

## Peer Review

# Review of: "Evolution of Perceived Vulnerability to Infection in Japan During the COVID-19 Pandemic"

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This study analyzes changes in perceived vulnerability to disease (PVD) in Japan using data spanning from before the COVID-19 pandemic to its later stages. This research is valuable as it underscores the importance of considering infection epidemic status and social events when discussing PVD. However, there are several aspects that require revision.

1. To further highlight the significance of this study, the authors need to provide a clearer explanation of how it differs from previous research. Prior studies have predominantly used PVD as an independent variable or explored its correlation with demographic factors (as cited by the authors in references [24–26]). Makhanova and Shepherd (2020), which the authors have cited, intentionally treat PVD as a variable independent of the COVID-19 pandemic. In comparison to these, not many studies have used PVD as a dependent variable as in this study. This study uses the term "beliefs" in defining the subscales of PVD, but it is unclear whether the authors consider PVD a stable trait or a mutable variable. Clarifying these points would better distinguish the unique perspective of this study from previous research.

2. Given that this dataset is likely influenced by the infection and social contexts of the COVID-19 pandemic, it is essential to report the exact dates of data collection in 2018, 2020, and 2021 in the Methodology section. Furthermore, the authors should include detailed information about Japan's COVID-19 infection status and significant societal events during the data collection periods post-2020.

NHK and the Ministry of Health, Labour and Welfare, among other organizations, have compiled information on infection trends and major events during the COVID-19 pandemic, which could serve as useful references.

<https://www3.nhk.or.jp/news/special/coronavirus/chronology/>

<https://www.mhlw.go.jp/stf/wp/hakusyo/kousei/20/backdata/8-3-1.html>

3. This study faces challenges related to sample matching, and I am particularly concerned about the complete absence of covariates. Understanding the constraints of the available data, I recommend considering gender and age as covariates, as these are important to the behavioral immune system and may help address potential biases in the results.

Additionally, although the authors emphasize that the pandemic caused changes in PVD in their discussion, they should exercise caution in making causal claims given the methodological constraints of the study.

4. Regarding the statement in the abstract that individuals “underestimate one’s resistance to infection during the pandemic,” the basis for this claim is unclear. For instance, if participants were prompted to recall their responses from 2018 and these responses differed significantly, terms like “overestimate” or “underestimate” might be appropriate. However, it is possible that participants’ evaluations at each point in time were reasonable within their respective contexts. In this case, using a term like “negatively” rather than “underestimate” may better reflect the findings.

## **Declarations**

**Potential competing interests:** No potential competing interests to declare.