

DESIGN AND ANALYSIS OF A FACE MASK ALTERNATIVE

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ABSTRACT

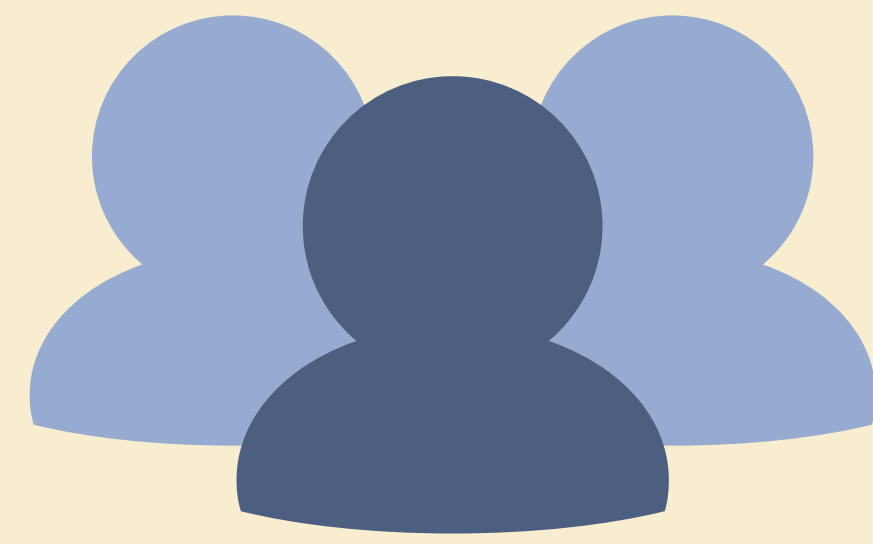
With the rising usage of face masks during the COVID-19 pandemic and its induced issue on improper waste disposal, an efficient alternative, needs to be produced and assessed so as to serve as a contingency plan in case a similar situation were to occur. A face mask made out of nylon fabric, paper towel, and cotton, was made, which, together with the cloth mask, ultimately failed the recommended standards for face masks.

INTRODUCTION

Due to the COVID-19 pandemic, the usage of face masks rose quite considerably. Additionally, the most common alternative to medically approved surgical masks is cloth masks, which have also been discouraged to be used in high-risk situations. As such, the study attempted to produce a more efficient alternative to face masks made out of nylon fabric, paper towel, and cotton.

SIGNIFICANCE OF THE STUDY

The results of the study may aid in providing awareness regarding the effectivity of various face masks, and therefore help citizens, frontliners and future researchers.



STATEMENT OF THE PROBLEM

1. Does the produced output provide more protection than commercially distributed inexpensive cloth masks?
2. Are the alternative materials effective to prevent the transmission of respiratory droplets?

METHODOLOGY

RESEARCH DESIGN

Qualitative Comparative Analysis

FACE MASK PROCEDURE

The outer layer was made out of nylon fabric, the middle layer was made out of paper towel, and the inner layer was made out of cotton fabric.

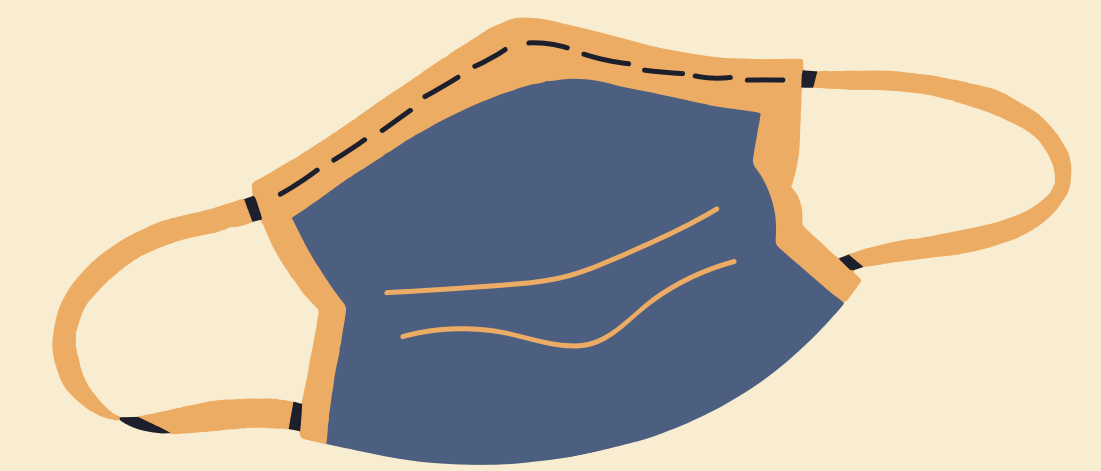
EXPERIMENTATION

The output's absorbency and water repellency was tested in the Intertek Laboratory through Absorbency Test and Spray Test respectively.

RESULTS

Water Repellency. Both the proposed output and the cloth mask failed to meet the standard of 70. Both masks received 0 remarks, due to their complete wetting upon testing.

Absorbency. Both masks failed to meet the standard for absorbency of less than 5 seconds. The proposed output took 60+ seconds, while the face mask took 8 seconds.



CONCLUSION

After analyzing the results, both cloth masks (control group) and face mask output (experimental group) are not ideal for use as they equally fall short of the required standards.

For prospective researchers, we recommend performing other tests such as air permeability test, and have the materials tested first before creating a face mask.

For the citizens, avoid using cloth masks as they are not reliable according to the conducted tests.

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