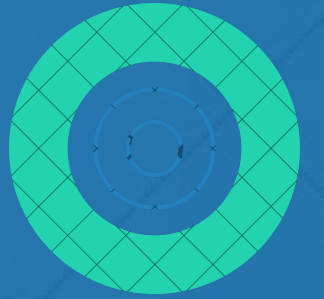
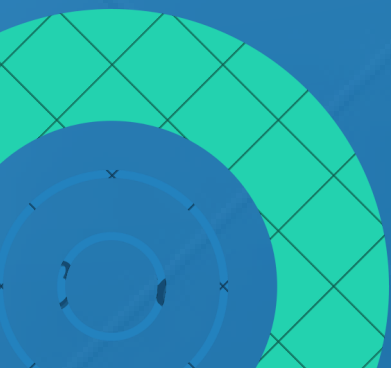
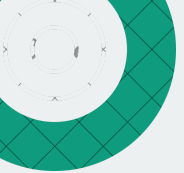


GLOBAL REPRESENTATION IN WEARABLE HEALTH TECHNOLOGY RESEARCH

Constance Yang





CONTEXT



Radin et al., 2020

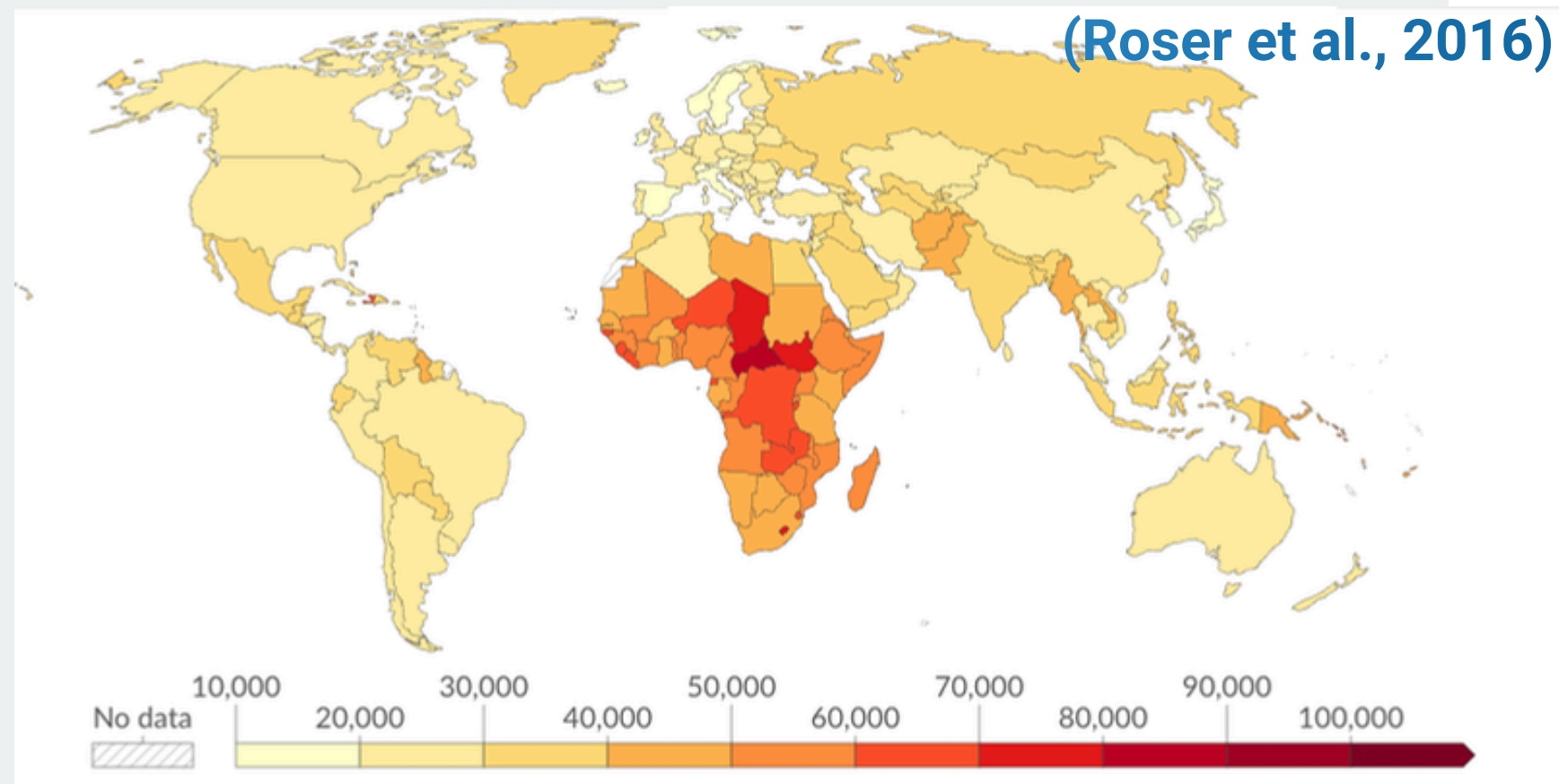
Introduction

Method

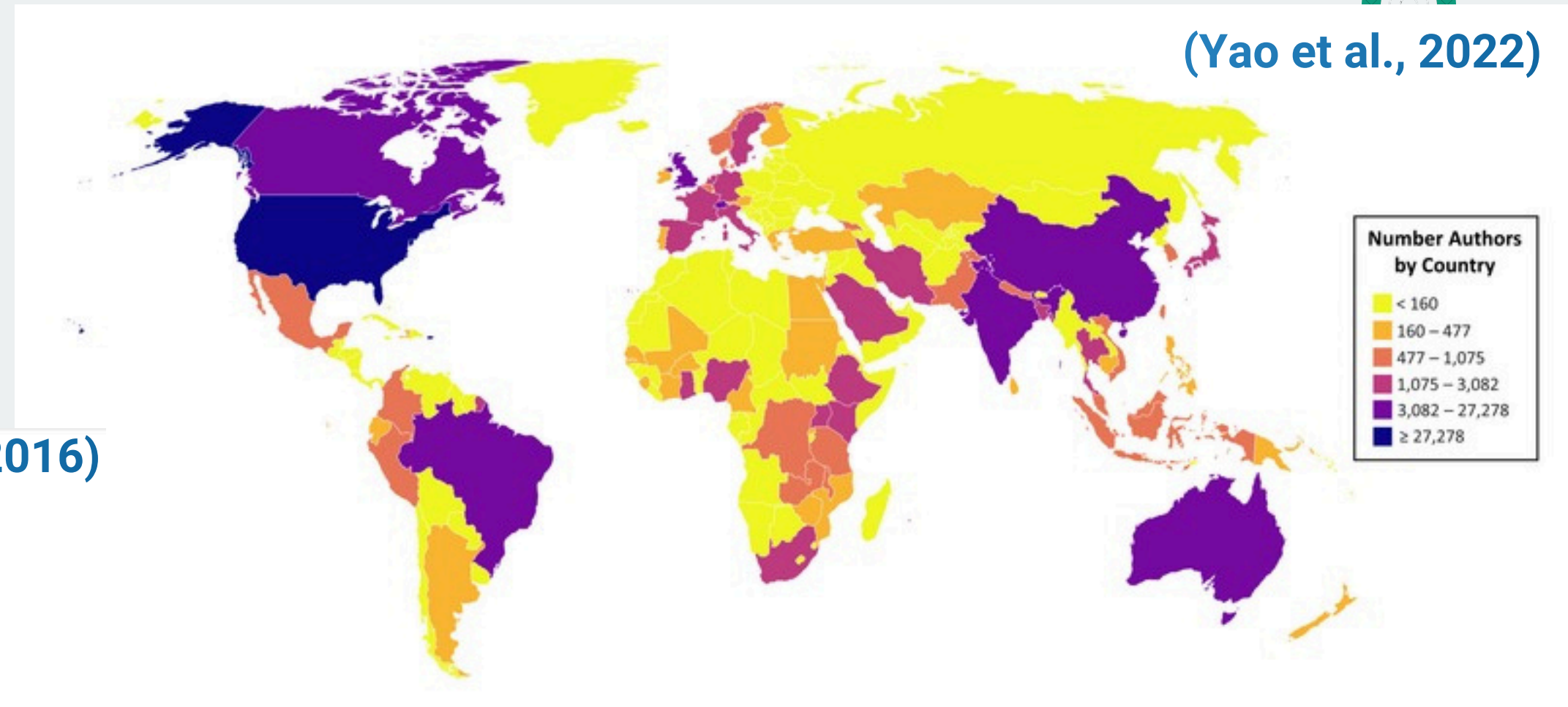
Results

Conclusion

GLOBAL HEALTH INEQUITY



Burden of Disease, 2023



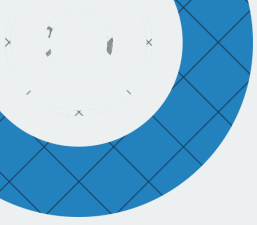
Number of global health
authors (2014-2020)

Introduction

Method

Results

Conclusion



(Bashizi, 2026)

**Data shapes
diagnosis**

Henrich et al.

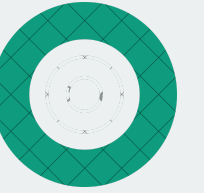
Introduction

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LITERATURE REVIEW



**Research
concentrated in
high-income
countries
(Yegros-Yegros
et al., 2020)**



**Disease burden
highest in lower-
income regions
(Roser et al.,
2016)**



**High-income
countries hold
leadership
positions
(Vecchio et al.,
2025)**

Introduction

Method

Results

Conclusion

GAP



Publications

**Disease
burden**

Studied

Studied

NOT compared

Introduction

Method

Results

Conclusion

To what extent is wearable health technology research equitably represented across income groups relative to disease burden?

High-income countries will be overrepresented in wearable health technology research relative to their share of global disease burden, while lower-income countries will be underrepresented.



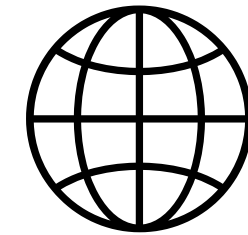
BIBLIOMETRIC ANALYSIS

Publication metadata serves as
proxy for influence in scientific
production

Bouchard et al., 2015



Publications



Countries



Trends

Introduction

Method

Results

Conclusion

REASONING



**Equity
Metric**

**Quantitative
analysis**

**Large
amounts
of data**

**Bouchard et al.
Smith et al;**

Introduction

Method

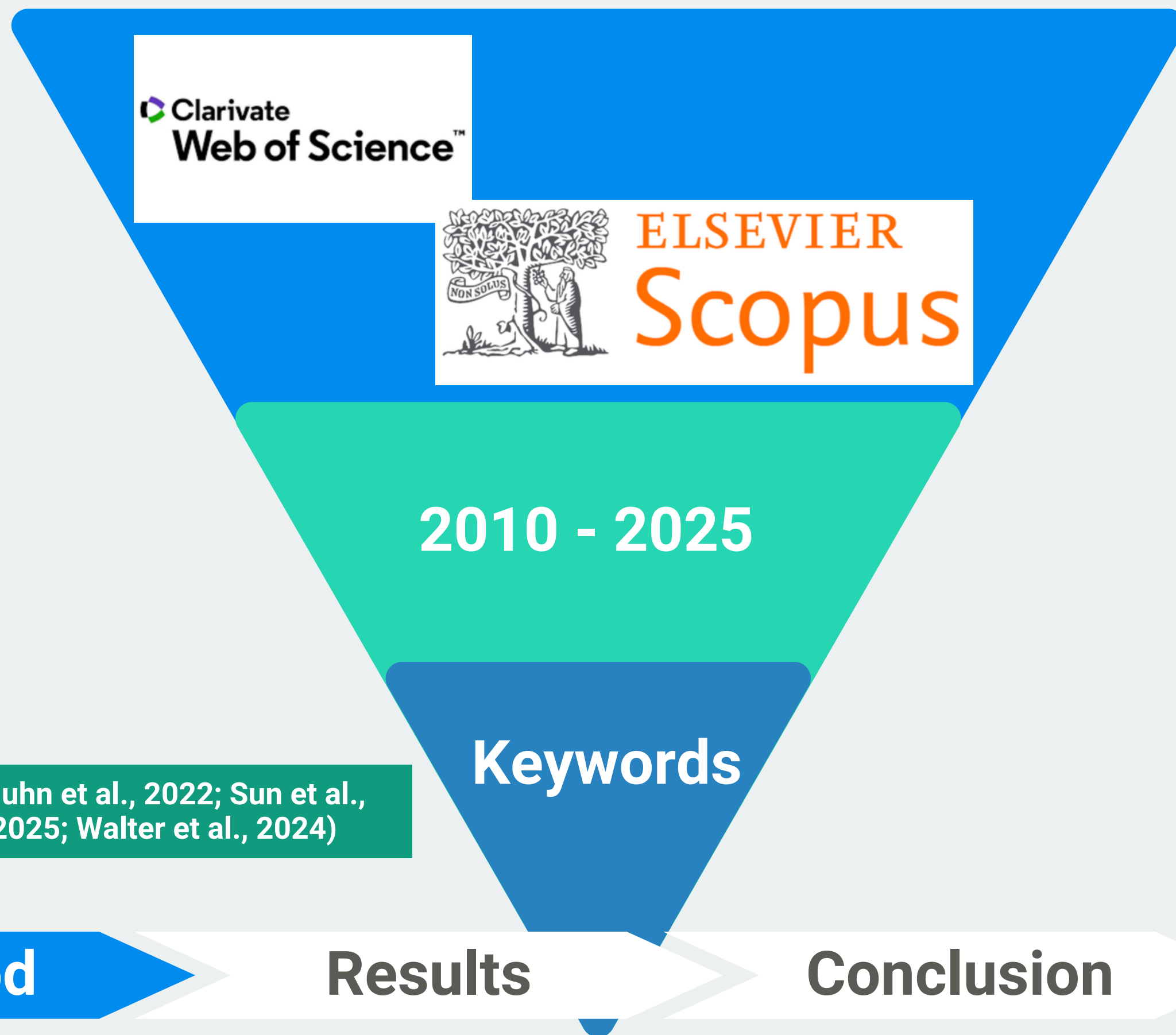
Results

Conclusion

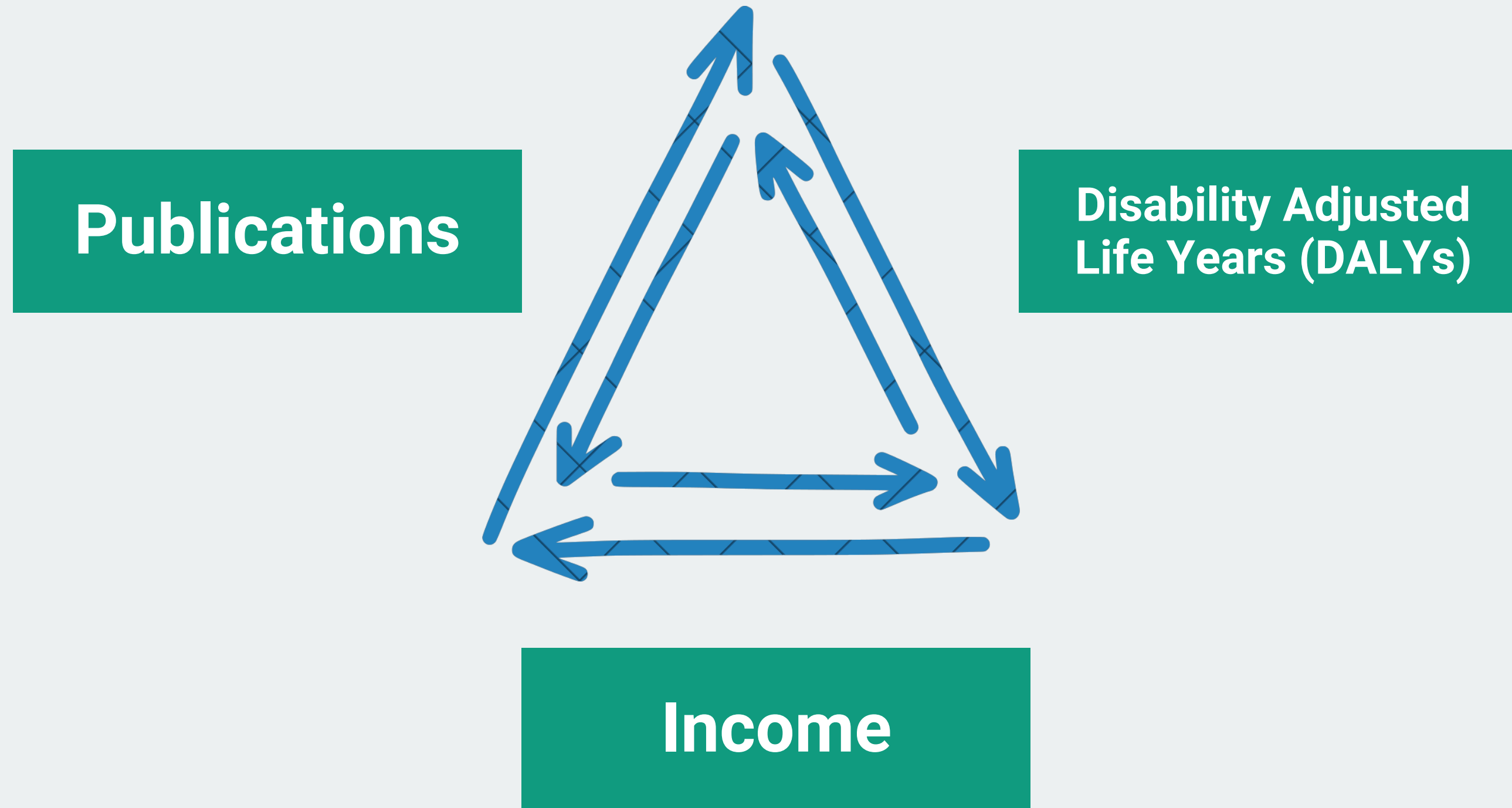


DATA & SEARCH STRATEGY

Manzari & Aytac, 2024



KEY VARIABLES

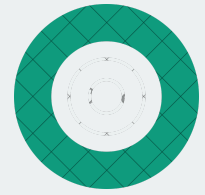


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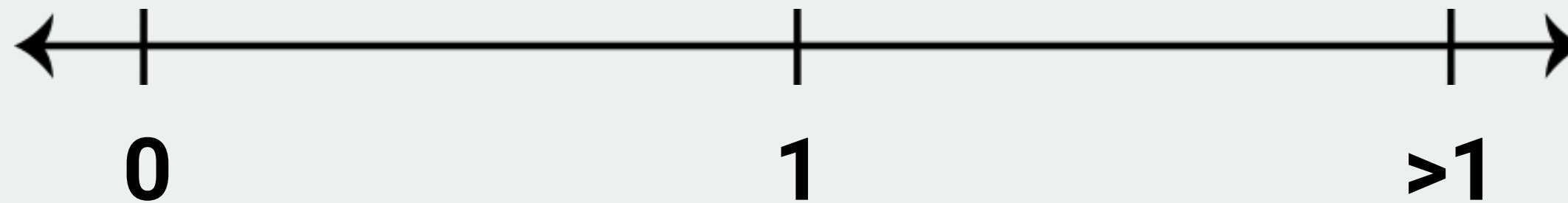
Results

Conclusion



REPRESENTATION RATIO

$$RR_i = \frac{\text{Share of global publications}_i}{\text{Share of global DALYs}_i}$$



Underrpresented

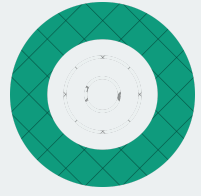
Overrepresented

Introduction

Method

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Conclusion



Spearman's correlation

Income vs representation

d is the **difference in rank** between the two variables.

$$r_s = 1 - \frac{6 \cdot \sum d_i^2}{n \cdot (n^2 - 1)}$$

n is the **number of cases**

(Volk-Jesussek, 2026)

Introduction

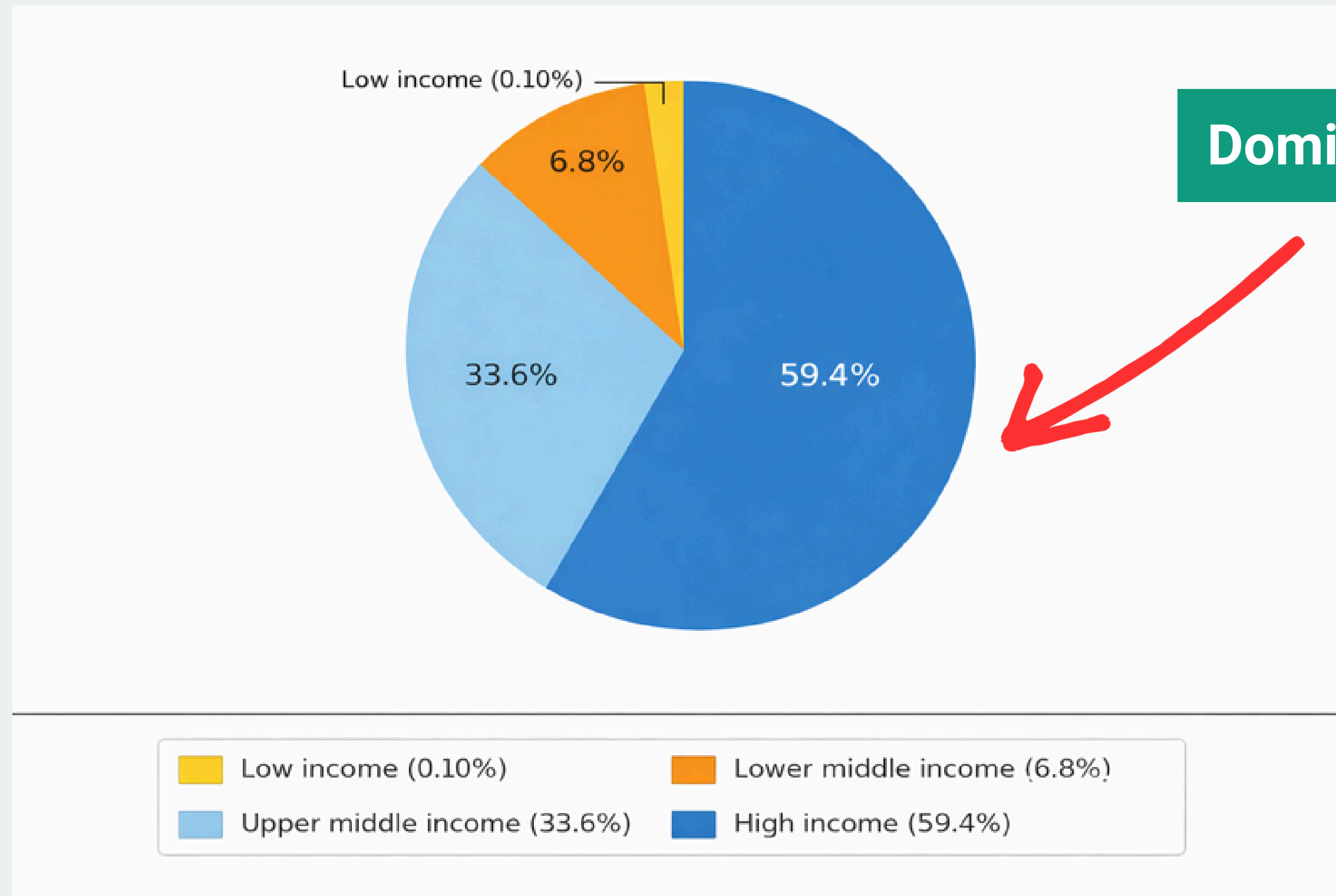
Method

Results

Conclusion

12,462
Publications

PUBLICATION DISTRIBUTION



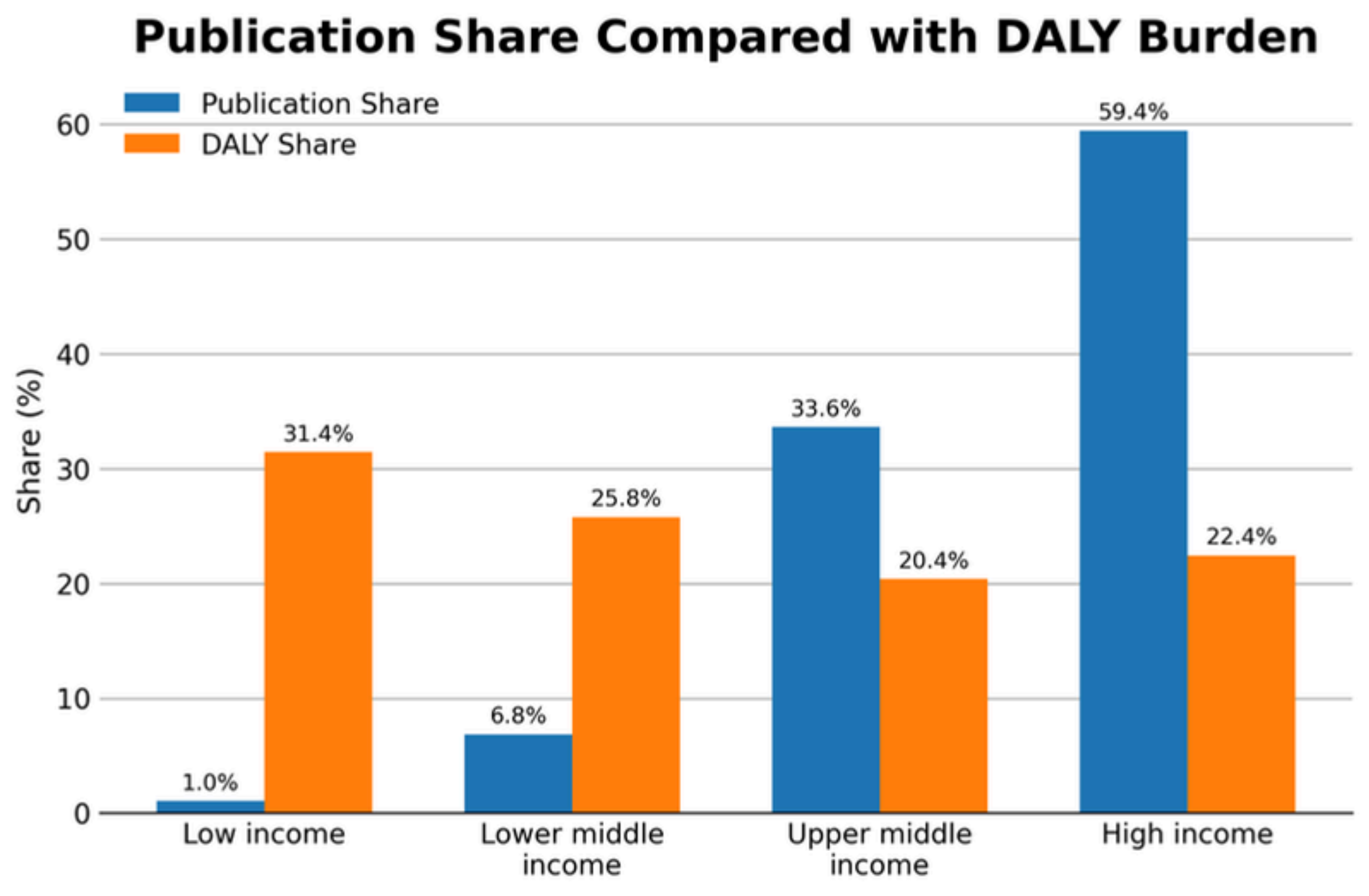
Introduction

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DISEASE VS RESEARCH



**Unequal
concentration**



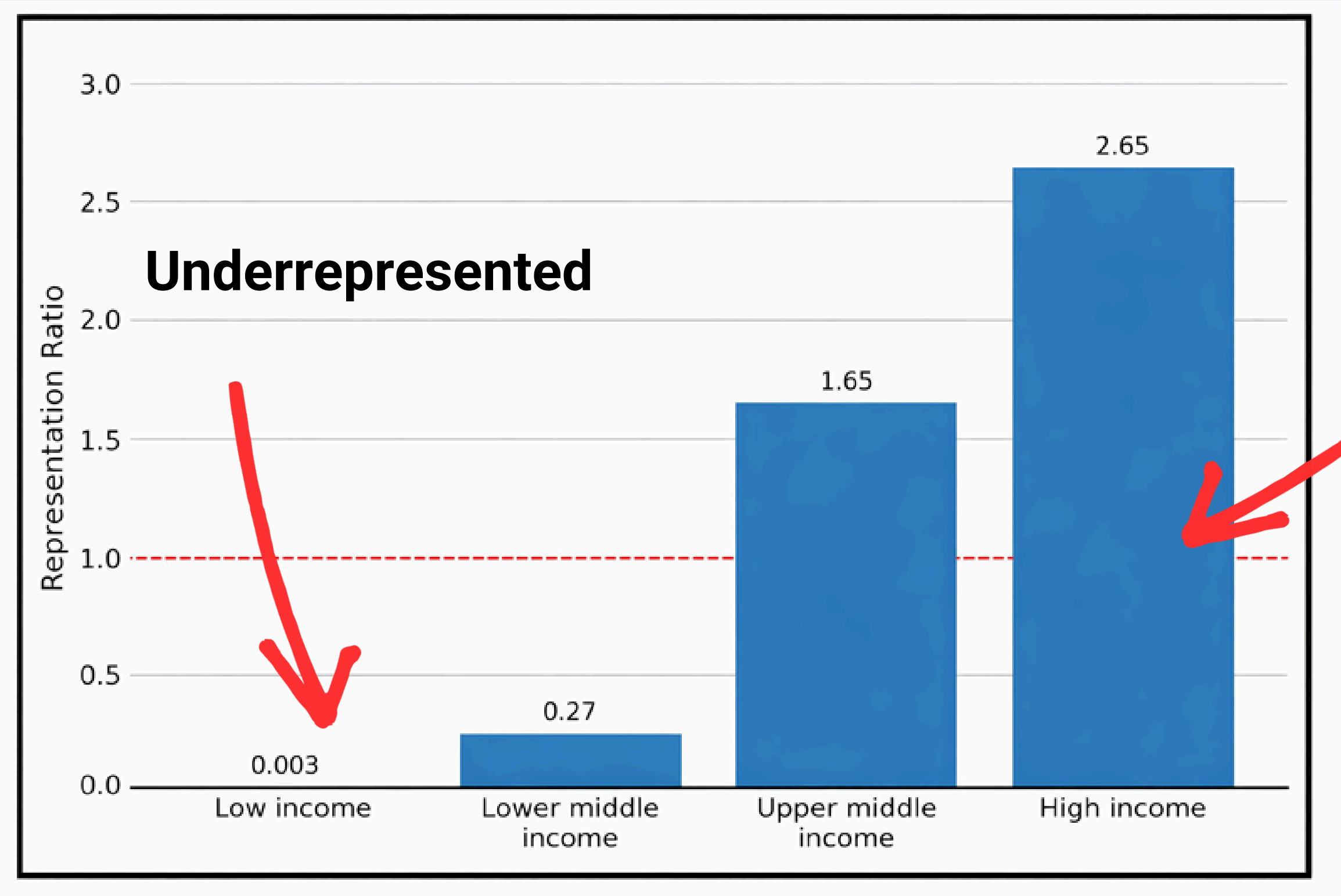
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REPRESENTATION BY INCOME GROUP



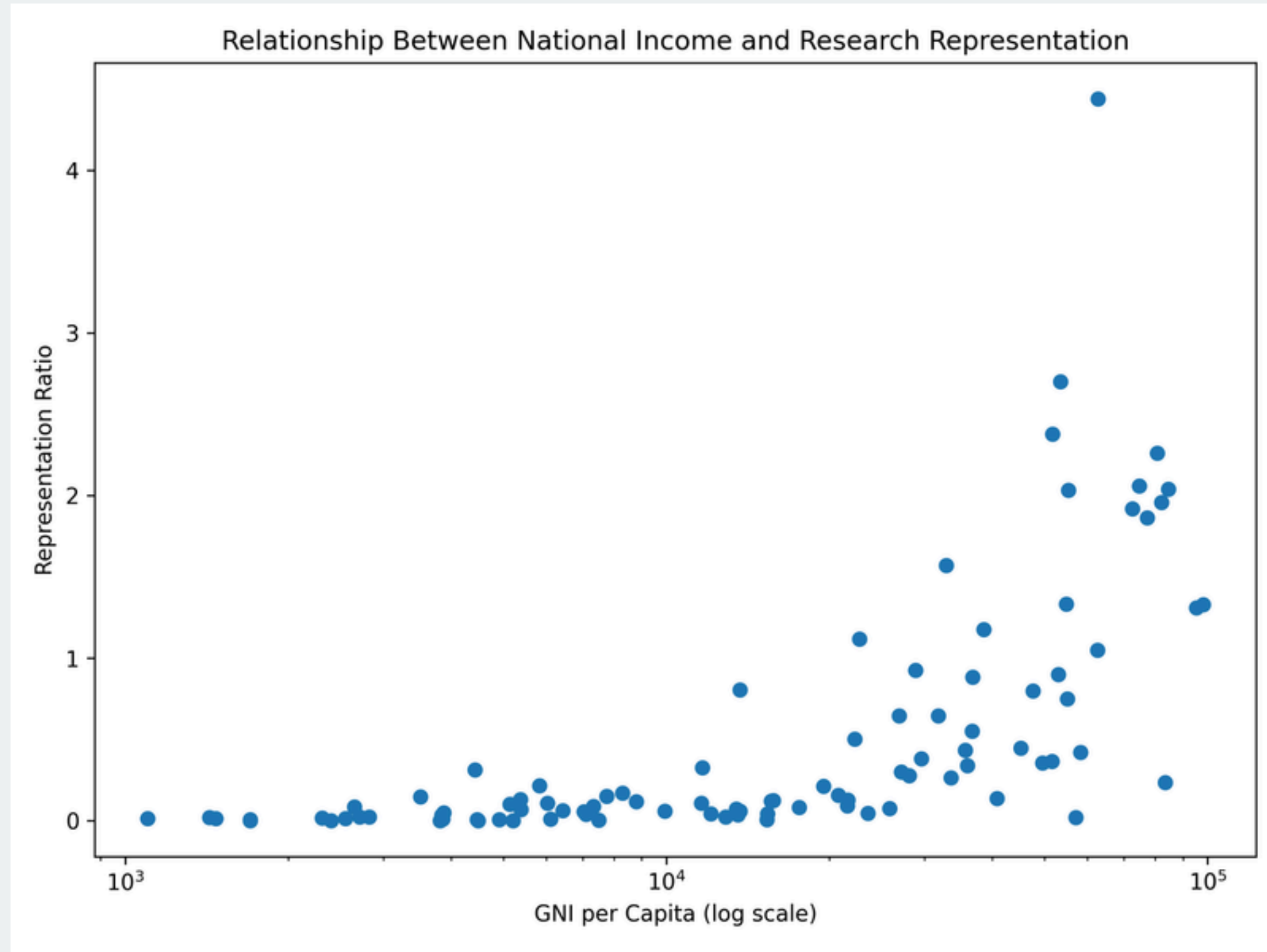
Introduction

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CORRELATION



**Strong positive
relationship**
 $\rho = 0.816$

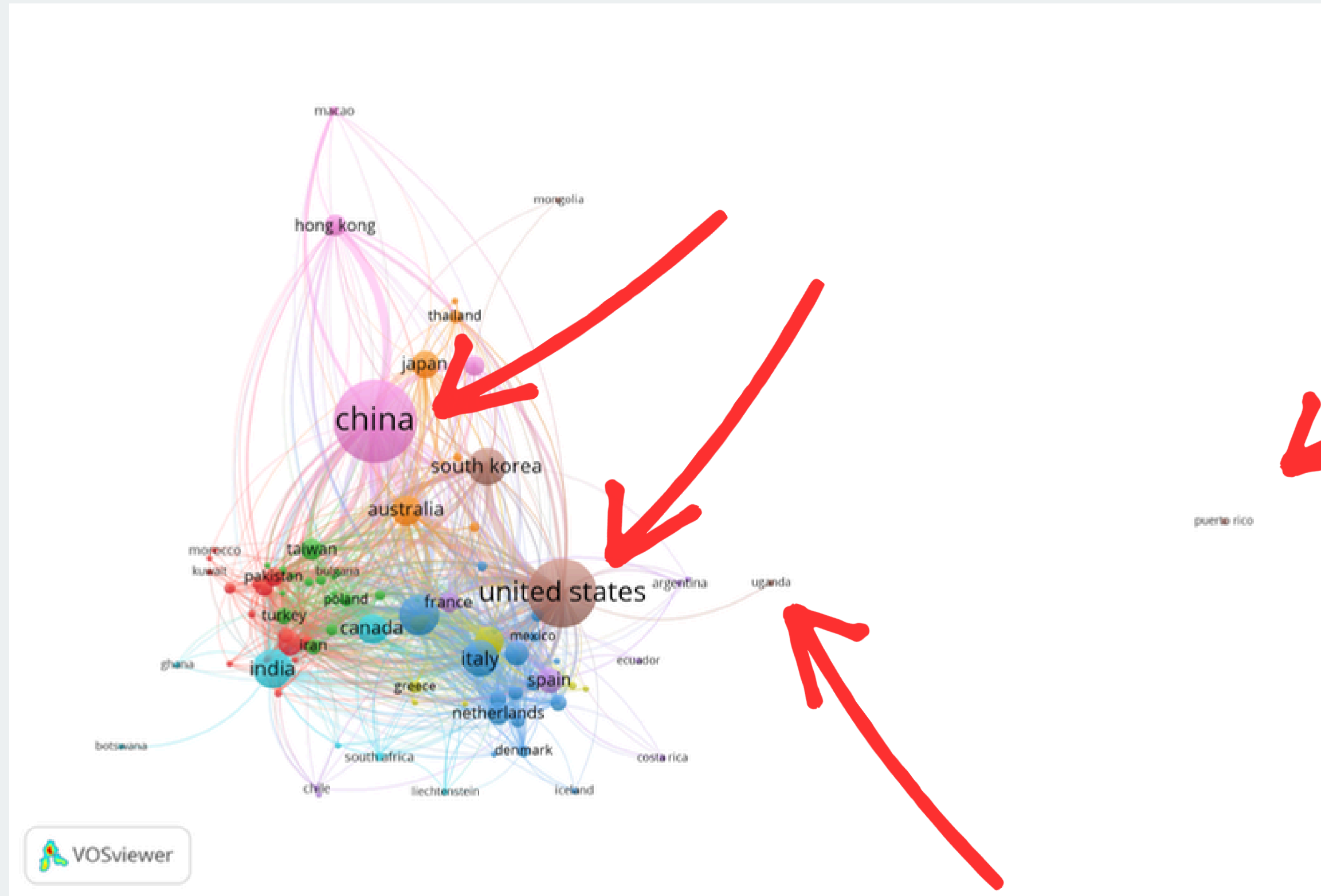
Introduction

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GLOBAL COLLABORATION PATTERNS



Introduction

Method

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Conclusion



CONCLUSION

1

High income countries account for the majority of wearable health technology research

2

Upper middle income countries show moderate research output but are still underrepresented

3

Publication is generally clustered around high-income countries

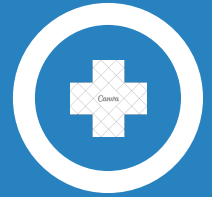
Introduction

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Conclusion

Research output follows economic capacity rather than epidemiological need



Link to Literature

**CONFIRMS EXISTING
RESEARCH INEQUALITY**

(YEGROS-YEGROS ET AL.,
2020)

(NATIONAL SCIENCE BOARD,
2023)

ADDS

**WEARABLE TECH-SPECIFIC
ANALYSIS (MENG ET AL., 2024)**

ADDS

DALY-BASED COMPARISON

Introduction

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Results

Conclusion

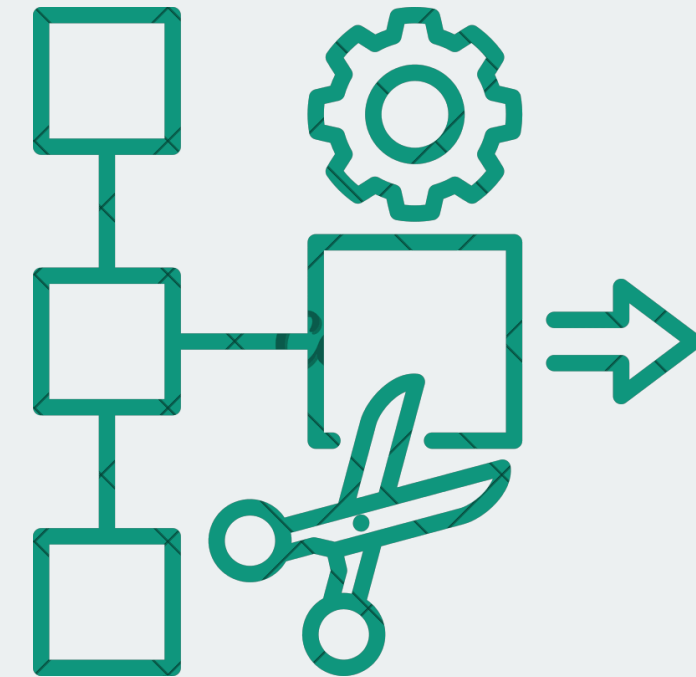
LIMITATIONS



Language



Database



Simplification

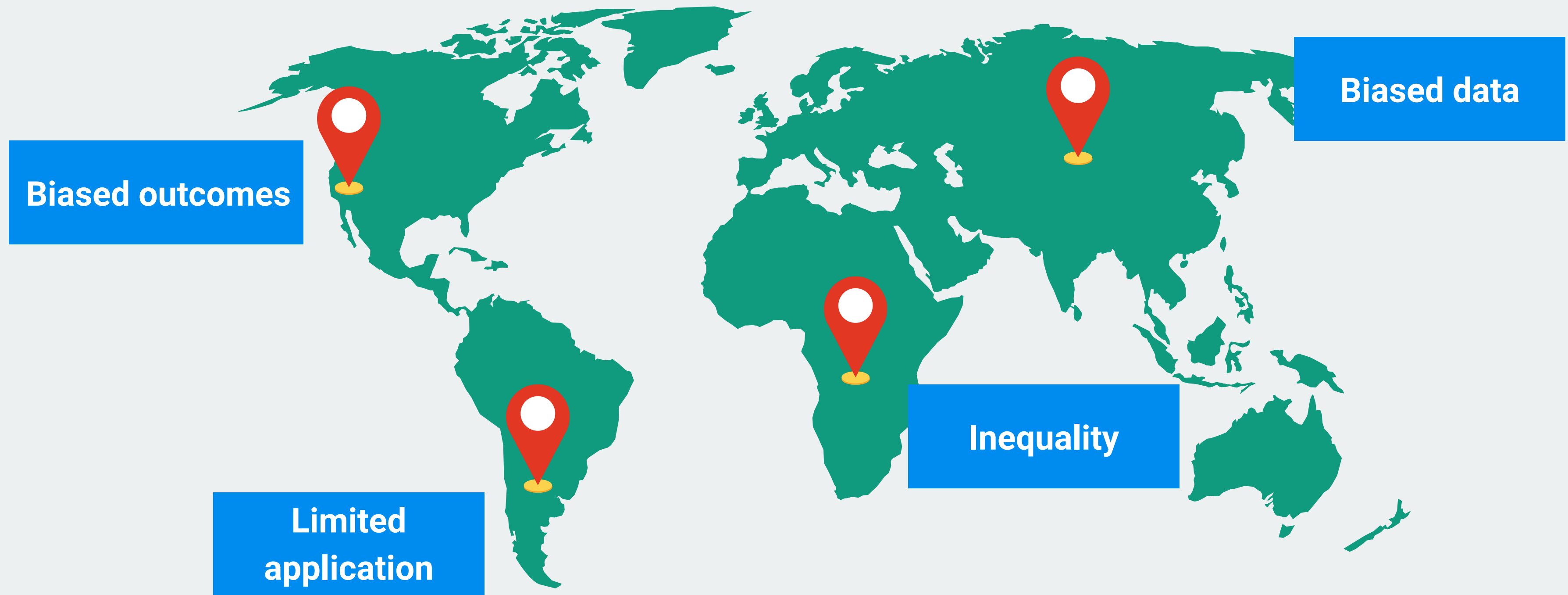
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IMPLICATIONS - SIGNIFICANCE



Introduction

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Conclusion

IMPLICATIONS - POLICY

Investment in
underrepresented regions

Leadership

Collaboration

Funding

Introduction

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Results

Conclusion



FUTURE RESEARCH



Policy barriers

Funding

Longitudinal
Trends

Citation Impact

Introduction

Method

Results

Conclusion

A wireframe globe with blue lines on a light gray background. The globe is composed of a grid of latitude and longitude lines, with a central point where all lines converge.

Global health requires global data

REFERENCES

- Bashizi, A. (2026). Habiba Sali, right, a nurse in the diabetes clinic of the Maroua Regional Hospital in Maroua, in the far north of Cameroon, takes the vital signs of a patient during a checkup on Dec. 1, 2025. As deaths from diabetes start to rival those from infectious threats like malaria, a new form of the condition linked to malnutrition is surfacing in patients who can afford neither screening nor care. In *The New York Times*.
- Bouchard, L., Albertini, M., Batista, R., & de Montigny, J. (2015). Research on health inequalities: A bibliometric analysis (1966–2014). *Social Science & Medicine*, 141, 100–108. <https://doi.org/10.1016/j.socscimed.2015.07.022>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(2-3), 61–83. <https://doi.org/10.1017/s0140525x0999152x>
- Manzari, L., & Aytac, S. (2024). *Library Guides: Bibliometrics: Databases*. Libguides.com. <https://liu.cwp.libguides.com/c.php?g=225325&p=4994168>
- Meng, F., Cui, Z., Guo, H., Zhang, Y., Gu, Z., & Wang, Z. (2024). Global research on wearable technology applications in healthcare: A data-driven bibliometric analysis. *Digital Health*, 10. <https://doi.org/10.1177/20552076241281210>
- National Science Board. (2023, December 11). *Publications Output: U.S. Trends and International Comparisons | NSF - National Science Foundation*. Ncses.nsf.gov. <https://ncses.nsf.gov/pubs/nsb202333/publication-output-by-region-country-or-economy-and-by-scientific-field>

- Radin, J. M., Wineinger, N. E., Topol, E. J., & Steinhubl, S. R. (2020). Harnessing wearable device data to improve state-level real-time surveillance of influenza-like illness in the USA: a population-based study. *The Lancet Digital Health*, 2(2), e85–e93.
[https://doi.org/10.1016/s2589-7500\(19\)30222-5](https://doi.org/10.1016/s2589-7500(19)30222-5)
- Roser, M., Ritchie, H., & Spooner, F. (2016a). *Burden of Disease*. Our World in Data.
<https://ourworldindata.org/burden-of-disease>
- Sitthiphong. (2020). Close up of hand touching smartwatch with health app on the screen, gadget for fitness active lifestyle. stock photo. In *iStock*.
- Smith, E. M. R., Kozlowski, D., Vásquez, L. E., Lubna Daraz, & Larivière, V. (2025). A bibliometric analysis of vulnerable populations publication in health science research. *Ethics Medicine and Public Health*, 34, 101228–101228.
<https://doi.org/10.1016/j.jemep.2025.101228>
- Smith, E. O. (n.d.). Patient Carolyn Hayes Knoll wears a wireless monitor — with a central unit the size of a bar of soap — after being admitted to the Vanderbilt University Hospital Emergency Department. In *Vanderbilt Health*.
- Surabaya, G. M. (2019). A hospital ward. In *Pexels*.
- syda_productions. (n.d.). Doctor showing prescription to patient at hospital. In *Freepik*.
- The Institute for Health Metrics and Evaluation. (2021). *Global Burden of Disease (GBD)*.
Www.healthdata.org. <https://www.healthdata.org/research-analysis/gbd>

- Vecchio, A., Nandawula, B., Sawyer, K., Amisi, J. A., Szkwarko, D., & Chang, K. Z. (2025). Authorship Inequity in Global Health Research Conducted in Low- and Middle-Income Countries and Published in High-Income Country Family Medicine Journals. *Annals of Family Medicine*, 23(3), 223–230. <https://doi.org/10.1370/afm.240431>
- Volk-Jesussek, H. (2026). Spearman's rank correlation coefficient. In *numigo*.
- Yao, J., Nguyen, A. X.-L., Xiang, L., Li, A., & Wu, A. Y. (2022). Geography, gender, and collaboration trends among global health authors. *Journal of Global Health Reports*, 6. <https://doi.org/10.29392/001c.33616>
- Yegros-Yegros, A., van de Klippe, W., Abad-Garcia, M. F., & Rafols, I. (2020). Exploring why global health needs are unmet by research efforts: the potential influences of geography, industry and publication incentives. *Health Research Policy and Systems*, 18(1). <https://doi.org/10.1186/s12961-020-00560-6>