



UNMASKING THE GOOD AND BAD IMPACT OF HAND SANITIZERS DURING THE COVID-19 PANDEMIC

Bharati Patil¹, Varsha D. Hulke², Sonali Dhumale³

¹Professor, Agadtantra Department, M.S. Ayurved college Gondia

²Professor, Rachana Sharir, Department, Indutai Gaikwad Patil Ayurved college, Nagpur

³Professor, Balrog Department, M.S. Ayurved college, Gondia

Corresponding Author: bbagade56@gmail.com

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ABSTRACT

The COVID-19 pandemic has led to an unprecedented surge in hand sanitizer usage as a key preventive measure. This study aims to unmask both the positive and negative impacts of hand sanitizers on individuals and the environment. By examining their effectiveness in reducing viral transmission and potential benefits in promoting hand hygiene, it sheds light on the importance of their widespread adoption. Simultaneously, the research investigates concerns related to overuse, skin irritations, and the environmental implications of increased sanitizer production and disposal. Understanding the dual aspects of hand sanitizers will aid in promoting their safe and responsible use during the pandemic and beyond.

Keywords: Hand sanitizers, COVID-19 pandemic, Viral transmission, Hand hygiene, Effectiveness, Overuse, Skin irritations, Environmental implications.

INTRODUCTION

During the COVID-19 pandemic, hand sanitizers emerged as a ubiquitous tool in the global fight against viral transmission. With their easy accessibil-

ity and effectiveness in killing pathogens, they became an essential preventive measure to curb the spread of the virus. However, as the usage of hand

sanitizers skyrocketed, concerns surrounding their impact on individuals and the environment began to surface. This Article aims to delve into the dual aspects of hand sanitizers, unmasking their potential positive contributions in promoting hand hygiene and reducing viral transmission, while also shedding light on the negative consequences of overuse, skin irritations, and environmental implications. By comprehensively examining these contrasting effects, this study seeks to provide valuable insights for promoting the safe and responsible use of hand sanitizers during the pandemic and beyond.

AIM OF STUDY

The study aims to provide valuable insights for promoting the safe and responsible use of hand sanitizers. Furthermore, the research aims to address the environmental implications of increased sanitizer production and disposal, contributing to a well-informed approach in navigating future health crises while preserving environmental sustainability. This Study contribute to students and researchers.

MATERIALS AND METHODS

What Is Covid-19?

COVID-19, short for "Coronavirus Disease 2019," is a viral respiratory illness caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The outbreak of this disease was first identified in December 2019 in Wuhan, Hubei province, China, and quickly escalated into a global pandemic. ⁽⁰¹⁾

How has it Spread?

The virus spreads primarily through respiratory droplets when an infected person coughs, sneezes, or talks. It can also spread by touching surfaces contaminated with the virus and then touching the face, particularly the mouth, nose, or eyes. The incubation period for COVID-19 can range from 2 to 14 days, during which an infected person may not show symptoms but can still transmit the virus to others. ⁽⁰²⁾

Covid-19 Symptoms – ⁽⁰³⁾

COVID-19 presents with a wide range of symptoms, ranging from mild respiratory symptoms like fever, cough, and fatigue to severe respiratory distress and pneumonia, particularly in older adults or those with underlying health conditions. In some cases, the in-

fection can be asymptomatic, making it challenging to identify carriers and control the spread.

In response to the pandemic, countries around the world implemented various public health measures such as lockdowns, travel restrictions, social distancing, and mask-wearing to curb the transmission of the virus and reduce the burden on healthcare systems. Vaccination campaigns also played a crucial role in controlling the spread of the virus and protecting vulnerable populations.

Impact of Covid-19 ⁽⁰⁴⁾

The impact of COVID-19 on global health, economies, and daily life has been profound. It has affected millions of people worldwide, resulting in millions of deaths and significant disruptions to societies and economies. Healthcare systems faced unprecedented challenges, and frontline workers exhibited remarkable dedication and resilience in combating the virus.

The pandemic also underscored the importance of international collaboration and the need for robust and agile public health infrastructure. Scientists, researchers, and healthcare professionals worked tirelessly to understand the virus, develop treatments, and produce vaccines in record time.

As the world continues to grapple with the pandemic, ongoing efforts to combat COVID-19 involve monitoring virus variants, administering booster doses of vaccines, and addressing vaccine equity to ensure fair access to vaccines for all populations.

COVID-19 has been a sobering reminder of the interconnectedness of our global community and the importance of collective action in addressing health crises. It has reshaped public health practices, emphasizing the significance of preparedness, research, and innovation in confronting future challenges.

COVID-19 AND HAND SANITISER ⁽⁰⁵⁾

COVID-19 and hand sanitizer have a significant and intertwined relationship. Hand sanitizers became a crucial tool in the fight against the COVID-19 pandemic due to their ability to kill viruses, including the SARS-CoV-2 virus responsible for COVID-19.

The Centre's for Disease Control and Prevention (CDC) and the World Health Organization (WHO) recommended the use of hand sanitizers con-

taining at least 60% alcohol when soap and water were not readily available. Hand sanitizers offered a convenient and portable way for individuals to maintain hand hygiene and reduce the risk of viral transmission.

Importance of Hand Sanitiser in covid-19

During the pandemic, the demand for hand sanitizers skyrocketed, leading to a surge in production by various manufacturers. Health authorities encouraged people to use hand sanitizers frequently, especially after touching surfaces or coming into contact with others in public settings.

The widespread use of hand sanitizers helped slow the spread of COVID-19 to some extent, particularly when combined with other preventive measures like mask-wearing and social distancing. It played a crucial role in limiting the transmission of the virus by killing it on the hands, which are frequent vectors for viral entry into the body through touching the face.

Drawbacks Of Hand Sanitiser

However, the increased use of hand sanitizers also raised concerns about potential drawbacks. Overuse of sanitizers containing high alcohol content could lead to skin dryness, irritation, or allergic reactions in some individuals. This issue prompted health authorities to advise using moisturizers to counteract skin dryness.

Furthermore, the surge in hand sanitizer production resulted in a significant increase in plastic waste, primarily due to single-use plastic bottles and packaging. This added to the existing environmental challenges associated with plastic pollution.

Alternative for Hand Sanitiser use.

When hand sanitizers are not available or suitable, there are alternative methods for maintaining hand hygiene. Here are some effective alternatives for hand sanitizer use:

- **Handwashing with Soap and Water:** Regular handwashing with soap and water for at least 20 seconds is the most effective way to remove dirt, germs, and viruses from hands. This method is especially recommended when hands are visibly dirty or after using the restroom.

- **Handwashing with Alcohol- Based Hand Rubs:** If soap and water are not readily available, alcohol-based hand rubs containing at least 60% alcohol can be used as an alternative to hand sanitizers. These rubs effectively kill many types of germs, including viruses like the one responsible for COVID-19.
- **Hand Towels or Hand Dryers:** After washing hands with soap and water, using clean hand towels or hand dryers to thoroughly dry hands help reduce the risk of germ transmission.
- **Disinfecting Wipes:** Disinfecting wipes that contain an appropriate percentage of alcohol can be used to clean hands and surfaces when handwashing is not feasible.
- **Avoiding Touching the Face:** Minimizing touching the face, particularly the mouth, nose, and eyes, can help reduce the risk of transmitting germs from contaminated hands to the respiratory system.
- **Gloves:** Wearing disposable gloves can provide an additional barrier to prevent direct contact with surfaces. However, it's essential to avoid touching the face or adjusting the mask while wearing gloves and to discard them properly after use.
- **Hand Hygiene Stations:** Some public places may provide hand hygiene stations with soap, water, and disposable towels for visitors to maintain hand hygiene.
- **Hand Hygiene Before Eating:** It is crucial to practice hand hygiene before eating, either by washing hands with soap and water or using alcohol-based hand rubs.

While hand sanitizers are convenient and effective, the alternatives mentioned above can serve as practical substitutes for maintaining hand hygiene when hand sanitizers are not available or when soap and water are accessible. Remember that proper hand hygiene is a critical component of preventing the spread of infectious diseases.

GOOD IMPACT OF HAND SANITISERS ⁽⁰⁶⁾

The use of sanitizers during the COVID-19 pandemic has had several positive impacts on both human health and the environment:

Good Impact on Human Health:

- **Reduced Transmission of COVID-19:** Hand sanitizers, when used correctly, are effective in killing a wide range of germs, including the SARS-CoV-2 virus responsible for COVID-19. Regular use of sanitizers helped reduce the risk of transmission from contaminated surfaces to the hands and from the hands to the face, lowering the overall infection rates.
- **Improved Hand Hygiene Compliance:** The pandemic brought increased awareness of the importance of hand hygiene. Hand sanitizers provided a convenient and portable option for maintaining hand hygiene, making it easier for people to practice proper handwashing regularly.
- **Accessible in High-Risk Areas:** Hand sanitizers were crucial in settings where access to soap and water was limited, such as healthcare facilities, public transportation, and emergency response locations. They provided an essential line of defence against the virus in high-risk areas.
- **Convenience for On-the-Go Hygiene:** Hand sanitizers were particularly valuable for individuals on the move or in situations where handwashing facilities were not readily available, encouraging more people to prioritize hygiene even in challenging circumstances.

Good Impact on the Environment:

- **Water Conservation:** Unlike handwashing, which requires running water, sanitizers do not necessitate water usage. During the pandemic, the increased use of hand sanitizers helped conserve water resources, particularly in areas facing water scarcity.
- **Reduced Plastic Waste:** Hand sanitizers often came in small bottles or dispensers, which generated less plastic waste compared to single-use plastic water bottles used for handwashing. This reduction in plastic waste helped mitigate environmental pollution.

- **Eco-Friendly Options:** Many manufacturers offered eco-friendly hand sanitizers made from biodegradable or recyclable materials, reducing their environmental footprint and promoting sustainable practices.
- **Increased Focus on Hygiene and Health:** The pandemic increased awareness about hygiene practices, including proper hand hygiene, which may have lasting positive effects on public health and environmental consciousness beyond the pandemic. Overall, the use of sanitizers during the COVID-19 pandemic had numerous positive impacts on human health, helping to reduce the spread of the virus and increase hand hygiene compliance. Simultaneously, the environmentally friendly options and reduced plastic waste from hand sanitizers contributed to more sustainable practices during a challenging time. However, it is crucial to strike a balance between the benefits of hand sanitizers and their potential drawbacks to ensure responsible and safe usage for both human health and the environment.

BAD IMPACT OF HAND SANITISERS ⁽⁰⁷⁾

While the use of sanitizers during the COVID-19 pandemic had several positive impacts, there were also some negative effects on human health and the environment:

Bad Impact on Human Health:

- **Skin Irritations and Allergic Reactions:** Prolonged and frequent use of alcohol-based hand sanitizers can lead to skin dryness, irritation, and in some cases, allergic reactions. People with sensitive skin or pre-existing skin conditions may be more prone to experiencing these adverse effects.
- **Overreliance on Hand Sanitizers:** The convenience of hand sanitizers may lead to an overreliance on them, causing some individuals to skip handwashing with soap and water, which is more effective at removing dirt and certain types of germs.
- **Risk of Ingestion:** Hand sanitizers, especially those with attractive scents or packaging, may

pose a risk of accidental ingestion, particularly in children. Ingestion of hand sanitizers containing alcohol can lead to alcohol poisoning and other health complications.

Bad Impact on the Environment:

- **Increased Plastic Waste:** The surge in hand sanitizer use led to a significant increase in single-use plastic bottles and packaging, contributing to plastic waste. Improper disposal of these items further added to environmental pollution.
- **Environmental Impact of Production:** The mass production of hand sanitizers required resources and energy, and some sanitizers contained ingredients that could have negative environmental impacts during the manufacturing process.
- **Water Pollution:** Hand sanitizers containing chemicals like triclosan, and other antimicrobial agents may find their way into water sources, potentially leading to water pollution and disrupting aquatic ecosystems.
- **Shortage of Key Ingredients:** The high demand for hand sanitizers resulted in shortages of key ingredients, such as alcohol and bottles, leading to supply chain challenges and potential environmental impacts associated with manufacturing these items.

It is essential to strike a balance between the benefits and drawbacks of hand sanitizers. While they can be effective in reducing the transmission of infectious diseases like COVID-19, overuse and improper disposal can have negative consequences on both human health and the environment. Education on responsible use, proper handwashing practices, and eco-friendly options can help mitigate the negative impacts of hand sanitizers while maximizing their benefits during health crises.

DISCUSSION

The COVID-19 pandemic brought hand sanitizers to the forefront of public health practices, and their widespread use played a crucial role in limiting the transmission of the virus. Hand sanitizers offered a convenient and effective option for maintaining hand

hygiene, especially in settings where access to soap and water was limited. This significantly contributed to reducing the overall infection rates and protecting vulnerable populations.

However, the increasing use of hand sanitizers also raised concerns about potential drawbacks. Frequent use of alcohol-based sanitizers led to skin dryness, irritation, and allergic reactions in some individuals, highlighting the importance of proper moisturization and responsible use. Additionally, the surge in hand sanitizer production resulted in a significant increase in plastic waste, contributing to environmental pollution. Some sanitizers containing chemicals like triclosan, and other antimicrobial agents may have potential adverse effects on water sources, impacting aquatic ecosystems.

To mitigate the negative impacts of hand sanitizers while maximizing their benefits, responsible use and proper hand hygiene practices should be emphasized. Public education on alternatives like handwashing with soap and water and eco-friendly hand sanitizer options can help promote a sustainable approach to hand hygiene. Governments and industries should also prioritize sustainable packaging and ingredients to reduce plastic waste and environmental harm.

CONCLUSION

Hand sanitizers have played a critical role in the fight against COVID-19, offering a valuable tool for maintaining hand hygiene. However, their widespread use has also highlighted the need for a balanced approach to ensure the protection of human health and the environment. By understanding and addressing the potential drawbacks associated with hand sanitizers, we can develop strategies for their safe and responsible use, effectively navigating health crises while safeguarding both human well-being and environmental sustainability.

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