

# Can my reaction to an outbreak change its chain? A model-based study of social distancing during epidemic outbreak

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Human response to presence of disease can trigger a change on its evolution and or on social decisions taken by policy makers to control it. Therefore, understanding and quantifying how individuals become motivated to change their risky behavior and how and to what extent they adopt to outbreak can provide insight to predict response to interventions and health campaigns. We provide a model-based study of social distancing by individuals based on their cost/benefit consideration in the presence of an outbreak on a Erdős-Rényi substrate topology. We test a final size and basic reproduction number as a function of alarming time (prevalence threshold) for two different mechanism of behavioral change: global and local information. Our result indicated that the result are sensitive to the source of information and alarming time but not on the interval time of behavioral change.

**Keywords:** Behavior change; Cost/benefit analysis; Mathematical model