



## Editorial



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### How to cite:

Yudkin JS. Innovation in Public Health: A Timely Methodological Opportunity to Reimagine and Operationalize Variables in Research. doi.org/10.18270/rsb.v11i2.3640 Rev. salud. bosque. 2021;11(2):1-3.



DOI: doi.org/10.18270/rsb.v11i2.3640

## Innovation in Public Health: A Timely Methodological Opportunity to Reimagine and Operationalize Variables in Research

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From life-saving surgeries and medications to new approaches to therapy and community development, innovation is ever-present in the nascent field of modern public health. Similar trends can be found in epidemiology and research methods, with both the emergence of and increased uptake in new study designs like the case-cohort and nested case-control designs.(1) In fact, many of these innovations are directly linked to the improved life expectancy that can be found around the world, including in the United States. Yet with these improvements in life expectancy plateauing and even declining, there is uncertainty if the need and utility of such innovation has been fully saturated.(2) What might be the next frontier for public health?

Whether looking 2500 years back at Heraclitus' writings or only 30 years back to Rothman and Greenland's work, thought leaders underscore the inherent change and tentative nature of scientific work, "All of the fruits of scientific work, in epidemiology or other disciplines, are at best only tentative formulations of a description of nature . . . . The tentativeness of our knowledge does not prevent practical applications, but it should keep us skeptical and critical."(3, 4) As evidenced, there is always a need to continue to innovate: There is a ripe opportunity for us to intentionally reimagine and remeasure select variables of interest in public health research.

There are many common risk factors and covariates that are used across public health research, so common in fact that some authors have boldly stated they should be

considered in all studies.(4) While there may be historically validated ways to measure these variables, they may not be the *best* way – in terms of accuracy – to conceptualize and or operationalize these important factors. From the ever-increasing canon of knowledge to new transdisciplinary collaborations, there is an opportunity to better understand and measure covariates in research studies.(5)

For example, transdisciplinary research from public health, anthropology, cultural studies, and many other fields have elucidated the complexity to describe acculturation in universal terms and the need for a more nuanced approach and poetics that reflects both origin and temporality.(6, 7) In other words, there is a need to describe immigrant and diasporic communities using unique characteristics rather than assessing all immigrants or foreign nationals as a singular entity. Therefore, while a validated way to measure acculturation for immigrants in the United States, English proficiency may no longer be the best proxy measurement available for measuring acculturation.(8).

Similarly, while based in a strong colonial and modern legacy, race may not be the best variable to employ in etiological research. While race may be critical for looking at both access to and disparities in healthcare given existing reporting structures, it has been well documented for decades that race is an “‘arbitrary system of visual classification’ that does not demarcate distinct subgroups of the human population.”(9, 10) In a recent review, the authors demonstrate how race is often used as a proxy for socioeconomic position (SEP), is a heterogeneous variable that is often subject to residual confounding, and is an undefined term primarily employed in research without a rationale or explanation.(11) Moreover, racial variables can inadvertently stigmatize certain populations and damage their social standing by transforming their connotation to mean an undesirable lifestyle.(9) There is an immediate opportunity to refine our research interest and clarify what race, an “ill-defined” proxy measurement is actually intended to represent. Stated in another way, “our understanding of risk [and, therefore, solutions] is still constrained by standard approaches.”(12).

Krieger and Fee offer a three-step framework to move forward. First, public health as a field must recognize that traditionally biological categories (e.g., sex and race) are largely social categories. Second, the field must agree to use social concepts to define social categories. Third, the field must develop social measures and appropriate strategies for a new kind of health research.(12) While this approach offers tremendous advantages in terms of improving accuracy and impact, there is, of course, a significant cost, as race research will be in less close dialogue with existing research. Nonetheless, in the same way that the field has evolved from looking for a singular etiological cause to a constellation of causes or from employing p values to confidence intervals, the field can, too, update concepts and developing new measurement tools.

As evidenced, innovation in public health research must always be present as all knowledge is tentative. There are immediate opportunities to improve our epidemiological methods and reimagine and remeasure common variables that are used across all public health research, placing us on an epistemic edge. Moreover, as newer codified branches of public health like dissemination and implementation science and population health science emerge, there are opportunities to consider how common variables like culture may simultaneously exist and manifest differently on an individual and group level. Additionally, there is an increased demand for and availability of more accurate data due to digital transformations. By investing in and more comprehensively capturing these important covariates, research will be more accurate and have greater potential to accomplish our shared goal of cultivating and sustaining a healthy collective for all. Knowledge in public health is dynamic, and innovations are key in making evidence more relevant and accurate.

Research needs to be both responsive to and in dialogue with the existing literature.

Simultaneously, research needs to be responsive to new findings to improve validity (both internal and external) of future research, ultimately, reducing the lag in translation and improving health outcomes. Transdisciplinary collaboration is a proven approach by the field that can help catalyze this process. Coupled with the increased amount of data, such collaborations can lead to data-driven methodological endeavors that reimagine variables to be more reflective of current knowledge. Of course, any new findings need to be validated and compared to existing approaches to maximize dialogue with the existing literature. There is a ripe opportunity employ such approaches in better understanding social phenomena and constructs in the context of public health. Therefore, there is an immediate need to engage in evidence-informed methodological innovation to expand the epistemic edge of public health knowledge and improve health outcomes.

## References

1. Johansson ALV, Lamberth PC, Andersson TML, Dickman PW. The Case-Cohort design: What it is and how it can be used in register-based research. In: Stata User Group Meeting. Oslo - Sweden: Karolinska Institutet; 2016.
2. Woolf SH, Schoemaker H. Life expectancy and mortality rates in the United States, 1959-2017. *JAMA*. 2019;322(20):1996-2016.  
*DOI: 10.1001/jama.2019.16932*
3. Rothman KJ, Greenland S, Lash TL. Types of epidemiologic studies. In Rothman KJ, Greenland S. *Modern epidemiology*. 2nd ed. Philadelphia: Lippincott Raven. 1998. p 67-78.
4. Abramson JH, Abramson ZH. *Making sense of data: a self-instruction manual on the interpretation of epidemiological data*. 3th ed. Oxford: Oxford university press; 2001.
5. Lawlor EF, Kreuter MW, Sebert-Kuhlmann AK, McBride TD. Methodological innovations in public health education: Transdisciplinary problem solving. *Am J Public Health*. 2015; 105(S1):S99-S103.  
*DOI: 10.2105/AJPH.2014.302462*
6. Arroyo J. Transculturation, Syncretism, and Hybridity. In: Martínez-San Miguel Y., Sifuentes-Jáuregui B., Belausteguigoitia M. (eds) *Critical Terms in Caribbean and Latin American Thought. New Directions in Latino American Cultures*. New York: Palgrave Macmillan; 2016. pp 133-44.  
*DOI: https://doi.org/10.1057/9781137547903\_12*
7. Bastin GL. Eurocentrism and Latin Americanism in Latin American translation history. *Perspect.: Stud.Transl.* 2017;25(2):260-72.  
*DOI:10.1080/0907676X.2016.1248986*
8. Yudkin JS. A renewed call to safeguard public health epistemology. *Int J Public Health*. 2021;66:1604009.  
*DOI: 10.3389/ijph.2021.1604009*
9. Gordis L. *Epidemiology*. 5th ed. Philadelphia: Elsevier-Saunders; 2013.
10. Fullilove MT. Comment: abandoning "race" as a variable in public health research--an idea whose time has come. *Am J Public Health*. 1998;88(9):1297-8.  
*DOI: 10.2105/ajph.88.9.1297*
11. Nuru-Jeter AM, Michaels EK, Thomas MD, Reeves AN, Thorpe Jr RJ, LaVeist TA. Relative roles of race versus socioeconomic position in studies of health inequalities: a matter of interpretation. *Annu Rev Public Health*. 2018;39:169-88.  
*DOI: 10.1146/annurev-publhealth-040617-014230*
12. Krieger N, Fee E. Man-made medicine and women's health: the biopolitics of sex/gender and race/ethnicity. In: Krieger N, Fee E, editors. *Women's health, politics, and power: Essays on sex/gender, medicine, and public health*. 1st ed. New York: Routledge. 1994. P 11-29.  
*DOI: https://doi.org/10.4324/9781315231020*