

# Review of: "Factors influencing variable symptoms of COVID-19 patients and proposed revision of public policy for COVID-19 pandemic"

Sofia Nyström<sup>1</sup>

<sup>1</sup> Linköping University

Potential competing interests: No potential competing interests to declare.

The author tries to explain the potential effects of genetic variants coding for viral receptors and genetic polymorphisms within the HLA class I and class II loci in the susceptibility to SARS-CoV-2 infection. Unfortunately, the description of the antiviral immune response is over-simplified, as is the description of the frequencies of HLA alleles. In addition, information the importance of virus evolution is missing, as well as the importance of different vaccines. Still, it is an interesting approach to consider individual factors in public policies for vaccines.

Consider including basic concepts such as tropism, productive/non-productive infection and to be more precise when describing host cell molecules, e.g. is it a cell surface molecule or an intracellular proteolytic enzyme?

The role of innate immune mechanisms should be briefly discussed and how the microenvironment and innate immunity shape adaptive immune responses. There are several studies emphasizing the importance of a functional type 1 interferon response in COVID-19 infection.

When it comes to HLA diversity, HLA molecules are inherited as haplotypes. 25% of siblings share the same HLA haplotype and one of the most common HLA A-B-DRB1 haplotype is shared by 6% of Caucasian Americans and 1% of Afro Americans according to the Bethematch database. Data on HLA haplotypes linkage disequilibrium could strengthen the manuscript.

The title is misleading, since only a handful of factors affecting SARS-CoV-2 susceptibility are discussed in the paper. The last paragraph of the intro section should be more specific about major objectives, methods and limitations of your manuscript.

Figures that explain viral entry and viral immunity would add important value.