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For People Over the Age 65, Does the Use of Cloth Face Masks Help Lower the Transmission of COVID-19 Compared With the Use of Gaiter Masks?



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Abstract

- ◆ The COVID19 pandemic has generated rumors and conspiracy theories:
 - Origin of the virus, its modes of transmission, the options for preventing and treating it, and the actions governments have taken (Vraga & Jacobsen, 2020).
- ◆ Which is more effective: cloth face masks or neck gaiters
- ◆ Gaiter masks fit very loosely around the mouth and nose
- ◆ According to Massachusetts Institute of Technology, your mask should fully cover your nose and chin: preventing breathing in any droplets (Schive, 2020).
- ◆ Masks need to be tightly woven; you cannot see the individual fibers when holding it up to the light (Schive, 2020).
- ◆ Masks should be at least two layers thick
- ◆ A third layer adds extra protection (Schive, 2020).
- ◆ Cloth masks can spread droplets up to 2.5 inches (Woehner, 2020).
- ◆ As predicted, cloth face masks have shown to be more effective in slowing transmission

Introduction

- ◆ COVID-19: a widely emerging illness greatly affecting many populations
- ◆ Amid this pandemic, masks have been mandated in public locations
- ◆ Research question: which type of mask is the most effective and why
- ◆ This answer will help increase the overall health and safety of our citizens
- ◆ “Face shields and neck gaiters have been proposed as an alternative to face masks, but information about face shields and neck gaiters as source control devices is limited” (Lindsley, et al., 2020, p. 1).
- ◆ We believe cloth masks are the most effective

Methods

- ◆ “Alternative face coverings such as neck gaiters (an elastic fabric tube that fits snugly around the head and neck) are commonly used, but information about their performance as source control devices is limited” (Lindsley, et al., 2020, p. 3).
- ◆ Effectiveness of a mask partly has to do with how snug it fits around your face
- ◆ Gaiter masks fit very loosely around the mouth and nose
- ◆ These have one layer of fabric or two for extra protection
- ◆ According to the CDC, masks should be worn to fit snugly against the sides of your face (2020).
- ◆ Cloth masks: alternative kind of face barrier that has become increasingly popular
- ◆ Cloth face masks effectively protect people against the transmission of COVID-19
- ◆ Efficacy of cloth face masks: material it's made from, thickness of the mask, and fit of the mask against the persons face
- ◆ According to Massachusetts Institute of Technology, your mask should fully cover your nose and chin to prevent breathing in any droplets (Schive, 2020).
- ◆ The mask needs to be tightly woven (Schive, 2020).
- ◆ Mask: be at least two layers thick.
- ◆ Third layer: adds extra protection (Schive, 2020).



Device tested	Number of experiments	Fit factor	Aerosol mass (mg)	Collection efficiency
No device	12	n/a	512 (64)	n/a
Procedure mask	6	2.9 (0.5)	212 (23)	58.5% (6.9%)
Cloth mask	6	1.3 (0.1)	251 (23)	50.9% (7.7%)
Gaiter (single layer)	6	1.7 (0.5)	270 (18)	47.2% (7.5%)
Gaiter (double layer)	6	1.9 (0.4)	206 (26)	59.8% (7.2%)
Face shield	6	n/a	502 (46)	1.8% (15.3%)
N95 respirator	6	198 (3.5)	7.2 (1.2)	98.6% (0.3%)

Evaluation & Analysis

- ◆ “On average, the N95 respirator blocked 99% of the total mass of test aerosol from being released into the environment
- ◆ The cloth face mask blocked 51%
- ◆ The single-layer gaiter blocked 47%
- ◆ The double layer gaiter blocked 60%... (Lindsley, et al., 2020, p. 8).
- ◆ From this experiment performed, the loose fit and thin fabric of gaiter masks were less effective
- ◆ Wearing any kind of face mask is more effective than not wearing a mask at all
- ◆ Droplets can spread up to 25 feet when not wearing a mask (Woehner, 2020).
- ◆ Cloth masks have the potential of spreading droplets up to 2.5 inches (Woehner, 2020).
- ◆ Cloth masks: at least 2 layers needed
- ◆ Any extra layers can add extra protection (Woehner, 2020).

Conclusion & Implications for Future Research

- ◆ Multiple layered cloth face masks: more effective in lowering the transmission of infectious particles
- ◆ “As a widely used public health intervention strategy, great care must be given in selection of inexpensive cloth masks for exposure reduction efforts” (Shakya, et al., 2017, p. 356).
- ◆ “In comparison, the performance of the fitted, non-valved N95 mask was far superior” (Fischer et al., 2020, p. 1).
- ◆ “The type of fabric used, number of layers and frequency of washings influence the efficacy of the barrier against droplets” (Calvalcante, et al., 2020, p. 6).
- ◆ In the future:
 - the effectiveness of N95 masks and surgical masks should also be included
 - Then, the most effective mask can be concluded
 - amount of extraneous variables can be eliminated by all masks examined having equal layers, same fabric material, and all newly bought

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