

BMF CP91: Socio-demographic factors, illness experience, severity perception, and sensitivity to air quality index

AISDL Team

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“Smoke flies out from the cave, even faintly, but it is enough to make Kingfisher squeamish and almost blackout.”

–In “A Shocking Secret”; [Wild Wise Weird](#) (2024)

[COLLABORATIVE PROJECT]

1. Project description

1.1. Main objectives

The current study is conducted to examine the following research question:

- What are the factors associated with the sensitivity towards the air quality rating index to reduce outdoor activities?

1.2. Materials

The granular interaction thinking of mindsponge theory will be used for the conceptual

development of this study, while Bayesian Mindsponge Framework (BMF) analytics will be used for statistical analysis [1-4]. The dataset comprises 614 randomly selected people (in-person) across the Boise Metropolitan Area in Idaho and 1,623 Boise State University affiliates (online) [5]. Statistical analyses will be conducted using the bayesvl R package, which utilizes the Markov chain Monte Carlo (MCMC) algorithm for estimation [6]. For the sake of research transparency and reducing research and reproducibility costs, we have stored all data and computer code on Zenodo: <https://zenodo.org/records/13851416>.

1.3. Main findings

The preliminary analysis shows that females and people with higher educational levels tend to be more sensitive to air quality index ratings to reduce outdoor activity. Meanwhile, people who have experiences or households experiencing wildfire smoke-related illness and perceive higher severity of wildfire smoke are more sensitive to air quality index rating (see Figure 1).

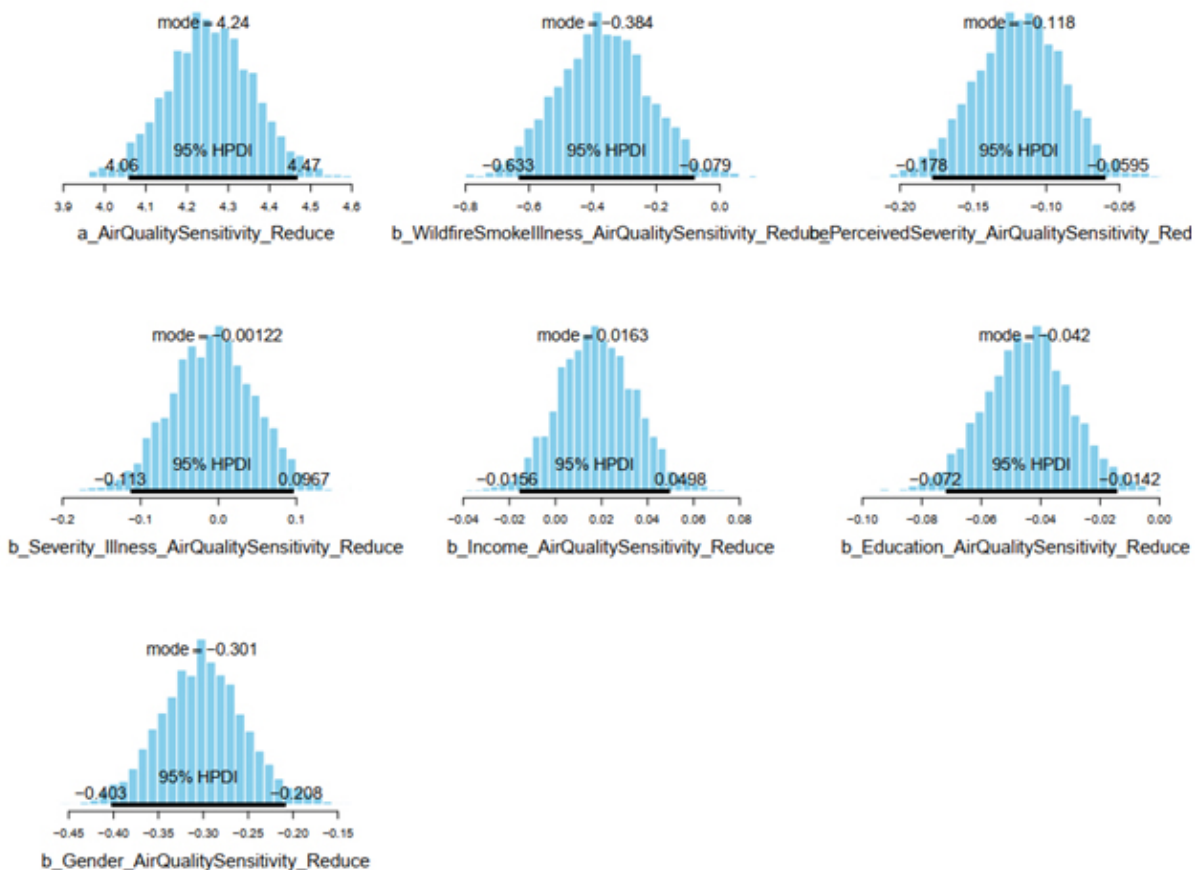


Figure 1: Estimated coefficients

2. Collaboration procedure

Portal users should follow these steps for registering to participate in this research project:

1. Create an account on the website (preferably using an institution email).
2. Comment your name, affiliation, and your desired role in the project below this post.
3. Patiently wait for the formal agreement on the project from the AISDL mentor.

If you have further inquiries, please contact us at aisdl_team@mindsponge.info

If you have been invited to join the project by an AISDL member, you are still encouraged to follow the above formal steps.

All the resources for conducting and writing the research manuscript will be distributed upon project participation.

AISDL mentor for this project: **Minh-Hoang Nguyen**

AISDL members who have joined this project: Quan-Hoang Vuong, Viet-Phuong La.

The research project strictly adheres to scientific integrity standards, including authorship rights and obligations, without incurring an economic burden at participants' expenses.

References

[1] Vuong QH. (2023). *Mindsponge theory*. Walter de Gruyter GmbH. <https://www.amazon.com/dp/BOC3WHZ2B3>

[2] Vuong QH, Nguyen MH, La VP. (2022). *The mindsponge and BMF analytics for innovative thinking in social sciences and humanities*. Walter de Gruyter GmbH. <https://www.amazon.com/dp/8367405102/>

[3] Vuong QH, Nguyen MH. (2024). *Better economics for the Earth: A lesson from quantum and information theories*. <https://www.amazon.com/dp/B0D98L5K44>

[4] Vuong QH, Nguyen MH. (2024). Further on informational quanta, interactions, and entropy under the granular view of value formation. <https://dx.doi.org/10.2139/ssrn.4922461>

[5] Hooyberg A, et al. (2024). Survey data linking coastal visit behaviours to socio-demographic and health profiles. *Scientific Data*, **11**, 315. <https://www.nature.com/articles/s41597-024-03161-y>

[6] La VP, Vuong QH. (2019). bayesvl: Visually Learning the Graphical Structure of Bayesian Networks and Performing MCMC with 'Stan'. *The Comprehensive R Archive Network*. <https://cran.r-project.org/web/packages/bayesvl/index.html>

[7] Vuong QH. (2024). *Wild Wise Weird*. <https://www.amazon.com/dp/B0BG2NNHY6>

