A CLARIFICATION ON CAUSAL QUESTIONS: WE ASK THEM MORE OFTEN THAN WE REALIZE

We applaud Miguel Hernán on his recent commentary[1] encouraging researchers to use causal language if their research has causal goals, and we enthusiastically agree that undeclared or ambiguously stated research goals can lead researchers and readers astray. We believe his message should be widely embraced. We write to clarify two potential misunderstandings about what constitutes a causal question; we are concerned that some researchers whose work could benefit from the commentary will find it inapplicable and relegate it to a narrow corner of epidemiology reserved for causal methodologists.

First, some researchers may feel they cannot use the "c-word" because they do not employ causal inference methods. The conceptual framework described by Hernán and its accompanying methods (e.g., inverse probability weighting) have certainly placed causal goals front and center and have been important contributions to the epidemiological toolkit. However, a misconception has arisen that such methods are the only valid tools for making causal inferences; this has in turn led to the conflation of asking causal questions with using such methods.[2–4] This misconception may leave researchers with the incorrect impression that if they are not using causal inference methods, then they are not asking causal questions and should avoid the c-word. Many statistical methods are valid tools for answering causal questions.[2,3] Researchers should not be constrained in describing their research questions by the methods they use to try to answer them.

Second, some researchers may continue to avoid the c-word because they believe that their research question is truly not a causal one. On this point, Hernán's distinction between associational and causal studies is worth reemphasizing. As Hernán notes, any study that controls for confounding has an inherently causal goal. We add that studies that adjust for covariates but discuss unmeasured confounding or recommend intervention strategies or policies based on research findings also have inherently causal goals. The literature is rife with studies that claim associational goals and then include one or more of these components. We hope that Hernán's commentary will help researchers evaluate their research goals more clearly and communicate them more transparently.

There are many ways to ask (and answer) causal questions, and Hernán's message applies very broadly. The c-word has a rightful and critical place in a diverse range of research. We encourage all researchers to heed Hernán's appeal to carefully consider their research goals and, if causal, to say so. AJPH

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REFERENCES

1. Hernán MA. The c-word: scientific euphemisms do not improve causal inference from observational data. *Am J Public Health*. 2018;108(5):616–619.

2. Ahern J. Start with the "c-word," follow the roadmap for causal inference. *Am J Public Health*. 2018; 108(5):621.

3. Galea S, Vaughan RD. Moving beyond the cause constraint: a public health of consequence, May 2018. *Am J Public Health*. 2018;108(5):602–603.

4. Greenland S. For and against methodologies: some perspectives on recent causal and statistical inference debates. *Eur J Epidemiol*. 2017;32(1):3–20.

EDITOR'S NOTE

Hernán declined to respond.

CALCULATING VERSUS ESTIMATING CAUSAL EFFECTS

In a recent editorial,[1] Hernán discusses the discomfort many epidemiologists feel with language of causality, with many preferring associational over causal language. He argues convincingly that causal language is appropriate to and more explicit about the aims of epidemiological science, asking: "Do we want to estimate the association measure or the causal effect measure?"[1(p618)]

I agree wholeheartedly with Hernán's argument,[1] though personal experience such as interactions with colleagues and comments on manuscript drafts from reviewers underline his point and convince me that discomfort with causal language remains prevalent. I wonder whether some of this discomfort could be allayed by closer consideration of what it means to "estimate" something. Contrast what it means to "calculate" something (i.e., to

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