A Causal Research Investigation of COVID-19

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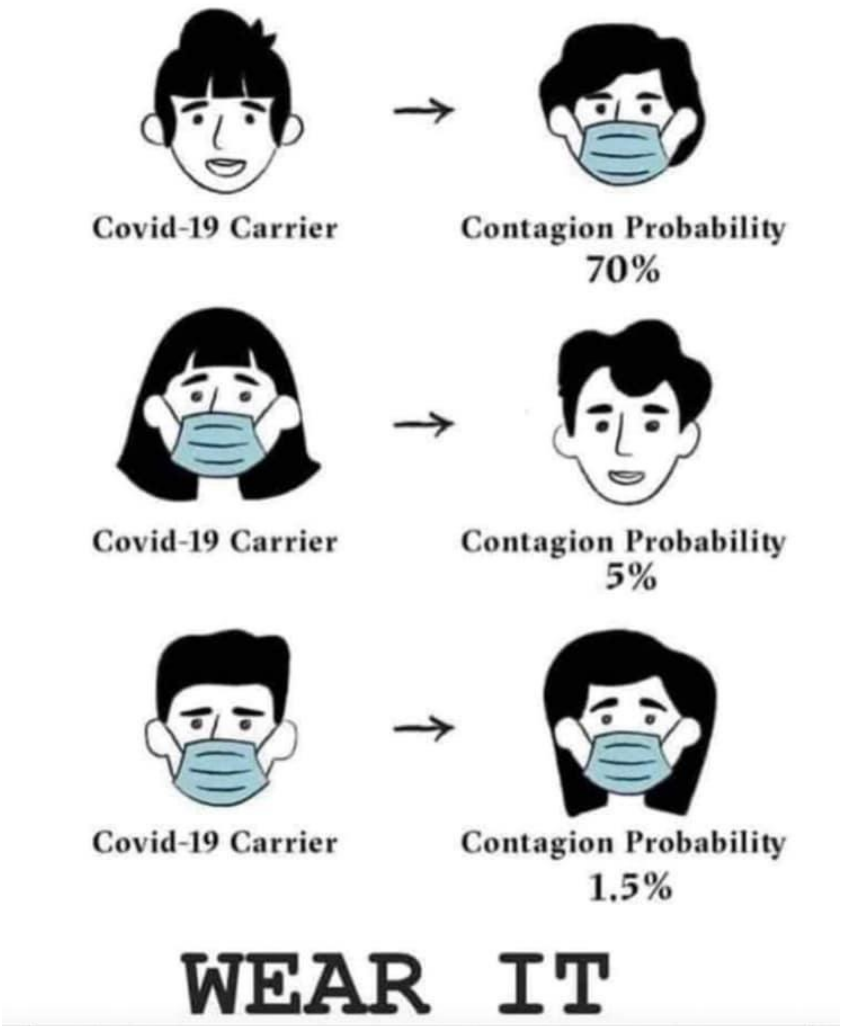
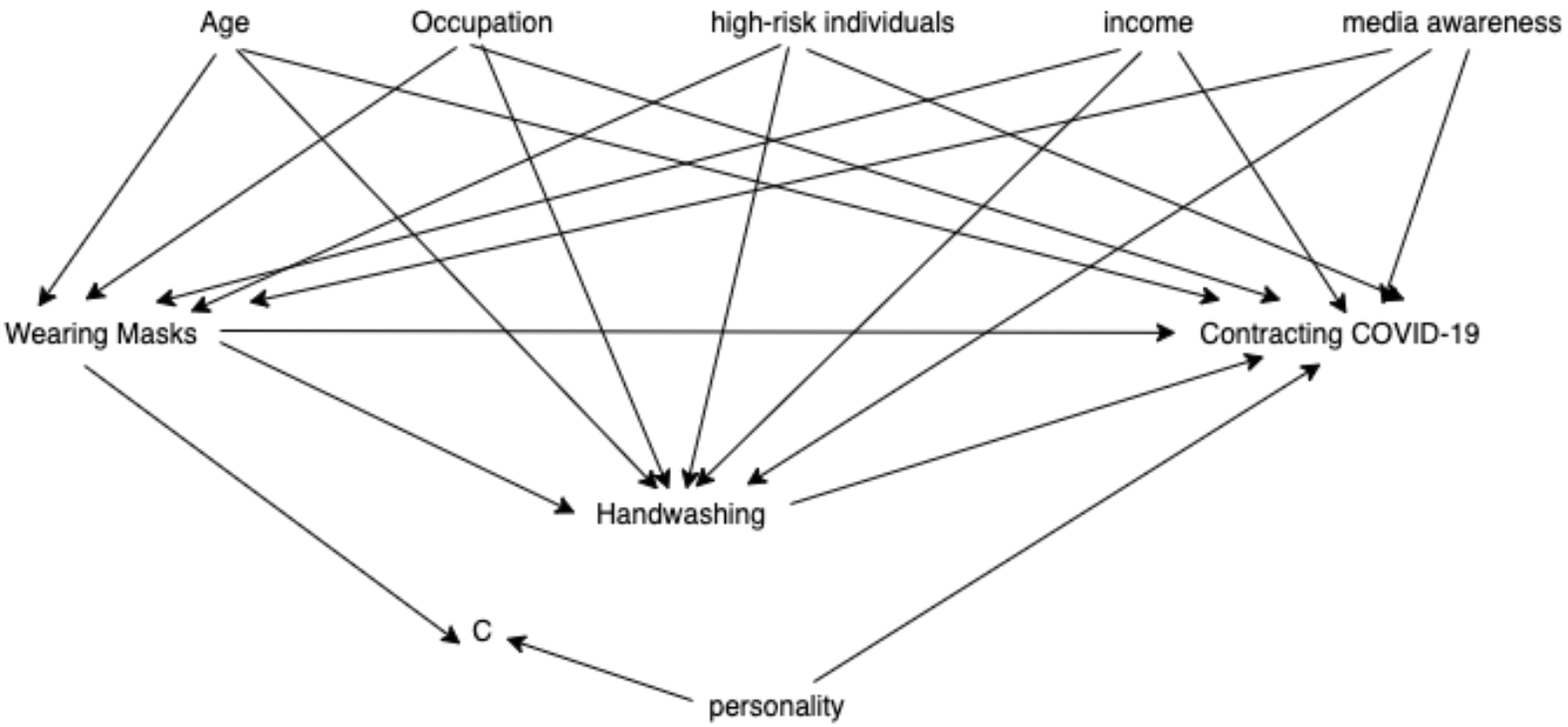
Step 1: Research Question

Question: What is the effect of wearing masks on the chances of contracting COVID-19?



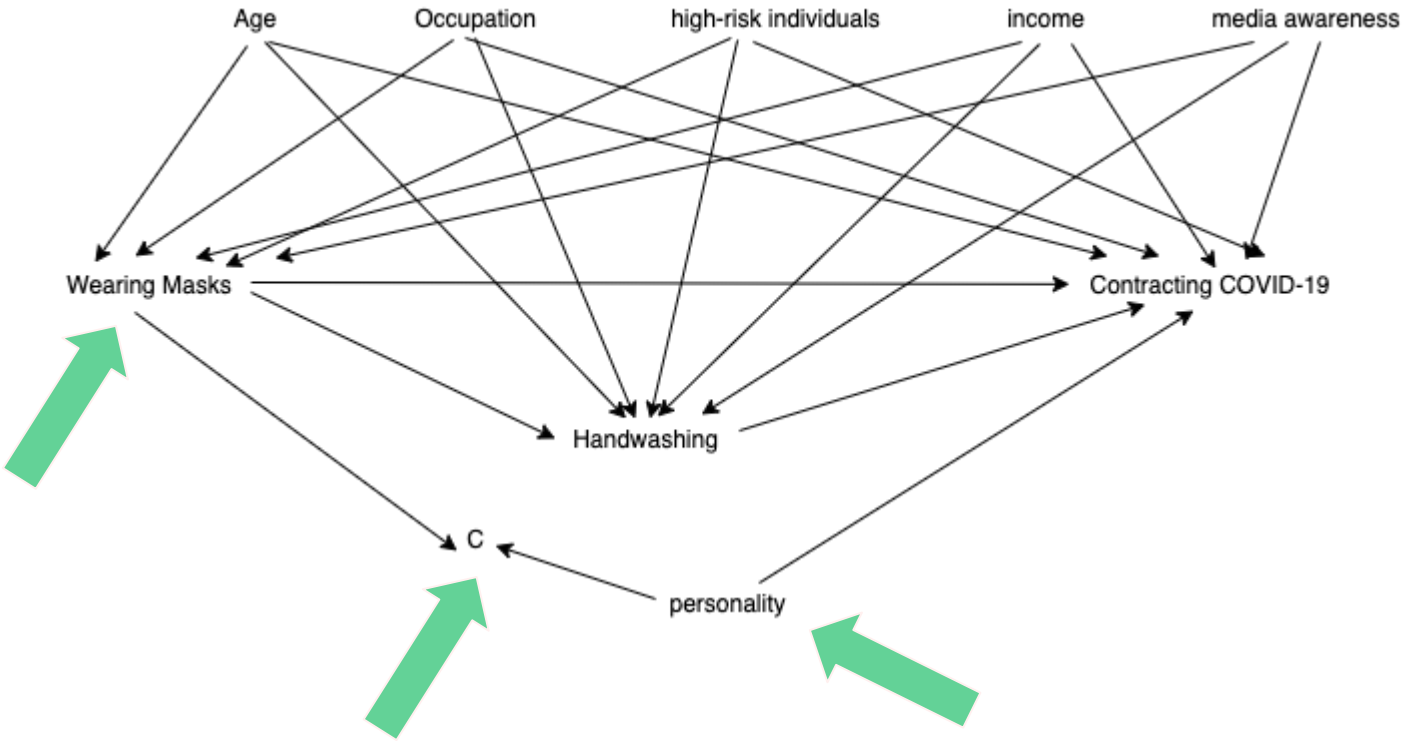
Social Media's Influence on Precautions against COVID-19

Step 2: Directed Acyclic Graph



Step 3: IP Weighting Analysis

Research goal: Estimate the effect of wearing masks on the chances of contracting COVID-19 in the whole population.


Age
Occupation
high-risk individuals
income
media awareness
Wearing Masks
Contracting COVID-19
Handwashing
C
personality

Step 4: Mediation Analysis

Research Question:

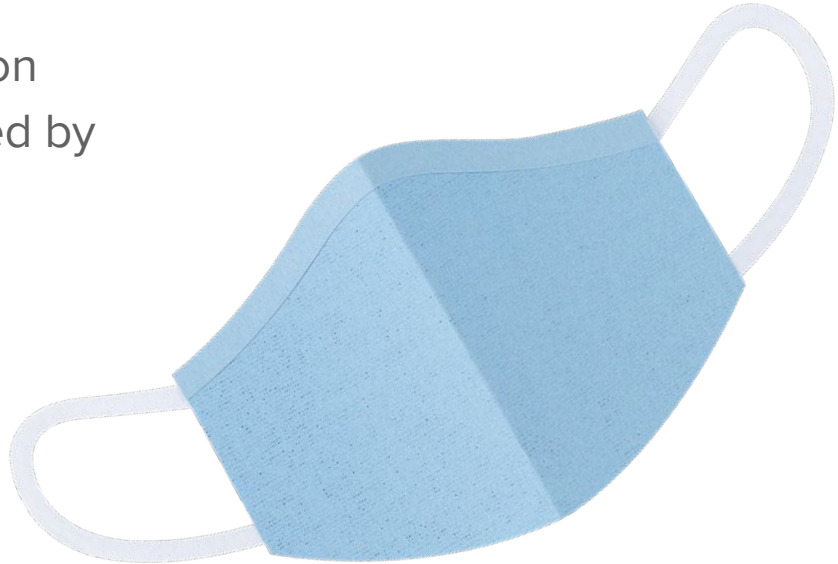
“How much of the effect of wearing masks on chances of contracting COVID-19 is mediated by handwashing?”.

Relevant Results:

ADE(control): NDE

ACME(treated): NIE

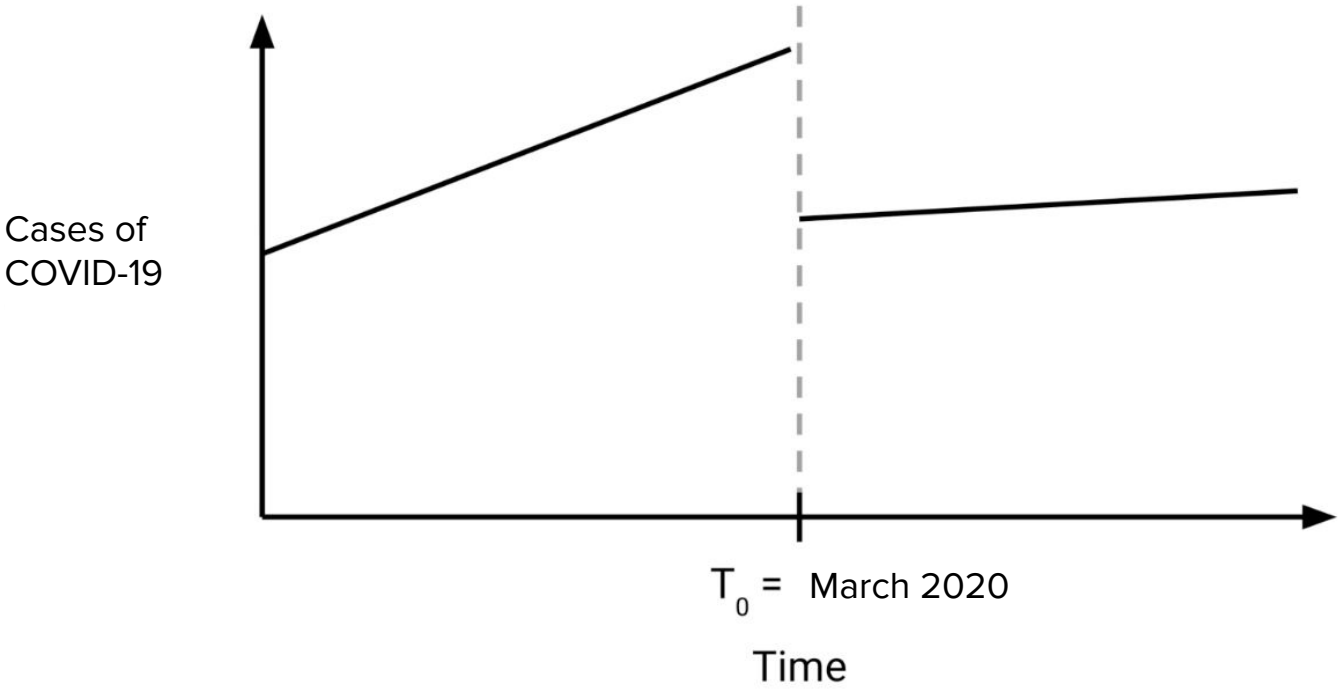
Prop. Mediated



Step 5: Causal Discovery

Unmeasured Confounder: Media Awareness

Step 6: Interrupted Time Series



Step 7: Time-varying Treatment Setting

Is it appropriate/useful to conduct this investigation in a time-varying treatment setting?

Research Question: Do transmission rates of COVID-19 affect the propensity that people wear masks in the future?

Image Sources

https://images.app.goo.gl/fFUnmTEcUR5X6xUs9

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