2	39.2
	30001 to 40000	26	20.8	20.8	60.0
	more than 40000	50	40.0	40.0	100.0
	Total	125	100.0	100.0	

Source: SPSS

From above table 2, most of the respondents i.e. 40% fall in slab of income which is more than Rs. 40,000 per month. Only 11.2 % of the total respondents fall in third slab of income which is ranging from Rs. 20,001 to 30,000.

Table 3: family size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 person	2	1.6	1.6	1.6
	2 persons	14	11.2	11.2	12.8
	3 persons	36	28.8	28.8	41.6
	4 persons	35	28.0	28.0	69.6
	more than 4	38	30.4	30.4	100.0
	Total	125	100.0	100.0	

Source: SPSS

From the above table 3, it is clearly seen that 30.4% of the total 125 respondents are under last category i.e. their family size is more than 4 persons and only 1.6% have 1 person family size. 3 persons and 4 persons family size respondents are almost same i.e. 28.8% and 28% respectively.

Table 4: no of old person (more than 60 years)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no old person	42	33.6	33.9	33.9
	1 old person	47	37.6	37.9	71.8
	2 old persons	28	22.4	22.6	94.4
	3 old persons	4	3.2	3.2	97.6
	more than 3	3	2.4	2.4	100.0
	Total	124	99.2	100.0	
Missing	System	1	.8		
Total		125	100.0		

Source: SPSS

From the above table 4, it is evident that most of respondents have one old person in their family which account for 37.6% of total 125 respondents. Very few i.e. 2.4 % of total 125 respondents have more than 3 old persons in their family.

Table 5: location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	rural	7	5.6	5.6	5.6
	city / urban	100	80.0	80.0	85.6
	semi-urban	18	14.4	14.4	100.0
	Total	125	100.0	100.0	

Source: SPSS

It is visible from the above table 5, most of the respondents live in city/urban area in Kolkata and around which account for 80% of total 125 respondents. Very less respondents i.e. 5.6% live in rural areas.

1.BEHAVIOURAL AND AWARENESS CHANGES

THE PROBLEM- To test the behavioural changes (including awareness) of the respondents across different constructs established through hypothesis.

1.1 Hypothesis:

H_0:There is no significant difference between the awareness about the availability of all medicinal hygiene products before Covid-19 and during Covid-19.

H_1: There is a significant difference between the awareness about the availability of all medicinal hygiene products before Covid-19 and during Covid-19.

Table 6: wilcoxon signed rank test

TEST STATISTIC	
	Awareness about availability of all medicinal hygiene product before Covid-19- Awareness about availability of all medicinal hygiene product during Covid-19
Z	-5.247
Asymp.Sig. (2- tailed)	.000

Source: SPSS

In order to evaluate if there is any changes in the awareness of the respondents about the availability of all medicinal hygiene products before and during Covid -19, Wilcoxon Signed Rank Test is applied that revealed a statistically significant difference between the awareness about the availability of all medicinal hygiene products before and during Covid-19, Z= -5.247, p= .000, with a (r= 0.47) indicating a medium effect size as per the study of Cohen(1988).

1.2 Hypothesis:

H_0: There is no significant difference between the effort and time on the selection of all medicinal hygiene products before Covid-19 and during Covid-19.

H_1: There is a significant difference between the effort and time on the selection of all medicinal hygiene products before Covid-19 and during Covid-19.

Table 7: wilcoxon signed rank test

TEST STATISTIC	
	Effort and time on selecting medicinal hygiene products before Covid-19- Effort and time on selecting medicinal hygiene products during covid-19
Z	-6.556
Asymp.Sig. (2- tailed)	.000

Source: SPSS

In order to evaluate if there is any changes in the degree of effort and time invested for the selectionof all medicinal hygiene products before and during Covid -19, Wilcoxon Signed Rank Test revealed a statistically significant difference between the degree of effort and time invested for the selection of all medicinal hygiene products before and during Covid-19, Z= -6.556, p= .000, with a (r= 0.58) indicating a large effect size as perthe study of Cohen(1988).

1.3 Hypothesis:

H_0: There is no significant difference between the awareness about the quality of all medicinal hygiene products before Covid-19 and during Covid-19.

H_1: There is a significant difference between the awareness about the quality of all medicinal hygiene products before Covid-19 and during Covid-19.

Table 8: wilcoxon signed rank test

TEST STATISTIC	
	Awareness about quality of all medicinal hygiene product before Covid-19- Awareness about quality of all medicinal hygiene product during Covid-19
Z	-6.382
Asymp.Sig. (2- tailed)	.000

Source: SPSS

In order to evaluate if there is any changes in the degree of awareness about the quality of all medicinal hygiene products before and during Covid-19, Wilcoxon Signed Rank Test revealed a statistically significant difference between the degree of awareness about the quality of all medicinal hygiene products before and during Covid-19, Z= -6.382,p= .000, with a (r= 0.57)indicating a large effect size as per the study of Cohen(1988).

1.4 Hypothesis:

H_0:There is no significant difference between the awareness about the price of all medicinal hygiene products before Covid-19 and during Covid-19.

H_1: There is a significant difference between the awareness about the price of all medicinal hygiene products before Covid-19 and during Covid-19.

Table 9: wilcoxon signed rank test

TEST STATISTIC	
	Awareness about the price of all medicinal hygiene product before Covid 19- Awareness about the price of all medicinal hygiene product during Covid 19
Z	-1.968
Asymp.Sig. (2- tailed)	.049

Source: SPSS

In order to evaluate if there is any changes in the awareness of the respondents about the price of all medicinal hygiene products before and during Covid -19, Wilcoxon Signed Rank Test revealed an almost statistically significant difference between the price of all medicinal hygiene products before and during Covid-19,Z=-1.968,p= .049, with a (r= 0.18) indicating a small effect size as per the study of Cohen(1988).

1.5 Hypothesis:

H_0:There is no significant difference between the frequency of purchase of all medicinal hygiene products before Covid-19 and during Covid-19.

H_1: There is a significant difference between the frequency of purchase of all medicinal hygiene products before Covid-19 and during Covid-19.

Table 10: wilcoxon signed rank test

TEST STATISTIC	
	Frequency of purchase of all medicinal hygiene product before Covid 19- Frequency of purchase of all medicinal hygiene product during Covid 19
Z	-7.327
Asymp.Sig. (2- tailed)	.000

Source: SPSS

In order to evaluate if there is any changes in the frequency of purchase of all medicinal hygiene product before Covid 19- Frequency of purchase of all medicinal hygiene product during Covid 19, Wilcoxon Signed Rank Test revealed a statistically significant difference between the frequency of purchase before and during Covid-19, Z= -7.327, p= .000, with a (r= 0.66) indicating a large effect size as per the study of Cohen(1988).

2) Regression Analysis:

This analysis has been conducted to see the causal relationship among dependant variable Loyalty index and independent variables such as Price value index, Brand value index and Usefulness value index. The following tables will justify our analysis:

Table 11: MODEL SUMMARY

Table 11: model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.769[a]	.591	.580	.465264	.591	58.184	3	121	.000

Source: SPSS

A. Predictors: (Constant), Usefulness Value, Price Value, Brand Value

B. Dependent Variable: Loyalty Value

Table 12: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.785	3	12.595	58.184	.000[a]
	Residual	26.193	121	.216		
	Total	63.978	124			

Source: SPSS

A. Predictors: (Constant), Usefulness Value, Price Value, Brand Value

B. Dependent Variable: Loyalty Value

Table 13: coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.261	.193		6.519	.000			
	PRICE VALUE	.220	.061	.300	3.619	.000	.674	.313	.211
	BRAND VALUE	.286	.079	.357	3.642	.000	.715	.314	.212
	USEFULNESS VALUE	.172	.082	.199	2.112	.037	.669	.189	.123

From the above table 13, based on unstandardized coefficients, Loyalty model through multiple regression can be constructed as follows:

Loyalty $= 1.261 + 0.220 *$ Price Value $+ 0.286 *$ Brand value $+ 0.172 *$ Usefulness Value $+ \varepsilon_1$

Above results from table 11 shows that R is 0.769 i.e. there is high linear relation among the variables, and variance in the dependent variable Loyalty is 58% which is explained by its three predictors i.e. Price value, Brand value and Usefulness value as suggested by adjusted R square. The model is also statistically significant as shown from table 12, where $F(3,121)=58.184$, $p=0.000$ at 5% level of significance. In this model, all the three independent variables put the positive impact on the loyalty and also significant at 5% level of significance in affecting the dependent variable Loyalty. Brand value has the highest co efficient i.e. 0.286 which suggests that a change in brand value by one unit will change 0.286 unit in loyalty perception of consumers and if there is a change by one unit, price value will change loyalty by 0.220 unit and usefulness will change loyalty by 0.172 unit.

3)LOYALTY PERCEPTIONS OF THE RESPONDENTS ACROSS THE DEMOGRAPHICAL STRETCH

THE PROBLEM: To identify if there exists a difference in the loyalty perceptions across gender differences of the medicinal hygiene products under study

3.1Hypothesis:

H_0: There is no differences in loyalty perceptions of the medicinal hygiene products between male and female respondents.

H_1: There is a significant difference in loyalty perceptions of the medicinal hygiene products between male and female respondents.

Table 14: mann -whitney u test

Test Statistics	
	LOYALTY VALUE
Mann-Whitney U	1686.500
Wilcoxon W	3456.500
Z	-1.293
Asymp. Sig. (2-tailed)	.196

Source: SPSS

To evaluate the difference between male and female for the loyalty perceptions in relation to the medicinal hygiene products was tested using Mann -Whitney U Test. The test revealed insignificant differences in the measurement of loyalty perceptions of males (Median= 3.5, n=59) and females (Median=3.67, n=66), $U=1686.5$, $Z= -1.293$, $p=.196$, $r=0.12$indicating a small effect size as per the study of Cohen (1988).

THE PROBLEM: To identify if there exists a difference in the loyalty perceptions of the medicinal hygiene products across the family incomes (per month) of the respondents.

3.2 Hypothesis:

H_0: There is no significant difference in loyalty perceptions of the medicinal hygiene products with respect to the family incomes (per month) of the respondents.

H_1: There issignificance differences in loyalty perceptions of the medicinal hygiene products with respect to the family incomes (per month) of the respondents.

Table 15 : mann -whitney u test

	LOYALTY VALUE
Chi-Square	1.990
df	4
Asymp. Sig.	.738

Source: SPSS

To evaluate the differences across 5 levels of family incomes ranging from less than rupees 10,000 to more than rupees 40,000 with regards to the loyalty perceptions relating to the medicinal hygiene products Kruskal Wallis Test was conducted, that revealed an insignificant difference(Asymp. Sig. = .738) in the measurement of the differences of loyalty perceptions across varied income levels (< 10000 =17; 10001 to 20000=18; 20001 to 30000=14; 30001 to 40000=26; >40000= 50)

THE PROBLEM: To identify if there exists a difference in the loyalty perceptions of the medicinal hygiene products across the no. of old persons of the respondents.

3.3 Hypothesis:

H_0: There is no significant difference in loyalty perceptions of the medicinal hygiene products with respect to the number of old persons in the family.

H_1: There is significance differences in loyalty perceptions of the medicinal hygiene products with respect to the number of old persons in the family.

Table 16: kruskal wallis test

	LOYALTY VALUE
Chi-Square	1.504
df	4
Asymp. Sig.	.826

Source: SPSS

To evaluate the differences across 5 levels of the number of old persons in the family with regards to the loyalty perceptions relating to the medicinal hygiene products Kruskal Wallis Test was conducted, that revealed an insignificant difference (Asymp. Sig. = .826) in the measurement 0f the differences of loyalty perceptions across varied number of old persons in the family(no old persons=42, 1 old person=47, 2 old persons=28, 3 old persons=4, more than 3=3).

THE PROBLEM: To identify if there exists a difference in the loyalty perceptions of the medicinal hygiene products across the different areas of the Kolkata neighbouring regions, mainly city/urban, rural and semi-urban.

3.4 Hypothesis:

H_0: There is no significant difference in loyalty perceptions of the medicinal hygiene products across the different areas of the Kolkata region, mainly city/urban, rural and semi-urban.

H_1: There is a significant difference in loyalty perceptions of the medicinal hygiene products across the different areas of the Kolkata and neighbouring regions, mainly city/urban, rural and semi-urban

Table 17: kruskal wallis test

	LOYALTY VALUE
Chi-Square	1.748
df	2
Asymp. Sig.	.417

Source: SPSS

To evaluate the differences across the different areas of the Kolkata region, mainly city/urban, rural and semi-urbanwith regards to the loyalty perceptions relating to the medicinal hygiene products Kruskal Wallis Test was conducted, that revealed an insignificant difference (Asymp. Sig. = .417) in the measurement of the differences of loyalty perceptions across the different areas of the Kolkata region and its adjacent areas (rural=7, city/urban=100, semi-urban= 18).

4)THE PROBLEM: To identify if there exists a correlation between loyalty value and usefulness value, brand value and price value of the respondents relating to the medicinal hygiene products (to investigate the relationship between loyalty value and usefulness value).

Hypothesis:

H_1: There is no significant relationship between loyalty value and usefulness value, brand value, price value of the respondents with respect to the medicinal hygiene products.

H_1: There is a significant relationship between loyalty value and usefulness value, brand value, price value of the respondents with respect to the medicinal hygiene products.

Reporting Pearson Correlation

Table 18: correlation matrix

	LOYALTY VALUE	USEFULNESS VALUE	PRICE VALUE	BRAND VALUE
LOYALTY VALUE	1			
USEFULNESS VALUE	.669[**]	1		
PRICE VALUE	.674[**]	.653[**]	1	
BRAND VALUE	.715[**]	.767[**]	.684[**]	1

Source: SPSS

The constructs of loyalty value and usefulness value, brand value, price value of the respondents with respect to the medicinal hygiene products have been analysed by taking the means of the ordinal values making the results into a continuous variable. Pearson product correlation of loyalty value and usefulness value was found to be moderately positive and statistically significant (r=.669, $p<.001$). Hence, H_1 was supported. This shows that an increase in usefulness value leads to a higher loyalty value of the respondents with respect to the medicinal hygiene products. Similarly, with all statistically significant results the correlations between loyalty value and price value

was found to be again moderately positive ($r=.674$, $p<.001$), and the correlations between loyalty value and brand value was found to be highly positive ($r=.715$, $p<.001$), showing ultimately that H_1 was supported. Several other correlations could also be found out from the matrix, but we are concerned here to show the effect of usefulness, price and brand value on the loyalty construct.By this correlation matrix it can be stated that the brand value of the hygiene products is having a quite strong relationship with the loyalty value of the respondents.

Conclusion of study:

From the above findings, it is clearly understood that there exist statistically significant difference in behavioural change of consumers between (i) awareness about the availability of all medicinal hygiene products before and during Covid-19($Z= -5.247$, $p= .000$, with a r= 0.47); (ii)the degree of effort and time invested for the selection of all medicinal hygiene products before and during Covid-19($Z= -6.556$, $p= .000$, with a r= 0.58); (iii) the degree of awareness about the quality of all medicinal hygiene products before and during Covid-19($Z= -6.382$,$p= .000$, with a r= 0.57); (iv) the price of all medicinal hygiene products before and during Covid-19($Z=-1.968$,$p= .049$, with a r= 0.18); (v) frequency of purchase before and during Covid-19 ($Z= -7.327$, $p= .000$, with a r= 0.66). Such statistical significant difference in behavioural change of consumers for medicinal hygiene products happened due to Covid-19 pandemic, more information spread through social media and community. These create positive attitude towards such products and consumers become more aware than before. There exists a strong linear dependency of Loyalty index of consumers on Usefulness, Price value and Brand value (R =0.769, F=58.184, p= 0.000). Loyalty of consumers does not depend on gender(p=0.196) , it suggests that male and female both are equally affected by loyalty perception. Loyalty does not depend on Income level (p=0.738), no. of old persons (p=0.826) and areas of living of consumers (p=0.417) ,it suggests that loyalty is totally a psychological matter for the consumers, does not depend on such demographics characteristics even during Covid-19 situation.

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APPENDIX:

Loyalty Construct:

1. I will recommended the medicinal hygiene products to others which I have bought :

   (1) Strongly disagree(2) Disagree   (3) Undecided (4) Agree(5) Strongly agree

2. I feel I have become very Loyal to this products : (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree

3. I will buy the same products : (1) Strongly disagree(2) Disagree   (3) Undecided (4) Agree(5) Strongly agree

4. I will not think of other products even when other same type of products are available: (1) Strongly disagree(2) Disagree   (3) Undecided (4) Agree(5) Strongly agree

5. I believe the products will certainly save us from Covid-19: (1) Strongly disagree(2) Disagree   (3) Undecided (4) Agree(5) Strongly agree

Price Construct:

1. I feel the price of the is reasonable : (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree
2. I will buy the same products even if the price is increased further : (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree
3. The price of the is totally equivalent to value of the products : (1) Strongly disagree(2) Disagree   (3) Undecided   (4) Agree(5) Strongly agree

Brand Construct :

1. I know the brands of the all products very well from earlier: (1) Strongly disagree(2) Disagree   (3) Undecided   (4) Agree(5) Strongly agree
2. The brand is very trustworthy for the usage of the products : (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree
3. I recommend the brand every time: (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree
4. I feel the brand is very honest in delivering their intended service : (1) Strongly disagree(2) Disagree   (3) Undecided   (4) Agree(5) Strongly agree

Usefulness Construct :

1. Quality of products is very satisfactory : (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree
2. Products do not create any side effect or any other mal effect on us: (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree
3. Products are available as per the requirement of the family: (1) Strongly disagree(2) Disagree (3) Undecided (4) Agree(5) Strongly agree