# A Study on Impact of Covid-19 on Consumer Buying Behavior Towards Hand Sanitizers in India

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#### ABSTRACT

Consumers prefer hand sanitizers as they are more convenient and handier to use when compared to soap and hand wash.. The market landscape of hand hygiene products has drastically changed since the outbreak of COVID-19 as Sanitizers use is now being treated as a major preventive measure. Growing consumer inclination towards health and wellness, rising awareness about health and hygiene, improvement in living standards and rise in health expenditure are few of the major factors leading to increasing inclination towards hand sanitization. The average market demand across the globe is likely to witness a phenomenal rise of over 600per cent during 2020. The increasing demand for sanitizing solutions along with preventive recommendations by WHO is expected to fuel the market growth. So, the study is conducted to find out the impact of COVID-19 on Hand Sanitizers in India. Thus, this paper gives an idea of the importance of hand sanitizers.

Keywords: consumer preference, COVID-19, awareness, Hand Sanitizers

# **1. INTRODUCTION**

Hand Sanitizer is an antiseptic disinfectant available in the form of a liquid, gel, foam and many others. It is said to be more effective than soaps due to its ability to eliminate most microorganisms. Public awareness campaigns by global health authorities such as the WHO (World Health Organization) also play a significant role in promoting the use of hand sanitizers. Increasing consumer awareness about hygiene coupled with such government initiatives are driving the hand sanitizer market. The recent COVID-19 pandemic has bought the world to a standstill, with positive cases surpassing **22,213,869** and confirmed death **781,677** (till 20<sup>th</sup> August). In India total number of confirmed cases are **85,940** and confirmed deaths are **2,752** till May 16, 2020, and confirmed cases in COVID-19 cases within 3 months which has led to the panic buying of essential goods, hand sanitizer included. Governments all over are trying to form a long-term habit of hand hygiene to mitigate the impact of viruses- and bacteria-induced illnesses and diseases. The panic buying of hand sanitizers has created gaps in production capacities, with manufacturers struggling to meet this unforeseen demand. The

burgeoning demand has seen countries place a cap on the number of hand sanitizer bottles that a customer can buy. The pandemic has also prompted a shift from traditional sales channels, such as medical stores and supermarkets, which used to dominate the sale of liquid hand washes, to online retail. India hand sanitizer market is projected to surpass \$ 43 million by 2025.Growth of hand sanitizer market in India can be attributed to rising awareness about healthy lifestyle and wellness, shifting consumer preference towards convenient hygiene products and rising disposable income. Moreover, the strong marketing activities by leading brands, in addition to huge endorsements, are some other drivers of hand sanitizer market in India. Moreover, the COVID-19 outbreak has boosted demand for sanitizers like never before across the diverse end user segments. The hand sanitizer market is categorized into Gel, Liquid, Foam and Spray, among which Gel based segment witnessed a faster growth and the segment is expected to grow at a higher rate than other segments throughout the forecast period as well. Gel based segment category held a major part of market share in 2019 due to higher consumer preference. The methodology preferred for collecting data is by questionnaire, which will be circulated around all age group, and the analysis of the data will be carried out by any of the statistical tool, mainly by SPSS.

# 2. RESEARCH PROBLEM

- Less awareness in rural areas. Even though after spreading awareness, still there are many villagers and many people use soap as a disinfectant. WHO says that soap is an alternative, but as my research paper is on hand sanitizer I consider this as a problem for reaching my objective.
- Hand sanitizers have both positive and negative aspects due to the presence of alcohol content. It is seen that there is awareness regarding positive aspect but not negative aspects of hand sanitizers. It is very important to give awareness about the side effects also, this the reason which motivated me to do this research.
- WHO has provided guidelines for making hand sanitizers, this has been considered as an opportunity by many of the local manufacturers to boost their business. So, Availability of this fake and local hand sanitizers is creating trust issues. Many hand burns have been reported due to differences in alcohol content. Hand sanitizers with high alcohol content has many Side effects. Issues like different alcohol content, odd smell, accidents like hand burns are reported, this created many trust issues.
- Local hand sanitizers are cheaper compared to branded ones, so low income groups prefer local brands and this has resulted in many health issues. Low income groups are not affordable to buy branded hand sanitizers.
- Many research reports say that frequent and improper usage of hand sanitizers can create problems like skin irritation, bacterial infection in the future. So, it is very important to give awareness regarding the proper usage.

# **3. RESEARCH OBJECTIVE**

#### **Primary Objective:**

- To know the change in consumers buying behavior towards hand sanitizers over soap. Secondary Objective:
- To identify which is the most preferred type of hand sanitizers
- To identify which is the most preferred hand sanitizer brand in India.

# 4. HYPOTHESIS

H0: There is no relationship between preventive measured used against COVID-19 and use of hand sanitizer before and during COVID-19.

H1: There is a relationship between preventive measured used against COVID-19 and use of hand sanitizer before and during COVID-19.

H0: There is no significant relationship between gender and use of hand sanitizer before and during Covid-19

H2: There is a significant relationship between gender and use of hand sanitizer before and during Covid-19

H0: There is no significant difference between preventive measures used with respect to effective performance in killing germs.

H3: There is a significant difference between preventive measures used with respect to effective performance in killing germs

H0: There is no significant relation between awareness and type of hand sanitizer used.

H4: There is significant relationship between awareness and type of hand sanitizer used.

H0: Gel Type Hand Sanitizers are not the Most Preferred in India

H5: Gel Type Hand Sanitizers are the Most Preferred in India

## 5. REVIEW OF LITERATURE & HYPOTHESIS FORMULATION

Hand hygiene is acknowledged as the single most important measure to prevent nosocomial infections in the healthcare setting. There is lack of knowledge on the current topic as this research is based on an ongoing issue so, before understanding about the impact of covid-19 on hand sanitizers it is very important understand the efficiency of Hand Sanitizers. Many researchers have conducted experiments on hand sanitizers and gave several conclusions about the efficiency and uses.

Firstly, According to the research paper "Hand Hygiene – Evaluation of Three Disinfectant Hand Sanitizers in a Community Setting" conducted by **Rita Babeluk, Sabrina Jutz, Sarah Mertlitz, Johannes Matiasek, and Christoph Klaus**, concluded that the hand hygiene is the best and most cost effective way to prevent infection and illness; and it contributes unique information to the growing body of literature about hand hygiene. Identifying the optimal methods to engage the general public with high standards of hand hygiene improvement is essential to facilitate behavioral change. [1]

Secondly, the research paper titled "Formulation, Evaluation and Antibacterial Efficiency of water-based herbal Hand Sanitizer Gel" conducted **by Shri Balakrishna Acharya, Saradindu Ghosh, Giriraj Yadav, Kavita Sharma, Dr. Sirsendu Ghosh, and Dr. Sushil Joshi** concluded that Azadirachta indica, Ocimum sanctum and Citrus limon extracts active against hand swab sample. Natural gel based alcohol free hand sanitizer was as effective against pathogenic bacteria in volunteer's samples with no side effects on human tissue. Thus these compounds can be extracted and incorporated in hand wash. No reuse allowed without permission. Thus, a new way can be found to provide safe and healthier living through germ-free hands. Although the removal is not 100per cent but a major number can be reduced. [2]

Thirdly, the paper on "Antibacterial Effectiveness of Commercially Available Hand Sanitizers" conducted by **Aliya Hayat and Fizza Munnawar** concluded that the efficiency of hand sanitizers is based on its active ingredient which should be in appropriate concentration. Every sanitizer is not efficient in killing the microorganism. Therefore, awareness of choosing effective alcohol based hand sanitizers is important to reduce the transmission of infection especially when dealing with patients in hospitals, clinical laboratories, among school children, etc. [3]

Next is research paper on "Comparing the effectiveness of various hand-sanitizers against E. coli" conducted by **Aryan Narang**. He compared the effectiveness of various hand-sanitizers, both commercial and home-made concluded that the strongest hand-sanitizer solution is Wellness Tree whereas the weakest is the home-made anti-bacterial solution and also, there was minor fluctuations in the efficiency of the different commercial hand-sanitizer [4]

Another research paper on "Sanitizer aerosol-driven ocular surface disease (SADOSD)—A COVID-19 repercussion?" conducted by **Rohit Shetty, Chaitra Jayadev, Aishwarya Chabra, Sonia Maheshwari, Sharon D'Souza, Pooja Khamar, Swaminathan Sethu, and Santosh G Honavar** concluded that Since the onset of the COVID-19 pandemic, there has been an advisory for regular and thorough cleaning of hands besides other measures such as social distancing and self-isolation. While both alcohol-based hand rubs (ABHR) or washing with soap and water are claimed to have been effective, hand sanitizers have gained more popularity due to the ease of use. The increased frequency of ABHR use and the aerosols generated pose a potential threat to the skin and exposed mucosal surfaces, especially that of the eye due to the proximity of use. The adverse effects of alcohol in these sanitizers can be manifold. An allergic or inflammatory response can occur depending on the predisposing or preexisting conditions. This article describes the risks, underlying mechanisms, and preventive measures for sanitizer aerosol-driven ocular surface disease. [5]

Last research paper on title "Evaluating Hand Disinfection with Alcohol-Based Hand Sanitizers Using Thermal Imaging" conducted by **Manfred Smieschek, Andr'e Stollenwerk, Patrick J'uptner, Stefan Kowalewski, Thorsten Orlikowsky, Mark Schoberer** made a thermal imager to evaluate quality of disinfection. Temperature difference is the basic property which shows the efficiency. Disinfection is understood through color difference. Red-infected, yellow- need to be disinfected, green- disinfected. [6]

# 6. RESEARCH METHODOLOGY

This research is an ongoing thing and does not have any information available from the past researchers. Only research based on hand sanitizers in medical field is present so, firstly, I conducted an exploratory research because *descriptive research* is only conducted when ample focus has been given on *exploratory research*. Primarily exploratory research is a type of qualitative research. I have used this to gain an understanding of underlying reasons, opinions, and motivation. It also provides insights into the problems or helps to develop hypothesis for potential quantitative type descriptive research. Once I understood the things very well after conducting pilot surveys, going through literature, WHO reports continuously I assumed certain things that will describe the buying behavior pattern of Hand Sanitizers in the future.

Available lesser time period for conducting research and corona virus outbreak and subsequent lockdown for reducing the spread of virus made me only available to do a *convenience type non probability sampling*. Here the sampling units are those who are easily available to me like neighbors, friends, family, students and many more.

- a. Research Designb. Sampling Method
- : Descriptive Type Quantitative Research Design
- : Convenience Type Non-Probability Sampling
- c. Number of Samples : 250
- d. Data Collection Tool : Online Survey : Questionnaire Method
- e. **Sampling unit** : Combination of students, employees, self employed

: India

- f. Location
- g. Statistical tool : SPSS

# 7. DATA ANALYSIS









Out of 250 total response 60per cent of them preferred Hand Sanitizers as the preventive measure against COVID-19 followed by hand wash and soaps.







It is very interesting know that the Survey conducted to understand when they started using and sanitizers proved that equally 50per cent of the respondents started using before virus outbreak and 50per cent of them started using during corona virus outbreak.

Figure 7: When the respondents started using Hand sanitizers (%)



62per cent of the respondents uses gel type hand sanitizers, 36per cent uses liquid type and only 2per cent of them uses foam type

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Figure 8: Preferred type of hand sanitizers (%)

Talking about the rate of awareness the respondents have regarding the functionality of sanitizer showed that 85per cent of them are aware and 13per cent of them are partially



Figure 9: Amount of awareness the respondents have regarding the functionality of hand sanitizers.



Figure 10: Information source of hand sanitizers (%)

The respondents got the awareness mostly through government awareness and campaign, followed by social media, advertisements, friends, newspaper and others.



Figure 11: Preferred distribution channel before and during COVID-19 (%)

Speaking about one of the research problem i.e. the availability of fake sanitizers so, this makes us very important to choose the correct distribution channel. Through the survey I am happy to say that the respondents are aware regarding the distribution channel because we can see a shift from small retailer and hyper market before covid-19 to online and medical stores during covid-19



#### Figure 12: Most Preferred Hand sanitizer Brand

A simple survey conducted on the most preferred brand the result gives only the survey done by 250 respondents most of them from south of India, middle income family and aged between 18 to 25. The result cannot be considered for India, it can only considered for some region. From the graph we can say that out of 250 respondents 133 preferred Dettol brand as the hand sanitizer followed by lifebuoy, Savlon, Himalaya and so on.





Figure 13: Reason 1 for preferring hand sanitizer (%)

58per cent of the respondents use hand sanitizers because they believe it is very easy to





Figure 14: Reason 2 for preferring hand sanitizer (%)

42per cent of the respondents strongly agree and 37per cent of them agree that hand sanitizers are effective in killing germs.

Figure 15: Reason 3 for preferring hand sanitizer (%)

54per cent of the respondents believe hand sanitizers requires only less time compared to soaps and hand washes.



Figure 16: Reason 4 for preferring hand sanitizer (%)



About 28per cent the respondents are neutral for the fact that people preferred hand sanitizer due to government norms. Only 20per cent of them agree or 19per cent of them strongly agree this fact.

Figure 17: Reason 5 for preferring hand sanitizer (%)



Figure 18: Frequency of use of hand sanitizer before COVID-19 (%)



Figure 19: Frequency of use of hand sanitizer during COVID-19 (%)

Earlier through analysis we understood that the respondents are aware regarding the distribution channel now it next thing is to educate them how to use hand sanitizers properly without any side effects or other skin based disease in the future.

The survey conducted to understand the frequency of use before and during survey by the analysis it is understandable that before covid-19 most of them used only before having food, rarely and due to some other reason, but during covid-19 we can see that most of them uses sanitizers after contact with each and every object and also every time. So it very important to educate them.



6% ■ maybe 92per cent respondents no hand others. yes 92%

the of suggest sanitizers to

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Figure 22: suggestion of Hand sanitizer by respondents to others (%)

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## **HYPOTHESIS TESTING**

#### **Hypothesis 1:**

H0: There is no relationship between preventive measured used against COVID-19 and use of hand sanitizer before and during COVID-19.

H1: There is a relationship between preventive measured used against COVID-19 and use of hand sanitizer before and during COVID-19.

### Output –

Table 1: Chi-square test for hypothesis 1

Chi-Square Tests					
	Value	df	Asymp. Sig. (2- sided)		
<b>Pearson Chi-Square</b>	9.053 <sup>a</sup>	2	<mark>.011</mark>		
Likelihood Ratio	9.170	2	.010		
Linear-by-Linear Association	.857	1	.354		
N of Valid Cases	250				
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.00.					

#### Interpretation -

From the output, we got,

#### Significant value = 0.011 < 0.05, So, Reject Null Hypothesis

The hypothesis is true and proves that there is a significant relationship between the Preventive Measure Used against COVID-19 and the Use of Hand Sanitizer Before and During COVID-19

Thus, it is proved that COVID-19 has an Impact on the Consumer Buying Behavior of Hand sanitizers in India.

#### **Hypothesis 2:**

H0: There is no significant relationship between gender and use of hand sanitizer before and during Covid-19

H2: There is a significant relationship between gender and use of hand sanitizer before and during Covid-19

#### Output -

Table 2: Chi-square test for hypothesis 2						
Chi-Square Tests						
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	
Pearson Chi-Square	2.749 <sup>a</sup>	1	.097			
<b>Continuity Correction</b>	2.342	1	.126			
Likelihood Ratio	2.754	1	.097			
Fisher's Exact Test				.126	.063	
Linear-by-Linear Association	2.738	1	.098			
N of Valid Cases	250					
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 54.50.						
b. Computed only for a 2x2 table						

#### Interpretation –

From the output, we got,

#### Significant value = 0.097 > 0.05, so, Null Hypothesis is accepted,

The hypothesis is false and thus, proved that there is no significant relationship between Gender and the Use of Hand Sanitizers Before and During COVID-19.

Thus, it is proved that the use of hand sanitizers is INDEPENDENT of Gender.

#### Hypothesis 3:

H0: there is no significant difference between preventive measures used with respect to effective performance in killing germs.

H3: there is a significant difference between preventive measures used with respect to effective performance in killing germs.

#### Output –

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	40.036	2	20.018	28.083	.000
Effective in	Within Groups	176.064	247	.713		
killing germs	Total	216.100	249			
	Between Groups	8.416	2	4.208	5.774	<mark>.004</mark>
Easy to use	Within Groups	180.000	247	.729		
	Total	188.416	249			
Easy to handle	Between Groups	11.963	2	5.982	8.733	.000
	Within Groups	169.173	247	.685		
	Total	181.136	249			
Requires less time	Between Groups	29.731	2	14.866	13.749	<mark>.000</mark>
	Within Groups	267.053	247	1.081		
	Total	296.784	249			
Due to	Between Groups	8.860	2	4.430	2.500	<mark>.084</mark>
Government	Within Groups	437.640	247	1.772		
norms	Total	446.500	249			

#### Table 3: Anova test for hypothesis 3

#### Interpretation -

From the output, we got,

#### Significant value = 0.000<0.05, so, the Null Hypothesis is Rejected.

The hypothesis is true, and is proved that there is a significant difference between the preventive measures used with respect to Effective Performance in Killing Germs.

Thus, we can say that the Property of hand sanitizer to effectively kill harmful germs has impacted the consumer buying towards Hand sanitizers in India.

Also, other factors of hand sanitizer like easy to handle, requires less time and easy to use has also proved true while conducting same test against different factors. Significant values was < 0.05, except Government Norms, i.e., significant value for Government Norms = 0.084 > 0.05

Hence, we can say that most of the people use hand sanitizer as Preventive Measure against COVID-19 because it is very easy to use, very easy to handle, effective in killing germs and they requires less time compared to soaps.

#### **Hypothesis 4:**

H0: There is no significant relation between awareness and type of hand sanitizer used. H4: There is a significant relationship between awareness and type of hand sanitizer used. Output –

ANOVA							
Type of Hand Sanitizer Used							
	Sum of Squares	df	Mean Square	F	Sig.		
Between Groups	2.524	3	.841	3.327	<mark>.020</mark>		
Within Groups	62.200	246	.253				
Total	64.724	249					

|--|

#### Interpretation –

From the output, we got that,

Significant value = 0.020 < 0.05, so, Null Hypothesis is Rejected. The hypotheses is true and proved that there is a relationship between awareness about functionality of Hand Sanitizers and Type of Hand Sanitizer Preferred.

Hence, it is proved that the type of hand sanitizer preferred by the people is based on the awareness.

#### Hypothesis 5;

H0: Gel type is not the most preferred type of hand sanitizer in India H5: Gel type is the most preferred type of hand sanitizer in India Output –

Table 5: Frequency distribution table for preferred hand sanitizer type						
Type of Hand Sanitizer Used						
	Frequency Percent Valid Percent Cumulative P				<b>Cumulative Percent</b>	
Valid	Liquid Type	91	36.3	36.4	36.4	
	Gel Type	155	61.8	62.0	98.4	
	Foam Type	4	1.6	1.6	100.0	
	Total	250	99.6	100.0		
Missing	System	1	.4			
Total		251	100.0			

Table T. Frequency distribution table for proferred hand conitizer type

#### Interpretation -

From the frequency distribution table, I found that,

# Out of 250 respondents, about 155 i.e., 61.8per cent of them use gel type Hand Sanitizer.so, the null hypothesis is rejected.

Thus, the hypothesis is true, and proved that the Gel type is the Most Preferred Type of Hand sanitizer in India

# 8. FINDINGS AND SUGGESTIONS

#### 8.1. FINDINGS

The study was to find out the Impact of COVID-19 on the consumer buying behavior towards Hand Sanitizers in India. The findings I found through the various test conducted on the data collected are.

- The respondents were asked, when they have started using hand sanitizers and which is the preventive measured used against COVID-19. The test conducted to find out the relationship between these two variables proved that most of the respondent used hand sanitizer as the preventive measure and was started during the Corona virus outbreak. I.e., they are related to each other and shows that the COVID-19 has impacted the use of hand sanitizers.
- The test conducted between the gender and the time of start of use of Hand sanitizer i.e. before and during COVID-19 proved that the gender is independent of the use of hand sanitizers. There is no difference between male and female, both of them use Hand sanitizers as preventive measures. So, no separate awareness practice is required to give about the importance of hand sanitizers.
- Clearly, the secondary data i.e. newspaper, reports says that WHO and Indian Government provide norms about the use of hand sanitizer as a preventive measure against Corona Virus. But when the test conducted between several variables and preventive measure used it proved that most of the responded choose hand sanitizers because it is very effective in killing germs, very easy to use, very easy to handle and requires less time as compared to soap and not because of Government Norms.
- It was found that most of the respondents preferred Gel Type hand sanitizers, and the test conducted to find the relationship between the type of hand sanitizer used and awareness about functionality proved that they are related. Most of them use gel hand sanitizer because of the awareness about the functionality of the hand sanitizers.
- The data collected on frequency of use of hand sanitizers before and during corona virus outbreak showed that the frequency of use increased during COVID-19 compared to before COVID-19. The virus outbreak lead to the panic buying of Hand Sanitizers and the number consumer buy has increased compared before virus outbreak.
- It is very important to consider the distribution channel for buying hand sanitizers as lot of fake hand sanitizers are available in the market. Proper knowledge about both the positive and negative aspects are very important. From the data collected on the preferred distribution channel before and during COVID-19 showed that there is a shift towards medical stores and online compared to small retailers and hypermarket. This shows the importance of sanitizer during this pandemic among middle class family in India.

#### **8.2 RECOMMENDATIONS**

According to my research findings, what I understood is, there is good awareness about the availability of fake sanitizers and they are using proper distribution channel, so next thing was to give awareness on the negative aspects of sanitizers and to educate them on how to use sanitizers properly. But my research does not contain any data showing rate of awareness they have on how to use and what are the negative aspects of sanitizers they face. As research paper is mainly focusing on middle income group, it is very important to understand problems and amount of awareness villagers.

# **10.LIMITATIONS AND CONCLUSIONS**

#### **10.1 LIMITATIONS**

One of the research problems was availability of fake sanitizers and also lack of awareness among villagers and lower income group.

Problems faced by me while doing research paper was that, the lockdown process made it very difficult to collect information from villager about the availability of the Hand sanitizer, the awareness about the hand hygiene and what kind of preventive measure used by them. Most of my result is based on response of middle income group.

Villagers still use small retailers for purchase of cheap hand sanitizers creating trust issues in them and lack of awareness about the proper usage and description can lead to hand burns, skin problems, etc.

#### **10.2 CONCLUSIONS**

Unexpected corona virus outbreak, increased health consciousness and fear of getting infected lead to the panic buying of Hand Sanitizers, hand washes and soaps, wherein most of them preferring hand sanitizers as it is very easy to hand, use , proved to be very effective in killing germs, and requires less time compared to other preventive measure. Proper awareness about functionality, positive and negative effects, ingredients used, and proper knowledge on how to use hand sanitizers helps to understand the importance of them. Proper certifications and label can increase the trust.

## **11. FUTURE SCOPE**

The consumers are becoming more health conscious and the demand for green labelled products are increasing. This can be considered as an opportunity for future researchers or certain brand to consider herbal based hand sanitizer which can be equally effective as that of alcohol based hand sanitizers. This can reduce the side effects and negative aspects of current alcohol based hand sanitizers.

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