

The Impact of Individual Decision Making and Social Network on Youth Tobacco Prevention Campaign Effectiveness

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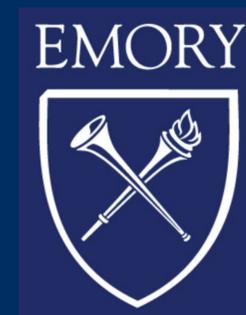
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Key drivers of tobacco product use among youth

Appeal of the product

Individual perception of tobacco product

Social influence

We conducted several agent-based computational experiments to address:

- *How does population social network structure affect the effectiveness of youth tobacco prevention campaign?*
- *Given the initial prevalence of tobacco product user in the population and social network structure, what type of campaign information would be effective in reducing the prevalence of tobacco product use in the long run?*

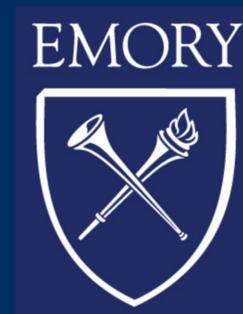
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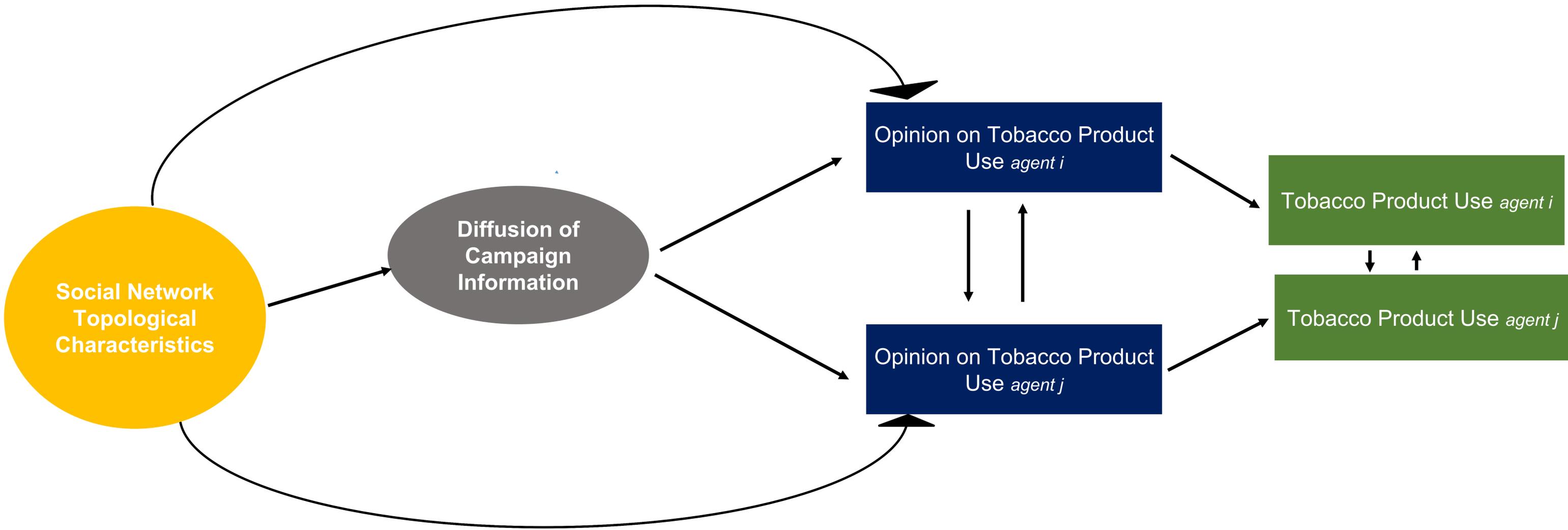
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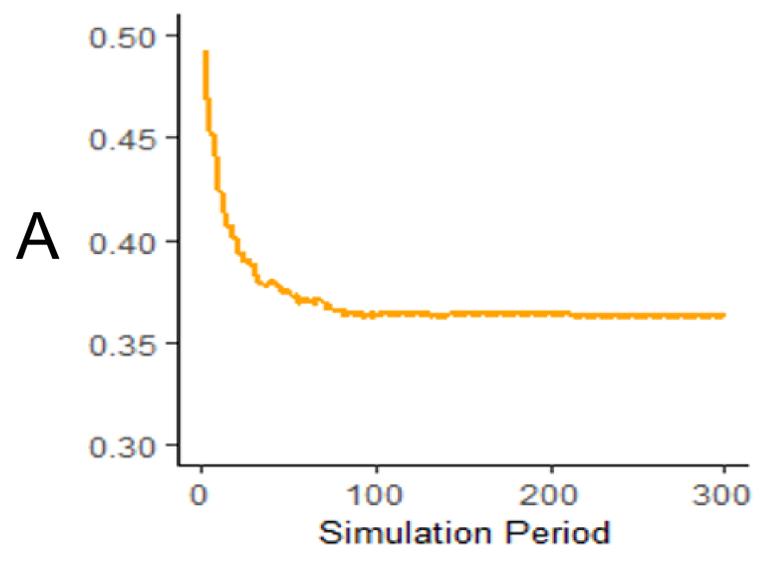
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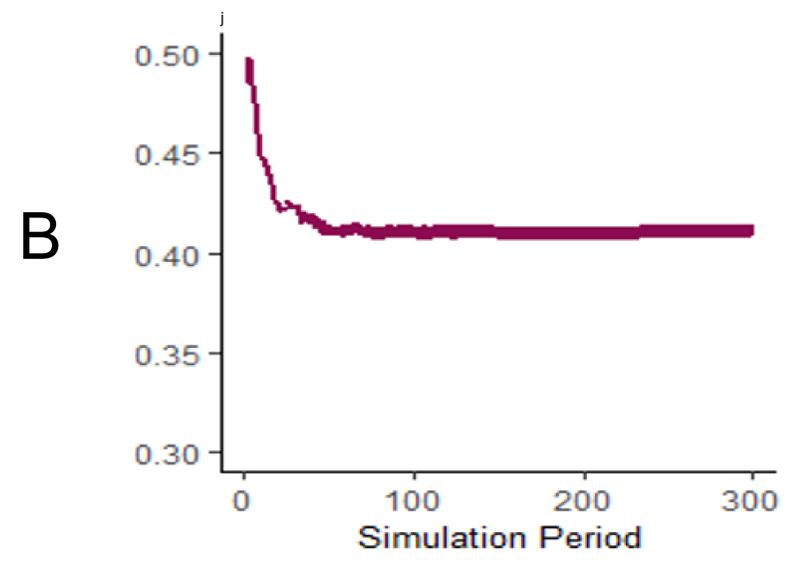
Model conceptualization



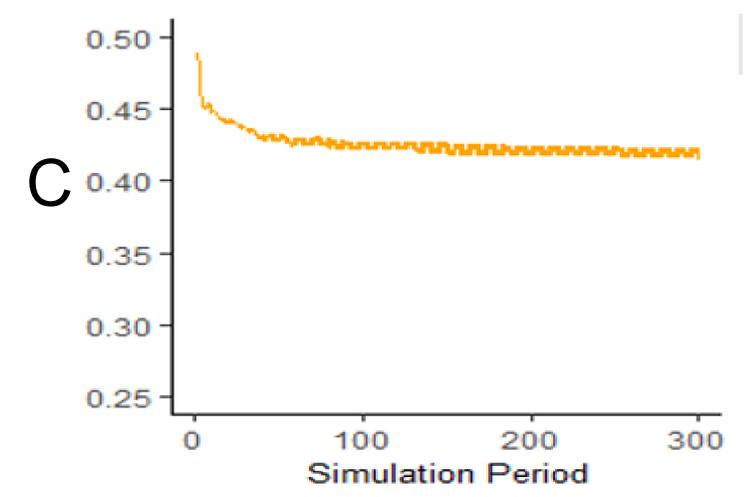
Proportion of Tobacco Product User



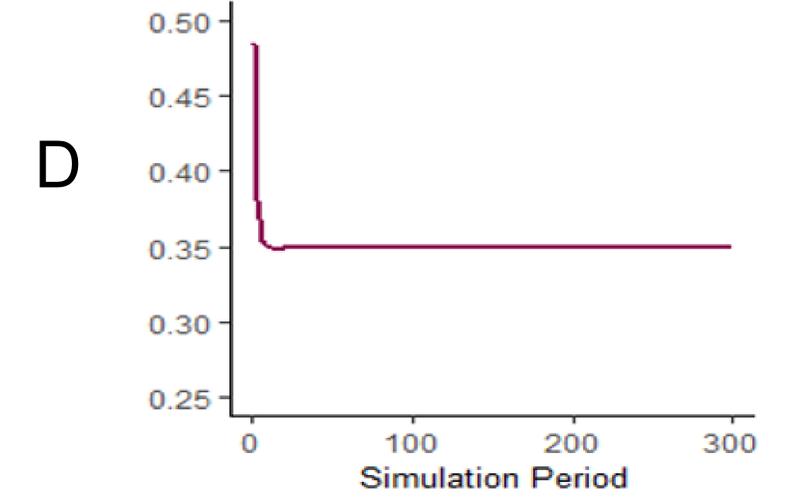
Short average path length, $\omega \sim \beta (3,3)$



Short average path length, $\omega \sim \beta (2,5)$



Long average path length, $\omega \sim \beta (3,3)$



Long average path length, $\omega \sim \beta (2,5)$

Key model assumptions:

- Agents have complete information on direct network connections' information regarding access to campaign information.
- Agents recognize the “normative behavior” based on initial prevalence of tobacco product user within the network.
- Targeted campaign carries more weight than social influence on agents' behavioral choice.

Key findings

- *Average path length, rather than levels of clustering of a social network, is a key determinant of campaign effectiveness among youth.*
- *Increased individual self-appraisal through tailored campaign message can be very effective in the long run, even in the presence of social network with longer average path length.*

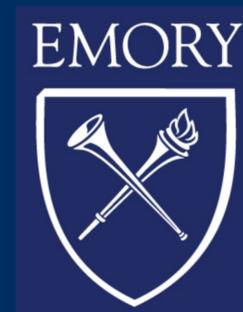
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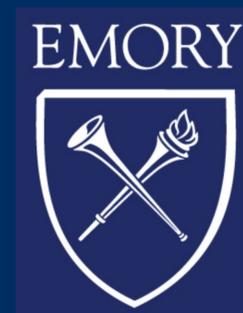
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