



## Chain can be Broken with Sanitizers and Hand Wash: A Public Perception on Hand Wash

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### ABSTRACT

COVID19 pandemic has affected the whole world. All are fighting the COVID19 war since last year, and there is still the long way to go. The primary protection from COVID-19 is hand hygiene. There are many advertisements and advisory shared by the Govt. and public sector on how to maintain the hand hygiene. Since, last year from Feb 2020, people started using excessive sanitizer on hands instead of hand washing. In this work an attempt has been made to observe the perception of public towards the hand hygiene. As per the statically analysis, we observed that as the time passes the people started adopting hand wash instead of sanitizer, because excessive use was harming the skin and causing the skin irritation, rashes and redness etc.

**Keywords:** Sanitizers, COVID19, Hand hygiene, pandemic, t test, correlation

### INTRODUCTION

COVID-19 has spread around the world to such an extent that virtually no region left untouched. The speedy spread and the alarming cases and death rates have introduced the various measures to prevent the spread of Covid19. Among all the preventive measures such as maintaining social distance, wearing mask, hand hygiene, boosting up immunity, healthy lifestyle etc. and the hand hygiene is of prime importance and have received considerable attention since the beginning of the spread of COVID 19. The Hand hygiene is always an imperative measure to protect our self from various types of bacterial and viral infections. Our hands are a critical vector for transmitting microorganisms. The cross-transmission of these organisms to others occurs when we fail to wash hands effectively [1]. It is always recommended to wash the hands frequently, specially before eating anything or touching the any eatable items while cooking/cutting etc, the clean hands are preferred. The current COVID-19 pandemic has seen a focus of education and information on hand washing aimed both at people working within the health sector as well as to the general public [2-4]. There has been a proliferation of public health messages through various sources about the importance of hand washing, and the correct techniques for hand washing. The Covid19 pandemic has given this a momentum and many campaigns, advertisements etc. were demonstrating the practice of hand hygiene. This pandemic has bought the revolutionary changes in the Hand hygiene practices. In India, in the initial stage of COVID19 pandemic the people started using sanitizers to greater extent that there was shortage in market and the black marketing of sanitizers started. Majority of individual preferred using the sanitizers instead of the hand washing. The sanitizers were used excessively. In this work, an attempt has been made to observe how the perception related to Hand hygiene over the period of year has been changed.

### METHODOLOGY

To analyse the perception of the Indian population towards the Hand hygiene and the semi structured questionnaire method. The questionnaire consisted of the dichotomous questions, rating questions, unstructured questions. The respondents were chosen on the basis of Random sampling technique the area covered is Delhi NCR region [5]. In total, 300 questionnaires were distributed, out of which 271 were returned by the respondents and further 31, were discarded because they were partially filled and the remaining 240 were used for analysis. The data set was sub divided into the two aspects male and

female and further the division is done on the basis of age. The sample size was for age  $\leq 50$  male were 73 and Female were 87. For the age  $> 50$ , males were 44 and the females were 36. The descriptive and inferential statistics have been employed using MS-Excel to draw the inferences.

## RESULTS AND DISCUSSION

To analyse the perception about the hand washing techniques, the attitude of the respondents were checked, by taking the feedback in the form of rating out of 5 on the use of sanitizers, in initial stage of COVID 19 spread in the month of Feb-March 2020 and in the present situation in the month of Feb 2021. This study showed the significant attitude towards the hand Hygiene at 95% level of confidence, which signifies that the people have made a habit of hand hygiene, 240 respondents said that they focus on the hand hygiene and are maintaining it since the spread of COVID-19 pandemic. The statistical calculation showed that the respondents had a significantly different attitude as per the Gender and also age distribution towards the use of sanitizers (**Table 1 and Table 2**). Not only this, the use of sanitizers is minimized over the period of time. The analysis showed the attitude of the male in Feb-March, 2020 (age  $\leq 50$ ) was on higher side followed by the Females (age  $\leq 50$ ), Females (age  $> 50$ ), Males having age  $> 50$ . Overall, the younger people were more fascinated by the sanitizers instead of hand washing, whereas elder people preferred to use the hand washing for maintain hand hygiene. The trend of attitude has been changed over the period of the years. Now the Females have given the highest rating on the use of sanitizers in comparison to the males. Further, correlation coefficient analysis was carried out at 95 % level of confidence to observe the approach towards Hand Hygiene. The four types of comparison were done.

**Table 1** Attitude towards Sanitizers in Feb March 2020

Age	Gender	N	Mean	Standard deviation	Standard error mean
Age $\leq 50$	Male	73	3.082192	1.39198	0.162918
	Female	87	2.988506	1.35111	0.144852
Age $> 50$	Male	44	2.590909	1.14766	0.173016
	Female	36	2.888889	1.08963	0.181606

**Table 2** Attitude towards Sanitizers in Feb 2021

Age	Gender	N	Mean	Standard deviation	Standard error mean
Age $\leq 50$	Male	73	1.69863	0.77612	0.090838
	Female	87	2.471264	1.10852	0.118846
Age $> 50$	Male	44	1.295455	0.50943	0.076799
	Female	36	1.861111	0.83333	0.138889

1. Approach towards hand washing in Feb-March 2020, according to gender. The correlation coefficient is -0.0574, which indicates a very slight difference in their mindset regarding the use of sanitizers. Thus, it can be concluded that they believe on the sanitizers instead of hand washing.
2. Approach towards hand washing in Feb-March 2020, according to age group. The analysis of correlation indicated negative correlation of -0.16544, indicating a very weak relation among their approach.
3. Approach towards hand washing in Feb 2021, according to gender. The analysis of correlation coefficient indicated the weak positive correlation of 0.165221, clearly indicating that the both the male and females have the same approach to some extent.
4. Approach towards hand washing in Feb 2021, according to age group. The correlation coefficient is 0.02235, indicating the very weak negative correlation. Hence the attitude is very slightly different according to the age group.

Further to analyse the approach at the two different time period, the t test was employed by considering the  $H_0$ : both have same mean and  $H_1$ : both have different mean (**Table 3**). The analysis indicated that p value is less than the critical value and hence, the null hypothesis is rejected. Hence, the attitude towards use of sanitizers has been changed and over the period of time people realized that hand washing is the better option, when available and in case hand washing facility is not available then the sanitizers should be preferred. Further, the open ended question was asked, regarding the choice between sanitizers and hand washing. As expected, the respondents responded, the because of excessive use of sanitizers has affected the skin and people mentioned, they started facing irritation and rashes in the skin, so now they preferred to wash hands and use the sanitizers when they are outside/non availability of hand wash facility [6-8]. But, few people still focusing on sanitizers and

are still using the same with same momentum, though percentage was very low around 2%.

**Table 3** t-Test: Two-Sample Assuming Unequal Variances

	Feb March 2020	21-Feb
Mean	2.9291667	1.929167
Variance	1.6811541	0.969857
Observations	240	240
Hypothesized Mean Difference	0	
Df	446	
t Stat	9.5148039	
P(T<=t) one-tail	5.75E-20	
t Critical one-tail	1.6482773	
P(T<=t) two-tail	1.15E-19	
t Critical two-tail	1.9652971	

### CONCLUSION

Hand washing with soap and water for at least 15-20 second or the use of alcohol-based hand sanitizers when soap and water are not available is the first line of defense in stopping the spread of infection. This concept has been circulated among the people through Memes, videos, social media, television, radio, adds etc. It's worth to mention that the majority of people adopted this and, understood that this is one of the crucial aspects to stop the spread of COVID-19. It is further suggested that, people should also follow other norms of COVID19 such as wearing of mask, maintain healthy immunity, maintains social distancing, avoiding gatherings etc. The present statistical analysis indicated that the approach of people has been changed over the time, now people are preferring hand wash approach instead of sanitizers. It is commendable to see greater and more widespread efforts to raise hand washing awareness. Once this pandemic is over, this habit must continue to promote with the same enthusiasm and commitment.

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