COMMENTARY ON BARTHOLOMEW AND MULLEN

The charge to advance theory and improve health outcomes

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Bartholomew and Mullen have written an inspiring call to action. Better application of behavioral theory in health-related intervention research will improve health outcomes and promote reproducible science. These goals, sometimes perceived as in tension, are both well served by a systematic approach to intervention design, implementation, evaluation, and description.

A coherent model of problem, determinants, and intervention is essential. As emphasized by Bartholomew and Mullen, this model can contain a single theory – whole or parts – or multiple theories. An effective model is internally consistent, based on theoretical and empirical evidence and the investigator's experiences with the behavior, population, and setting. This coherence of the model – not its derivation from a single theory – produces a cascade of benefits. Defining a behavioral outcome within a domain suggests measureable, proximal outcomes and determinants; in their example, the authors focus on "diagnostic delay" among outcomes related to "late-stage diagnosis." The determinants of delay imply points of intervention and mediators. Specificity greatly increases the likelihood of informative findings distinct from intervention effectiveness.

Accurate and complete reporting of interventions is essential to scientific advancement. As described, publishing only intervention success is insufficient to allow others to replicate, adapt, and extend. Publication of sufficient detail of the theoretical foundations of interventions and analysis of active ingredients is necessary for dissemination. Publishers should allow these descriptions, and investigators should make intervention materials widely available.

Beyond associated groups of predictors, relations among posited mediators can be assigned directionality and temporality – increasing X will decrease Y. Describing causal relations allows investigators to pose falsifiable hypotheses. Testing these hypotheses identifies where in the causal chain expected links did or did not hold – from theory to intervention to mediator to outcomes. Furthermore, mediation should be tested even when overall effect of intervention on outcome is not significant (1). The intervention may have influenced the mediator, but the theorized relation between mediator and outcome did not hold. Or the intervention may have failed to influence the mediator, meaning the effect of mediator on outcome was not actually tested. Tests of moderation could show a hypothesized relation held for one group but not another, or held differently across groups, "washing out" the overall effect of intervention on outcome. In these tests are found the real contribution to reproducible science and improved health outcomes.

One of the most challenging aspects of applying theory is identifying methods for changing constructs. Bartholomew and Mullen highlight methods drawn largely from communication theories. They make the excellent recommendation of a table to match objectives with methods and strategies. Many of their examples of theory-based "methods" are then applied in mass media campaigns, a strategy that is not always appropriate (e.g., increasing follow-up to abnormal cancer screening). Unfortunately, most theories of health behavior are mute on how to create change (2). This gap is an opportunity for future research.

To change norms across health-related intervention research, we must all become vectors. NIH funding is awarded through peer-review; the scientific community is the greatest influence defining acceptable application of health behavior theory. In this charge, we should all become leaders.

Conflict of interest

The author has declared no conflict of interest.

References

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