

# Mediation (Prevention Science)

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## References

**Fairchild et al.: Using mediation and moderation analyses to enhance prevention research**  
**Fairchild-MacKinnon-2014**

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Amanda J. Fairchild and David P. MacKinnon. “Using mediation and moderation analyses to enhance prevention research”. In: *Defining Prevention Science*. Springer US, 2014, pp. 537–555. DOI: [10.1007/978-1-4899-7424-2\\_23](https://doi.org/10.1007/978-1-4899-7424-2_23).

Abstract: Integrating mediating and moderating variables into prevention research can refine interventions and guide program evaluation by demonstrating how and for whom programs work, as well as lending insight into the construct validity of an intervention. In this way, program development and evaluation strategies that incorporate mediation and moderation analyses contribute to our ability to affect behavioral change. This chapter aims to illustrate how mediation and moderation analyses enhance and inform prevention and intervention work. To that end we define and differentiate the models, discuss their application to prevention programming and research, and provide information on their estimation for individuals seeking to implement these analyses.

**MacKinnon: Analysis of mediating variables in prevention and intervention research.**  
**MacKinnon-1994**

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David P. MacKinnon. “Analysis of mediating variables in prevention and intervention research.” In: *NIDA research monograph* 139 (1994), pp. 127–153.

Abstract: Mediation analysis is one way to test specific hypotheses derived from theory. Although this analysis has been suggested in the prevention literature, mediation analysis rarely is conducted. As the field of prevention matures, more questions about how prevention programs work (or fail to work) will emerge. Studies of mediation can address these questions, thereby reducing the cost and enhancing the impact of prevention programs. The methods outlined here can be applied in the evaluation of primary, secondary, and tertiary prevention programs. Since most prevention studies include measurement of some mediating constructs, mediation effects can be assessed on many existing data sets. Mediation analysis can be used to test ideas about prevention.

**Mackinnon et al.: Estimating mediated effects in prevention studies**

**Mackinnon-Dwyer-1993**

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David P. Mackinnon and James H. Dwyer. "Estimating mediated effects in prevention studies". In: *Evaluation Review* 17.2 (Apr. 1993), pp. 144–158. DOI: [10.1177/0193841x9301700202](https://doi.org/10.1177/0193841x9301700202).

Abstract: The purpose of this article is to describe statistical procedures to assess how prevention and intervention programs achieve their effects. The analyses require the measurement of intervening or mediating variables hypothesized to represent the causal mechanism by which the prevention program achieves its effects. Methods to estimate mediation are illustrated in the evaluation of a health promotion program designed to reduce dietary cholesterol and a school-based drug prevention program. The methods are relatively easy to apply and the information gained from such analyses should add to our understanding of prevention.

**O'Rourke et al.: Reasons for testing mediation in the absence of an intervention effect:  
A research imperative in prevention and intervention research**

**ORourke-MacKinnon-2018**

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Holly P. O'Rourke and David P. MacKinnon. "Reasons for testing mediation in the absence of an

intervention effect: A research imperative in prevention and intervention research”. In: *Journal of Studies on Alcohol and Drugs* 79.2 (Mar. 2018), pp. 171–181. DOI: [10.15288/jsad.2018.79.171](https://doi.org/10.15288/jsad.2018.79.171).

**Abstract:** **Objective:** Mediation models are used in prevention and intervention research to assess the mechanisms by which interventions influence outcomes. However, researchers may not investigate mediators in the absence of intervention effects on the primary outcome variable. There is emerging evidence that in some situations, tests of mediated effects can be statistically significant when the total intervention effect is not statistically significant. In addition, there are important conceptual and practical reasons for investigating mediation when the intervention effect is non-significant. **Method:** This article discusses the conditions under which mediation may be present when an intervention effect does not have a statistically significant effect and why mediation should always be considered important. **Results:** Mediation may be present in the following conditions: when the total and mediated effects are equal in value, when the mediated and direct effects have opposing signs, when mediated effects are equal across single and multiple-mediator models, and when specific mediated effects have opposing signs. Mediation should be conducted in every study because it provides the opportunity to test known and replicable mediators, to use mediators as an intervention manipulation check, and to address action and conceptual theory in intervention models. **Conclusions:** Mediators are central to intervention programs, and mediators should be investigated for the valuable information they provide about the success or failure of interventions.

#### **O’Rourke et al.: The importance of mediation analysis in substance-use prevention**

**ORourke-MacKinnon-2019**

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Holly P. O’Rourke and David P. MacKinnon. “The importance of mediation analysis in substance-use prevention”. In: *Advances in Prevention Science*. Springer International Publishing, 2019, pp. 233–246. DOI: [10.1007/978-3-030-00627-3\\_15](https://doi.org/10.1007/978-3-030-00627-3_15).

**Abstract:** This chapter describes the theoretical and practical importance of mediation analysis in substance-use prevention research. The most important reason for including mediators in a re-

search study is to examine the mechanisms by which prevention programs influence substance-use outcomes. Understanding the mechanisms by which prevention programs achieve effects helps reduce the cost and increases effectiveness of prevention programs. This chapter first describes the theoretical foundations of the mediation model in prevention, and reasons for using mediation analysis in substance-use prevention. Next, we provide an overview of statistical mediation analysis for single and multiple mediator models. We summarize mediation analyses in substance-use prevention and discuss future directions for application of mediation analysis in substance-use research.