ROSS UNIVERSITY
SCHOOL OF MEDICINE

The Effects of Mask Orders on Compliance and Health

Kurt Luchia

Introduction

Adopting masks as a public health measure for preventing the spread of infectious diseases is an option currently being debated, employed, and enforced. This research seeks to explore the subject, starting with lessons learned from pandemics, and the evolving COVID-19 literature. This is will be contrasted by a naturalistic observation experiment to help gauge the effects of mask orders on compliance and health.

The existing literature has identified the reasons for not complying with public health measures, such as perceived poor effectiveness[1,2], trust[1], perception of risk[1], and opposition to the mandatory nature[3].

The H1N1 pandemic has shown that promoting handwashing reduced the spread while facemask adoption did not[4]. Similarly, the importance of handwashing and social distancing has been found to be the most important factors in preventing the spread in previous pandemics as well[5,6,7,8,9,10]. Facemasks have been shown to have the ability to provide filtration protection on an individual basis[11,12,13].

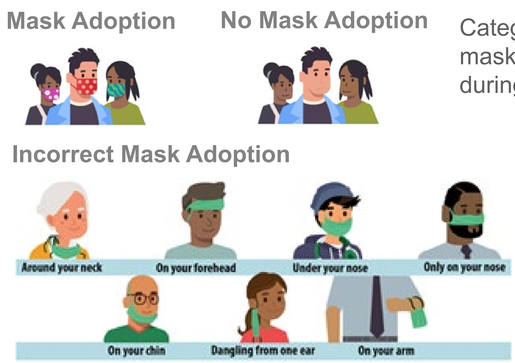
This research will seek to result in a recommendation for incorporation in public health policy during the COVID-19 pandemic or other public health emergencies.

Objectives

Use naturalistic observation to explore the relationship of mask adoption on spread of COVID-19. Other factors will be explored for relationships such as population density, perceived risk, authority of the order, and individualism/collectivism.

Methods

1. Counts from across Canada were taken at grocery stores during the 1st week of November 2020.
2. The number of people wearing, not wearing, and those incorrectly wearing masks were gathered. The authority level of the mask order was also noted.
3. Incidence rates per 100,000 were determined using available public health data.
4. Data from the adoption rates were compared for association with other factors.



Categories of the mask use seen during observation.

Results

1653 people from across Canada were observed in the provinces of British Columbia, Alberta, Saskatchewan, and Ontario. Mask adoption results were compared for correlation with other factors to explore for possible relations.

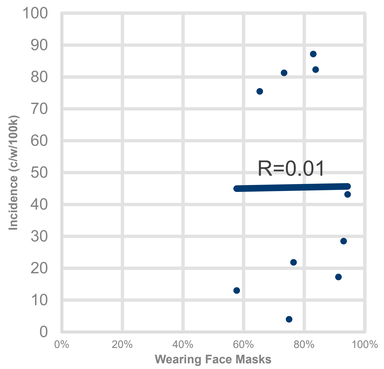


Figure 1 - **Incidence** vs Mask Adoption

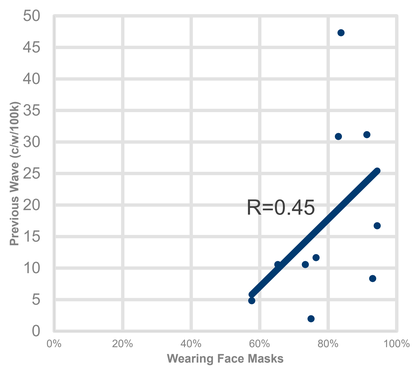


Figure 2 - Previous Worst Wave Severity vs Mask Adoption

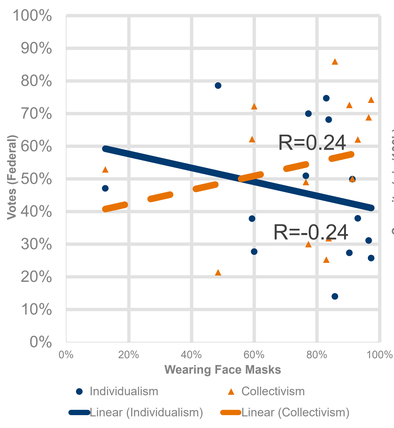


Figure 3 - Individualism/Collectivism (Federal) vs Mask Adoption

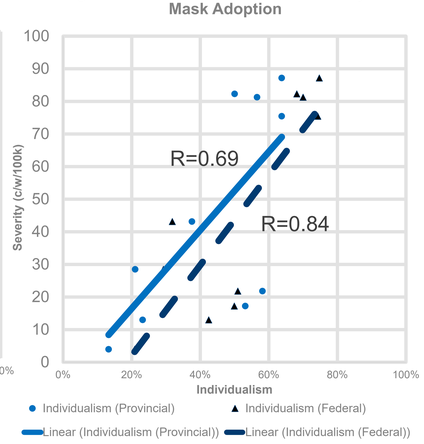


Figure 4 - Second Wave Severity and Individualistic Voters

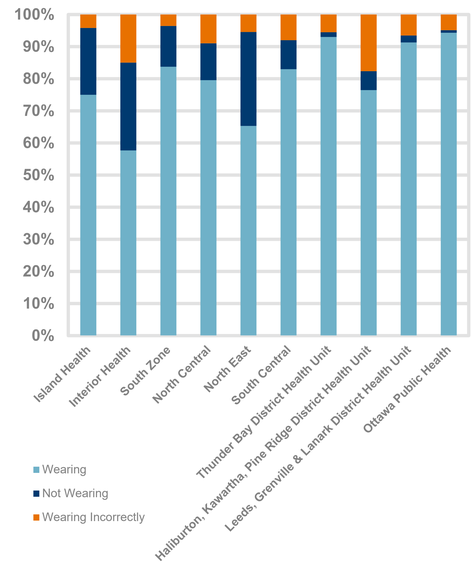


Figure 5 – Mask Count by Health District

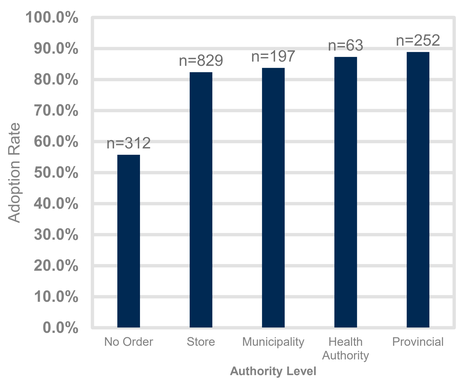


Figure 6 – Order Authority Level Effect on Mask Adoption

Conclusions

1. **No correlation was observed between masks and severity (Fig 1), while a positive correlation between individualism and severity (Fig 4) was observed suggests another factor associated with collectivists is causing a protective effect.**
2. **People will comply with mask use if they are concerned (Fig 2) or ordered to do so from an authority (Fig 6).**
3. **The literature review showed similar findings of limited effectiveness for masks in the general population, while positive results for the ability to filter droplets in the lab.**

The data suggests that an educational approach on proper usage with voluntary adoption would put the energy into improving mask use techniques and not simply compliance to hopefully translate to better performance at stopping the spread.

Acknowledgements

• Volunteers who supplied observational data

References

[1] Schmid et al., 2020; [2] Sunjaya & Jenkins; [3] Vensel, 2018; [4] Isaacs et al., 2020; [5] R. M. Alexander, 2019; [6] Cheng et al., 2020; [7] Chu et al., 2020; [8] Isaacs et al., 2020; [9] Lindsay, 2020; [10] Smith et al., 2020; [11] C. Liu et al., 2020; [12] Kai et al., 2020; [13] Gandi et al., 2020)