Reviewer’s report

Title: A Markov Chain Model for Studying Suicide Dynamics

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Reviewer: Kouichi Yoshimasu

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This paper shows important issue on suicide prevention from a view point of public health. Their methodology is based on sophisticated and reasonable mathematic model. In conclusion, they suggest that lowering the risk in the population at large may be more effective than reducing the high risk in a small population.

Though the topic is important and interesting as mentioned above, I have some concerns regarding the scientific significance of this paper.

# A total of 6.85 million people were healthy while there were only 150,000 mentally ill people. Consequently, it is quite natural that the number of suicide victims would decrease about 70 if suicide risk can be decreased via 1 per 100,000 in such large population. On the other hand, it is easily expected that only 1 or 2 suicide victims would be saved even if suicide risk can be decreased via 1 per 100,000 in only 150,000 of such population.

# In sum, even without complicated matrix calculations that the authors showed, the results of this paper are easily expected and obvious.

# In my opinion, reducing suicide risk via 1 per 100,000 in general population is much more difficult than that in mentally ill patients since intensive clinical treatment would be given to the latter case while concrete approach to general population is unclear. What is ‘population-wide mental health promotion program’ on page 8? Is it easier and more feasible to prevent 70 suicides among those with mental disorders by intensive and effective clinical care? The authors should clarify this point.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests