

Supplementary Material

1 IMPACT OF F_2 ON A DIFFERENT PARAMETER SETTING

To increase ρ^{A_2S} , parameters are set to decrease the proportion of individuals being infected and increase the transmission probability of negative awareness. To be specific, the values of parameters are set to be $\beta = 0.1, \mu = 0.8, \lambda_1 = 0.1, \lambda_2 = 0.8, \delta_1 = 0.5, \delta_2 = 0.1$. And the simulation results based on the new setting are shown in figure S1. Results indicate that the variation of λ_2 has an obvious impact on the epidemic threshold and the final epidemic size. That is, the role of λ_2 relies heavily on the parameters setting. When the proportion of individuals in state A_2 be higher, the impact of λ_2 would be stronger.

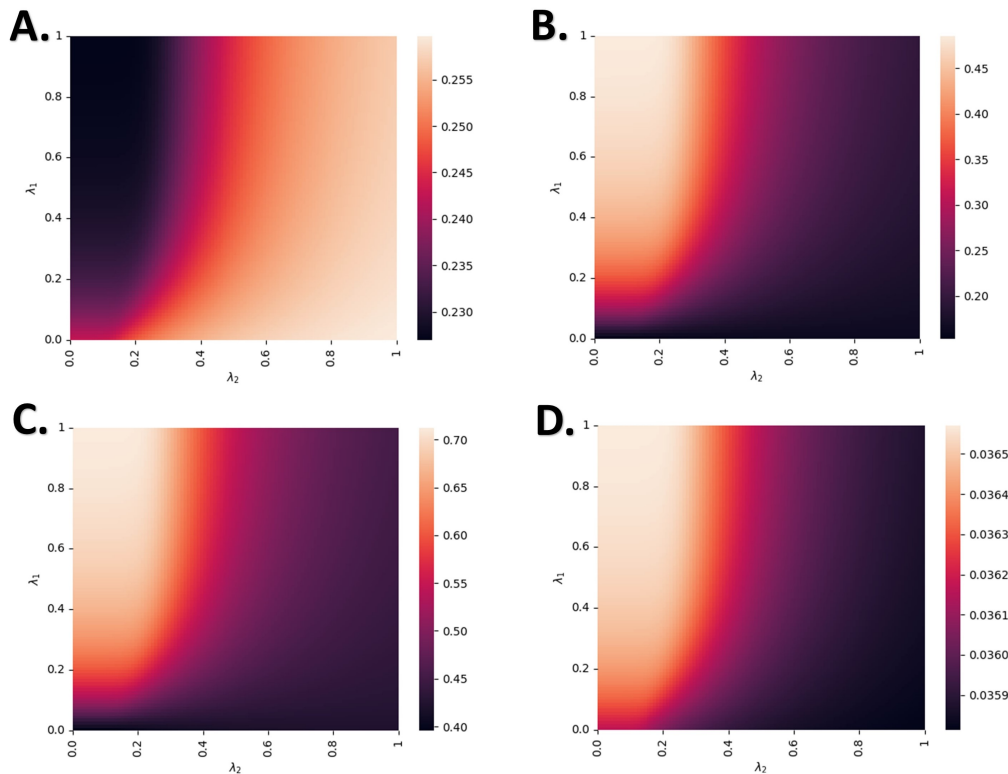


Figure S1. Proportions of ρ^{A_1I} (a), ρ^{A_1S} (b), ρ^{A_1} (c) and β_c (d) by MMCA as functions of λ_1 and λ_2 (awareness diffusion rate for positive and negative preventive information respectively). The proportions get larger when the color varies from dark to light. Each heat map consists of 100×100 lattice points. Parameters are set to be $\beta = 0.1, \mu = 0.8, \lambda_1 = 0.1, \lambda_2 = 0.8, \delta_1 = 0.5, \delta_2 = 0.1$. Other parameters are the same as the default values.

2 THE VALUES OF PARAMETERS USED IN THE EXPERIMENTS

Table S1 lists the default values of parameters used in the experiments. Table S2 presents the parameter settings for experiments shown in figure 10.

Table S1. The default values of parameters.

Parameter	Value	Parameter	Value
β	0.3	f_2	1.1
μ	0.5	ρ_1	0.7337
$\lambda_1(\lambda_2)$	0.6	ρ_2	1.3557
$\delta_1(\delta_2)$	0.3	ρ_3	0.9107
f_1	0.9		

Table S2. Parameter settings for experiments shown in figure 10.

	$\lambda_1(\lambda_2)$	$\delta_1(\delta_2)$	β	μ	ρ_1
I	0.1	0.3	0.1	0.5	1
II	0.1	0.8	0.1	0.5	1
III	0.1	0.3	0.1	0.7	1
IV	0.1	0.8	0.1	0.8	1
V	0.3	0.8	0.1	0.8	1