What makes for effective pandemic policy? 1

David Yuan, Nathan Cantafio 2

Abstract 3

Abstracts must be able to stand alone and so cannot contain citations to the 4
paper's references, equations, etc. An abstract must consist of a single paragraph 5
and be concise. Because of online formatting, abstracts must appear as plain as 6
possible. Three to six keywords must be included. Each keyword should not exceed 7
three words. 8

1.   Introduction 9

You need to say enough to understand the problem and objectives and a quick guide to 10
your approach. At the end of the introduction, give a brief outline of what the following 11
sections will cover, e.g., "The rest of the report is as follows. Details of the experimental 12
design will be given in Section 2, . . ." Probably we will cite here Turkyilmazoglu, 2022 13

2.   The experimental design 14

Give enough details about the factors and the response (give units). Rather than numerous 15
sentences, it will be easier for the reader to see at a glance the factors and their levels by 16
constructing a table with the name, a brief description, and the levels of each factor. In 17
the text, refer the reader to the table. You have seen many such tables in worksheets, for 18
example. The text can then focus on anything unusual that needs explanation and the 19
considerations leading to the choice of factors and their levels. 20

Describe the experimental plan (e.g., a fractional factorial with 5 factors and 8 runs). 21
If necessary, explain how the design was constructed, e.g., the aliasing structure you chose. 22

Describe any blocking factors and the randomization. Here it is best to err on the 23
side of plenty of detail. 11The experiment was randomized," is not convincing. If you 24
randomized the run order, say, then also give the actual run order in then data table. 25
Exercise 7.7, based on a real example, is a good illustration. 26

3.   Analysis 27

Try to be specific about your findings, and present numerical estimated effects, recom- 28
mended levels, the estimated response at the recommended levels, etc. "The high level of 29

temperature was better at the 5% significance level" does not summarize well: the reader would have to make some more calculations to assess whether the result is practically significant. Instead, "We are 95% confident that the effect of changing temperature from 15 to 25°C is an increase in mean (a response variable) of (a confidence interval)" tells the reader immediately whether there is a result of concern.

If interaction effects are reported you should be careful to interpret them. Numerical estimates of interaction effects are not easy to understand. Rather, refer to a table of averages or an interaction plot. Talk about how the estimated effect of one factor depends on the level of another.

Do not give excessive digits for estimates, etc. Two significant digits are usually sufficient for a standard error. Give the corresponding estimate to the same accuracy, e.g., 14.37 kg with standard error 0.54 kg, 14.4 kg with standard error 5.4 kg, or 14 kg with standard error 54 kg. Always give units of measurement for estimates and standard errors.

If a transformation has been applied you will often want to convert predictions on the transformed scale back to the original scale.

4. Conclusions

The conclusions are often essentially a summary of the important results.

Evaluate what you did. What would you do differently next time if a similar experiment were conducted?

5. Tables and figures

Tables should be numbered Table 1, Table 2, etc. and referred to by number in the text where they are discussed. They should have self-explanatory captions. Similarly figures. Tables and figures can be collected together at the end of the report just to make it easier to check that the text meets the 5-page limit.

Use the actual response name, factor names, and levels in tables and figures (e.g., levels 2m and 3m, not -1 and 1). Similarly, figures should have the axes clearly labelled with actual names.

If more than one line is drawn on a plot, there should be a caption describing the lines (usually using the actual names of the levels of a factor).
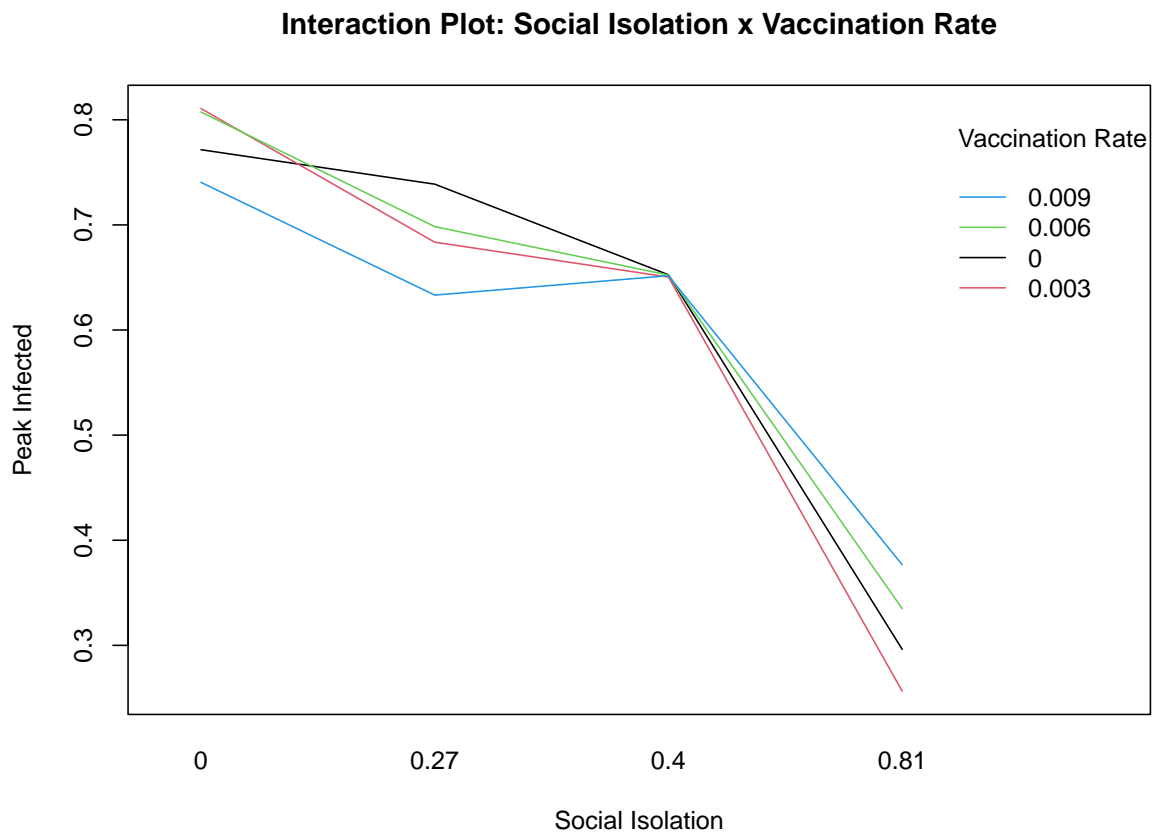
Interaction Plot: Social Isolation x Vaccination Rate

Figure 1: Interaction plot

References 60

Turkyilmazoglu, M. (2022). An extended epidemic model with vaccination: Weak-immune [61] sirvi. *Physica A: Statistical Mechanics and its Applications*, 598, 127429. https: [62] //doi.org/https://doi.org/10.1016/j.physa.2022.127429 [63]

Appendix [64]

Include an appendix with a clear description of all variables. Upload the data and all R [65] code as well as your report to canvas.ubc.ca. Please ensure the file names include data, [66] R-code and report, respectively, so that it is clear what is in each file. [67]

A.   Discussion of simulation [68]

B.   Description of data [69]