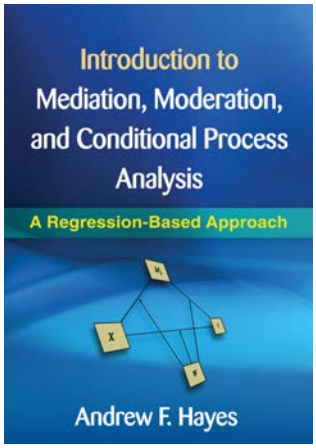

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Introduction to Mediation, Moderation, and Conditional Process Analysis

A Regression-Based Approach

Andrew F. Hayes

"This decidedly readable, informative book is perfectly suited for a range of audiences, from the novice graduate student not quite ready for SEM to the advanced statistics instructor. Even the seasoned quantitative methodologist will benefit from Hayes's years of accumulated wisdom as he expertly navigates this burgeoning—and at times inconsistent—literature. This book is particularly well suited for graduate-level courses. Hayes brings conditional process analysis to life with such passion that even the most 'stat-o-phobic' will become convinced that they too can master SPSS (or SAS) process. The thoughtful use of real-life examples, accompanied by SPSS and SAS syntax and output, makes the book highly accessible."

—**Shelley Brown**, **PhD**, Department of Psychology, Carleton University, Canada

"A welcome contribution. This book's accessible language and diverse set of examples will appeal to a wide variety of substantive researchers looking to explore how or why, and under what conditions, relationships among variables exist. Hayes has a unique ability to effectively communicate technical material to nontechnical audiences. He facilitates application of several cutting-edge statistical models by providing practical, well-oiled machinery for conducting the analyses in practice. I can use this book to enhance my graduate-level mediation class by extending the course to include more coverage on differentiating mediation versus moderation and on conditional process models that simultaneously evaluate both effects together."

—**Amanda Jane Fairchild**, **PhD**, Department of Psychology, University of South Carolina

"Mediation and moderation are two of the most widely used statistical tools in the social sciences. Students and experienced researchers have been waiting for a clear, engaging, and comprehensive book on these topics for years, but the wait has been worth it—this book is an absolute winner. With his usual clarity, Hayes has written what will become the default resource on mediation and moderation for many years to come."

—**Andy Field**, **PhD**, School of Psychology, University of Sussex, United Kingdom

"Hayes provides an accessible, thorough introduction to the analysis of models containing mediators, moderators, or both. The text is easy to follow and written at a level appropriate for an introductory graduate course on mediation and moderation analysis. The book is also an extremely useful resource for applied researchers interested in analyzing conditional process models. One strength is the inclusion of numerous examples using real data, with step-by-step instructions for analysis of the data and interpretation of the results. This book's largest contribution to the field is its replacement of the confusing terminology of mediated moderation and moderated mediation with the clearer and broader term conditional process model."

—**Matthew Fritz**, **PhD**, Department of Psychology, Virginia Polytechnic Institute and State University

This engaging book explains the fundamentals of mediation and moderation analysis and their integration as "conditional process analysis." Procedures are described for testing hypotheses about the mechanisms by which causal effects operate, the conditions under which they occur, and the moderation of mechanisms. Relying on the principles of ordinary least squares regression, Andrew Hayes carefully explains the estimation and interpretation of direct and indirect effects, probing and visualization of interactions, and testing of questions about moderated mediation. Examples using data from published studies illustrate how to conduct and report the analyses described in the book. Of special value, the book introduces and documents PROCESS, a macro for SPSS and SAS that does all the computations described in the book. The author's website (*www.afhayes.com*) offers free downloads of PROCESS plus data files for the book's examples.

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A short seminar by Andrew Hayes, Ph.D.

Conditional Process Analysis, also known as the analysis of *moderated mediation*, is the integration of mediation and moderation analysis and used when one's analytical goal is to describe and understand the conditional nature of the mechanism or mechanisms by which a variable transmits its effect on another (see Hayes, 2013). After a brief introduction to principles of mediation and moderation analysis, this half-day seminar introduces the fundamentals of conditional process analysis and its implementation using the PROCESS tool for SPSS or SAS. Using OLS regression-based path analysis, it covers the estimation of various classes of models which allow indirect and/or direct effects to be moderated, the estimation of conditional indirect effects, testing a moderated mediation hypothesis, and how to compare conditional indirect effects.

WHO SHOULD ATTEND?

This seminar will be helpful for researchers in any field—including psychology, sociology, education, business, human development, political science, public health, and communication— who want to learn how to conduct a conditional process analysis using SPSS and SAS. Participants should have a basic working knowledge of the principles and practice of multiple regression and elementary statistical inference. No knowledge of matrix algebra is required or assumed.

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The fee of $250.00 includes all seminar materials.

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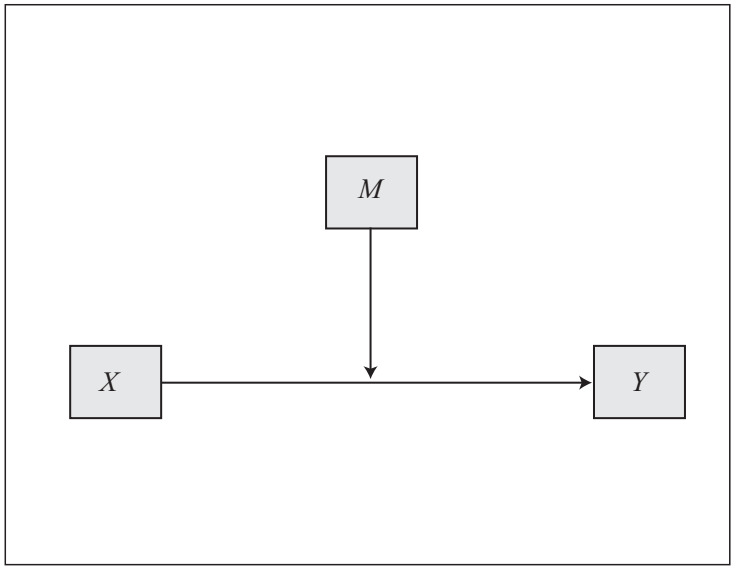
Conceptual Diagram



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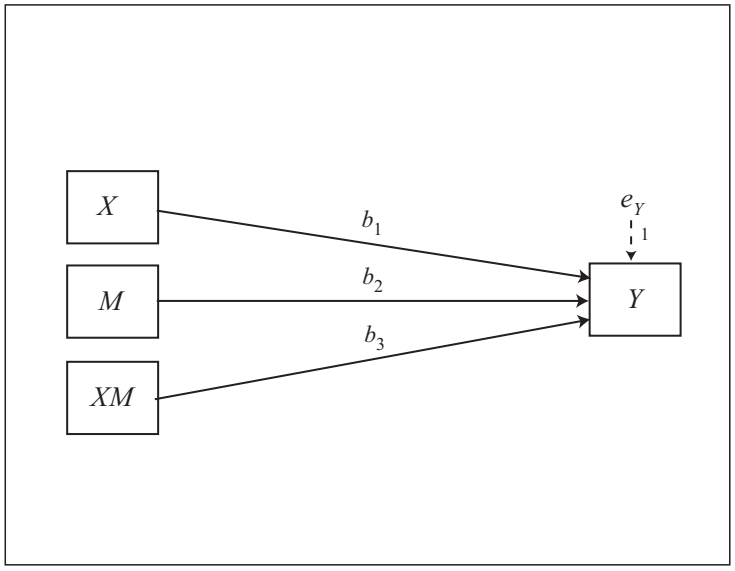
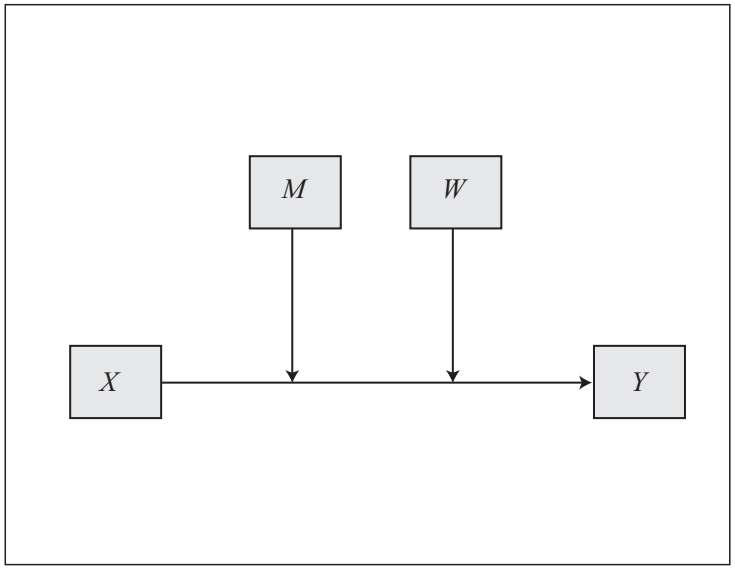


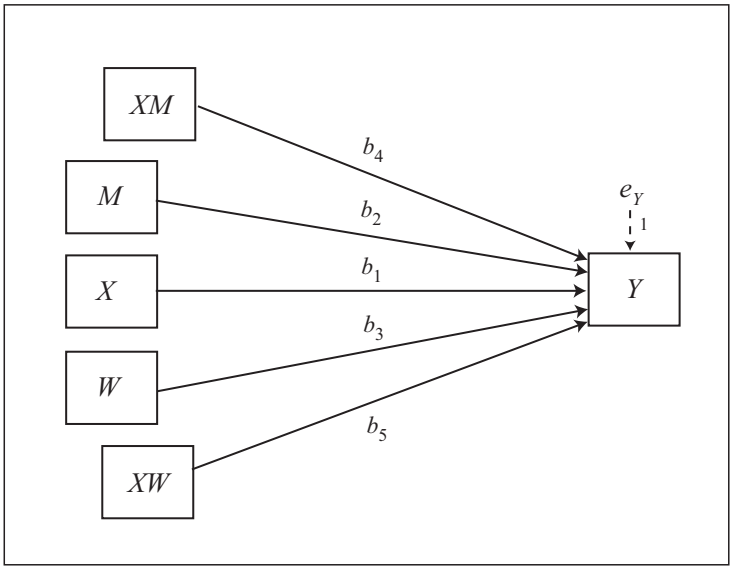
Conditional effect of X on $Y = b_1 + b_3M$

Model 2

Conceptual Diagram



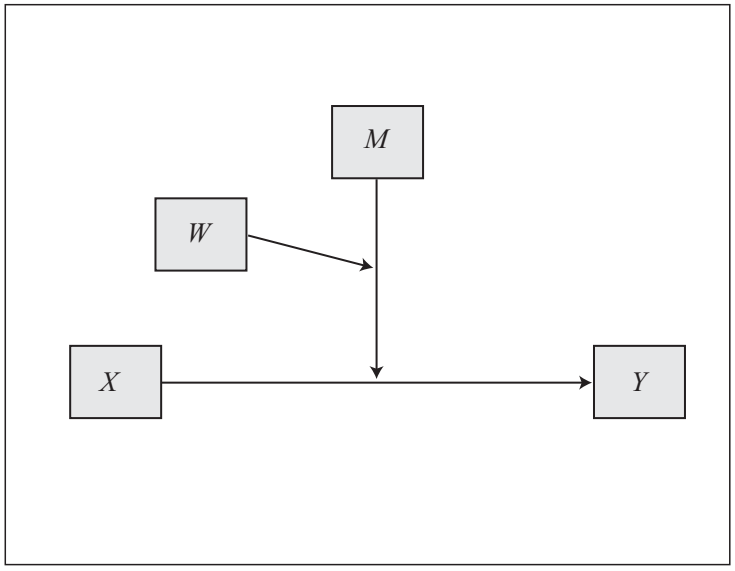
Statistical Diagram



Conditional effect of X on $Y = b_1 + b_4M + b_5W$

Model 3

Conceptual Diagram



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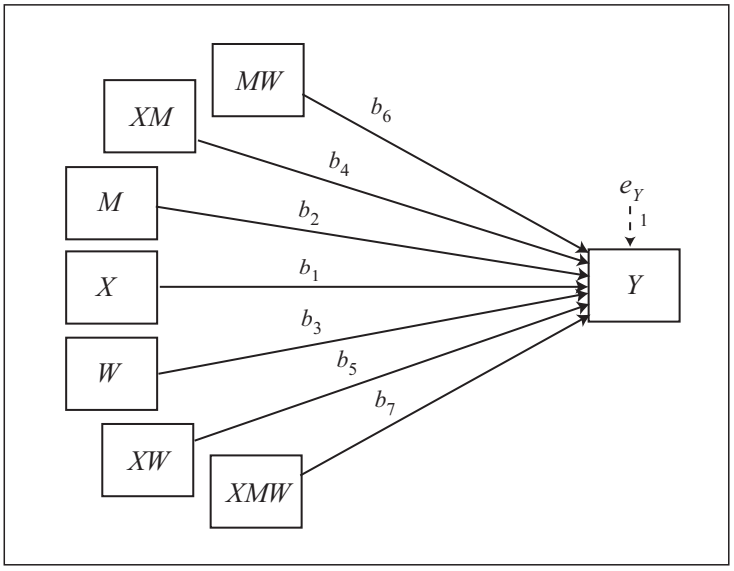
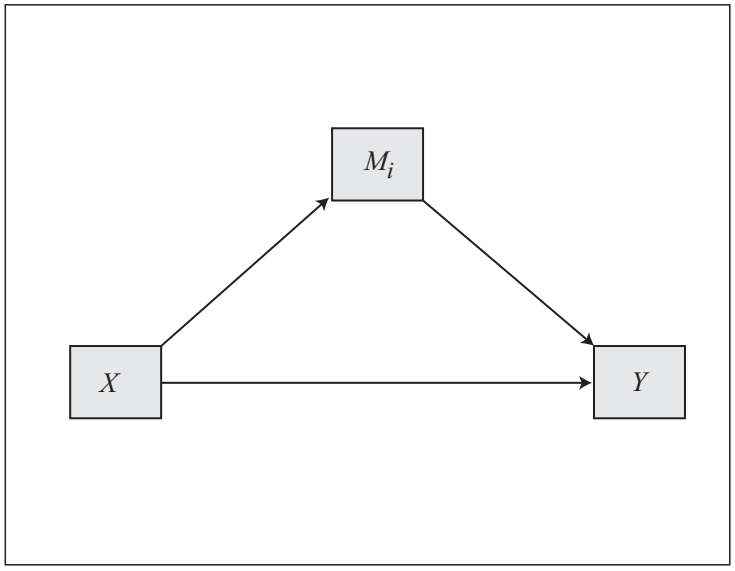


Conditional effect of X on $Y = b_1 + b_4M + b_5W + b_7MW$

Model 4

Conceptual Diagram



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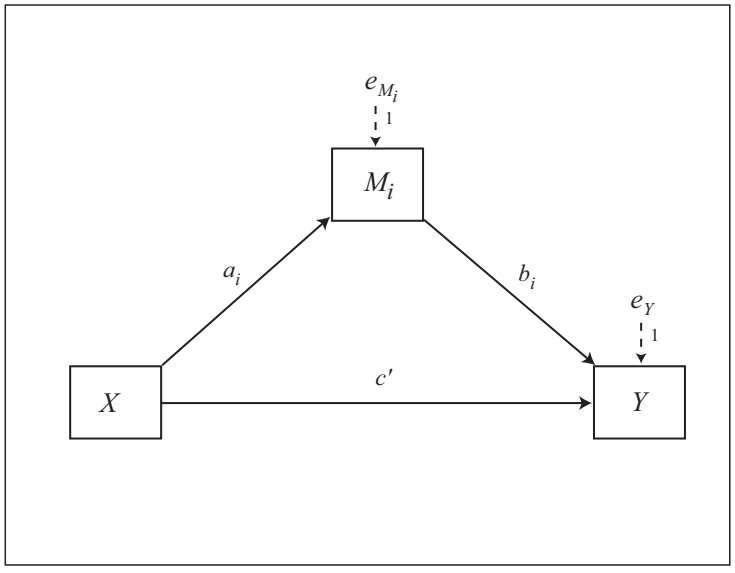


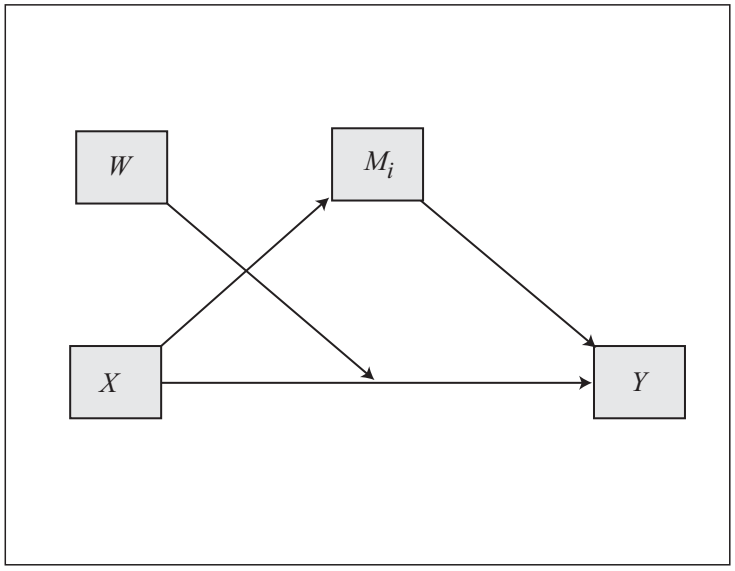
Indirect effect of X on Y through $M_i = a_i\, b_i$

Direct effect of X on $Y = c'$

*Model 4 allows up to 10 mediators operating in parallel

Model 5

Conceptual Diagram



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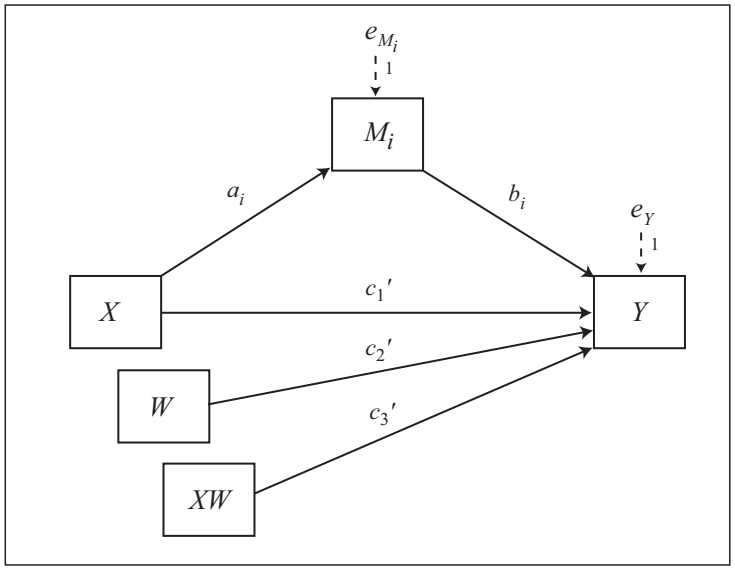


Indirect effect of X on Y through $M_i = a_i\, b_i$

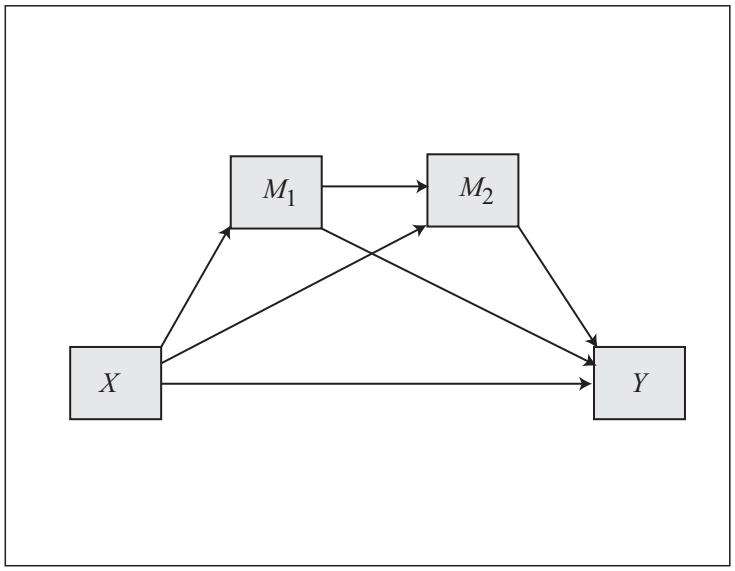
Conditional direct effect of X on $Y = c_1' + c_3'W$

*Model 5 allows up to 10 mediators operating in parallel

Model 6

(2 mediators)

Conceptual Diagram



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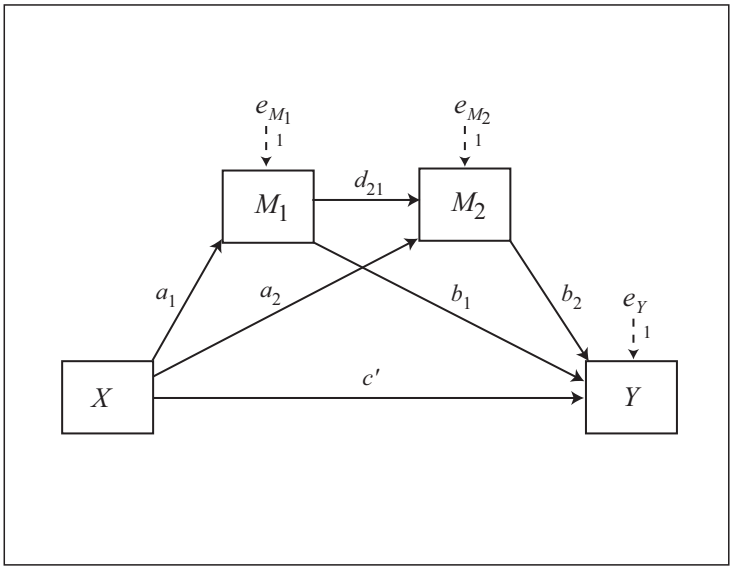
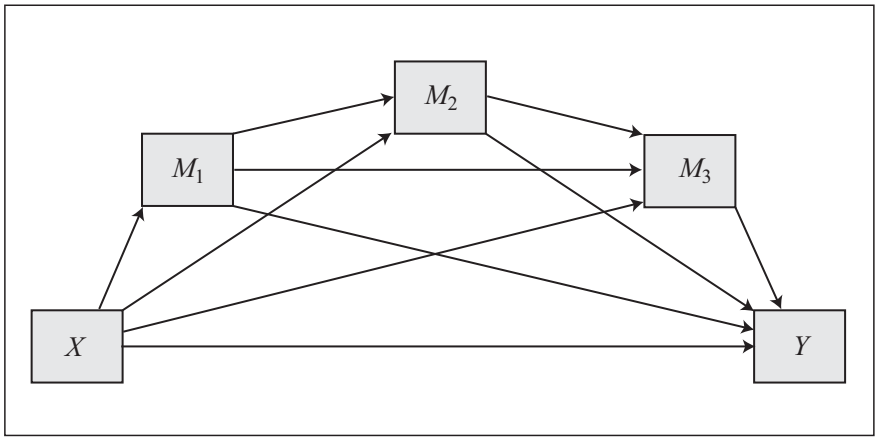


Indirect effect of X on Y through M_i only = $a_i\, b_i$
Indirect effect of X on Y through M_1 and M_2 in serial = $a_1\, d_{21}\, b_2$
Direct effect of X on Y = c'

Model 6

(3 mediators)

Conceptual Diagram



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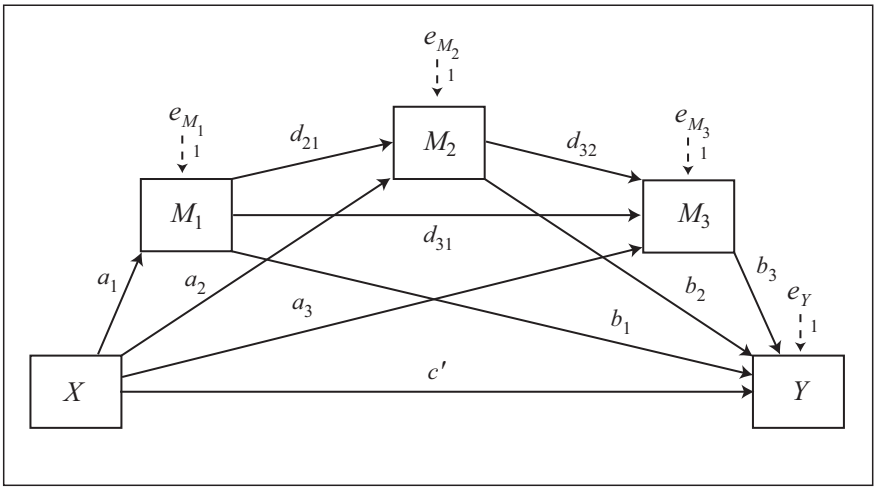
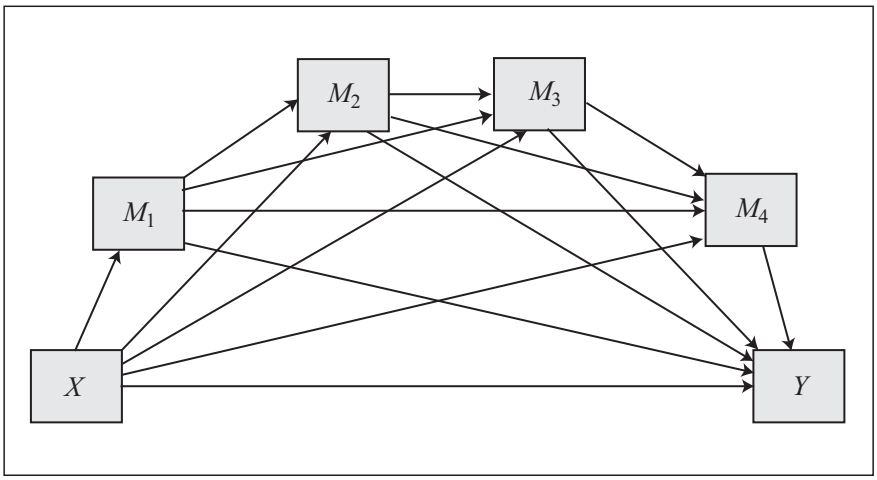


Indirect effect of X on Y through M_i only = $a_i\, b_i$
Indirect effect of X on Y through M_1 and M_2 in serial = $a_1\, d_{21}\, b_2$
Indirect effect of X on Y through M_1 and M_3 in serial = $a_1\, d_{31}\, b_3$
Indirect effect of X on Y through M_2 and M_3 in serial = $a_2\, d_{32}\, b_3$
Indirect effect of X on Y through M_1, M_2, and M_3 in serial = $a_1\, d_{21}\, d_{32}\, b_3$
Direct effect of X on Y = c'

Model 6

(4 mediators)

Conceptual Diagram



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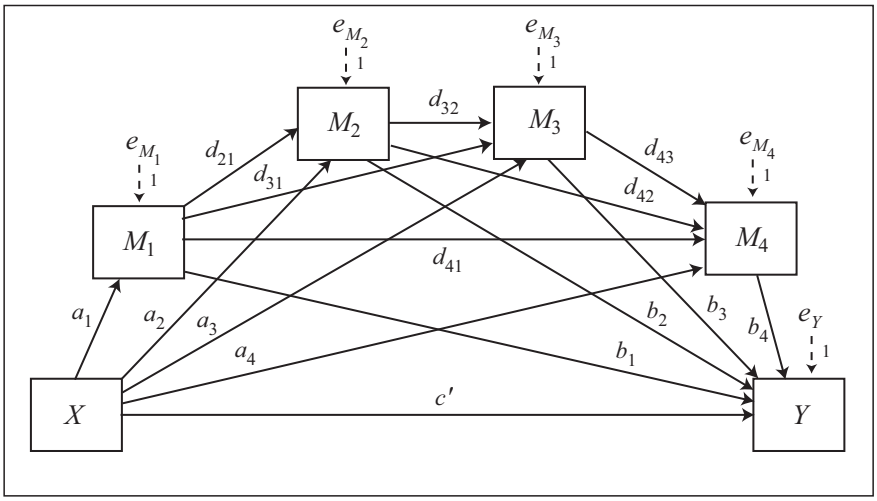
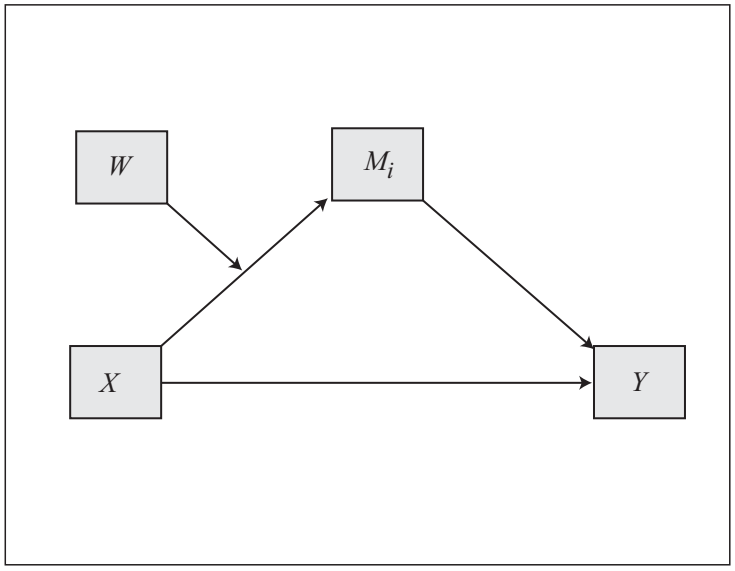


Indirect effect of X on Y through M_i only = $a_i\, b_i$
Indirect effect of X on Y through M_1 and M_2 in serial = $a_1\, d_{21}\, b_2$
Indirect effect of X on Y through M_1 and M_3 in serial = $a_1\, d_{31}\, b_3$
Indirect effect of X on Y through M_1 and M_4 in serial = $a_1\, d_{41}\, b_4$
Indirect effect of X on Y through M_2 and M_3 in serial = $a_2\, d_{32}\, b_3$
Indirect effect of X on Y through M_2 and M_4 in serial = $a_2\, d_{42}\, b_4$
Indirect effect of X on Y through M_3 and M_4 in serial = $a_3\, d_{43}\, b_4$
Indirect effect of X on Y through M_1, M_2, and M_3 in serial = $a_1\, d_{21}\, d_{32}\, b_3$
Indirect effect of X on Y through M_1, M_2, and M_4 in serial = $a_1\, d_{21}\, d_{42}\, b_4$
Indirect effect of X on Y through M_1, M_3, and M_4 in serial = $a_1\, d_{31}\, d_{43}\, b_4$
Indirect effect of X on Y through M_2, M_3, and M_4 in serial = $a_2\, d_{32}\, d_{43}\, b_4$
Indirect effect of X on Y through M_1, M_2, M_3, and M_4 in serial = $a_1\, d_{21}\, d_{32}\, d_{43}\, b_4$
Direct effect of X on Y = c'

Model 7

Conceptual Diagram



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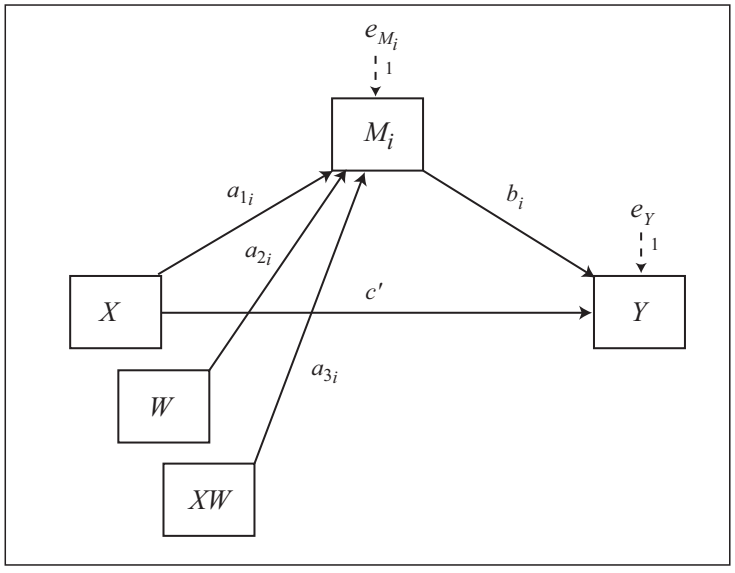


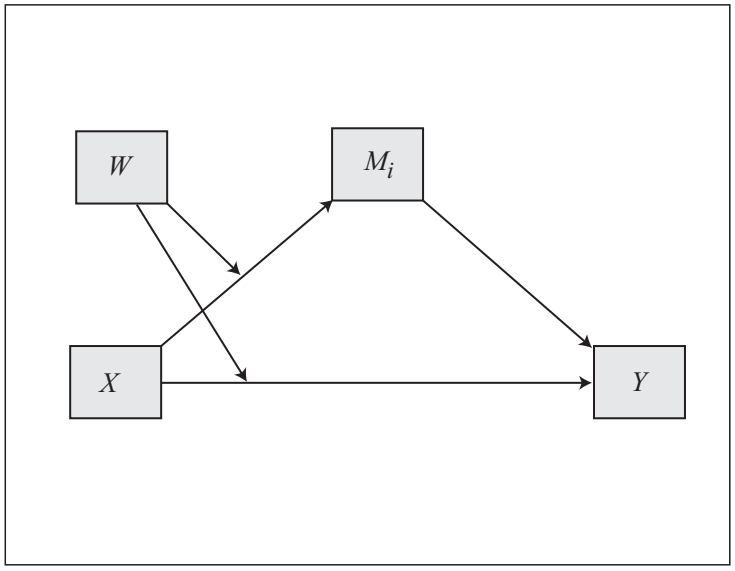
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)b_i$

Direct effect of X on $Y = c'$

*Model 7 allows up to 10 mediators operating in parallel

Model 8

Conceptual Diagram



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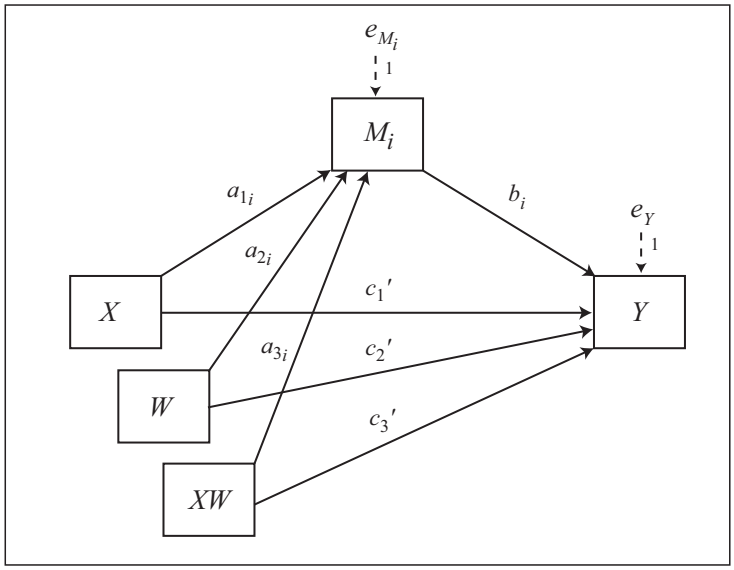


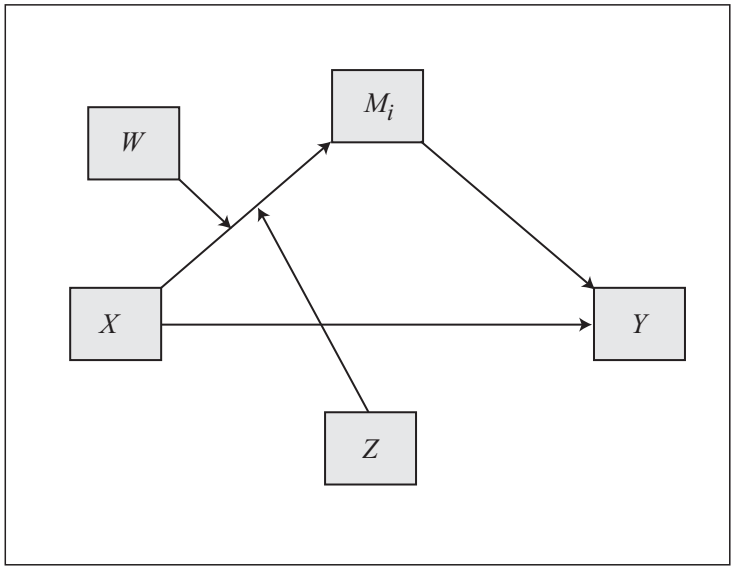
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)b_i$

Conditional direct effect of X on $Y = c_1' + c_3'W$

*Model 8 allows up to 10 mediators operating in parallel

Model 9

Conceptual Diagram



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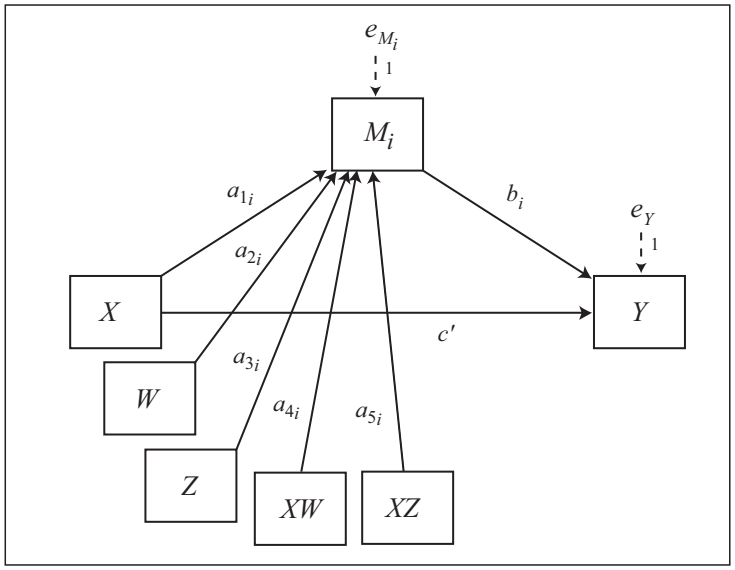


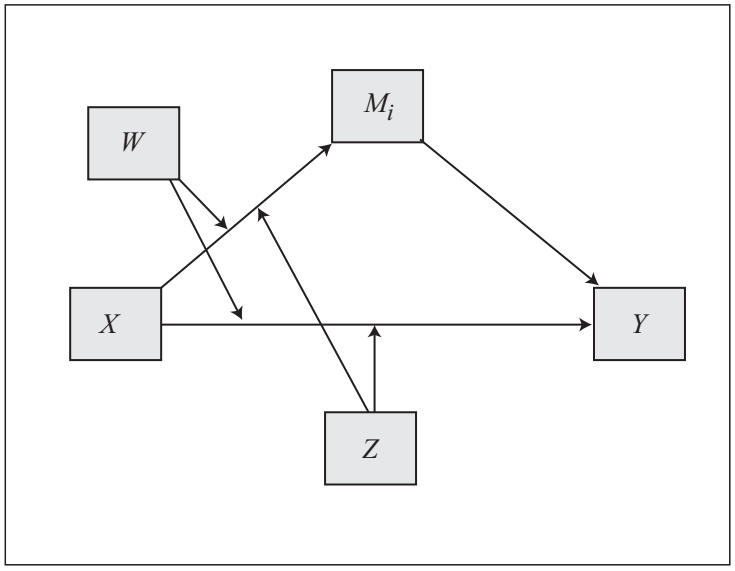
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)\, b_i$

Direct effect of X on $Y = c'$

*Model 9 allows up to 10 mediators operating in parallel

Model 10

Conceptual Diagram



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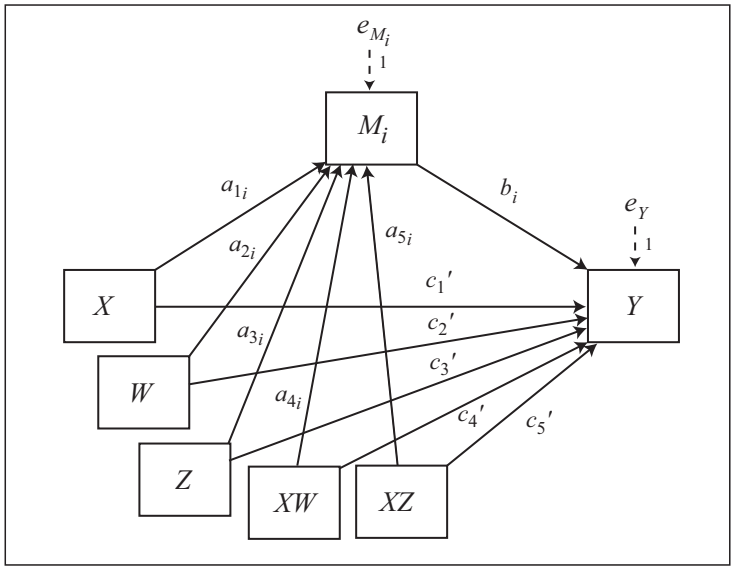


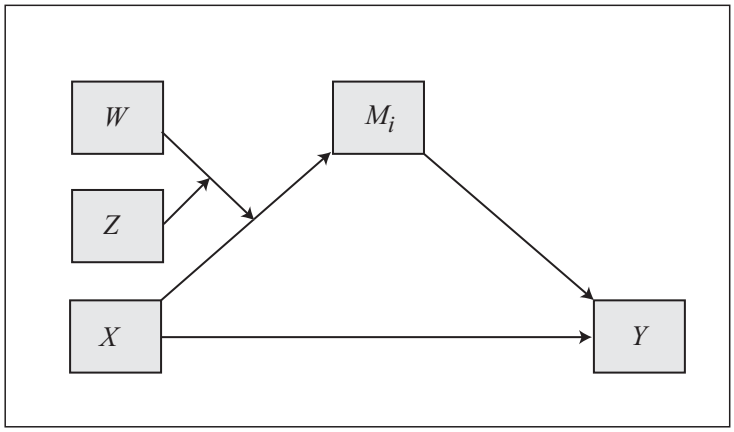
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)\, b_i$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z$

*Model 10 allows up to 10 mediators operating in parallel

Model 11

Conceptual Diagram



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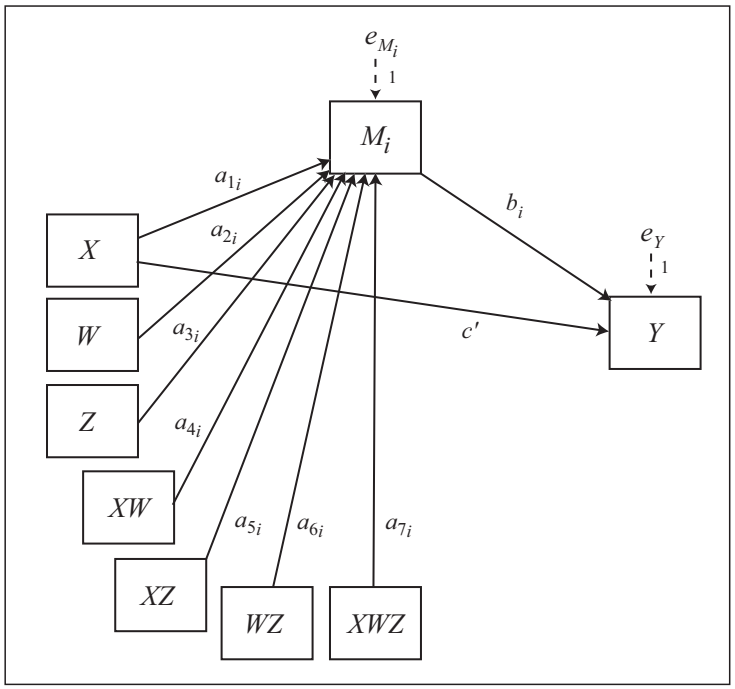


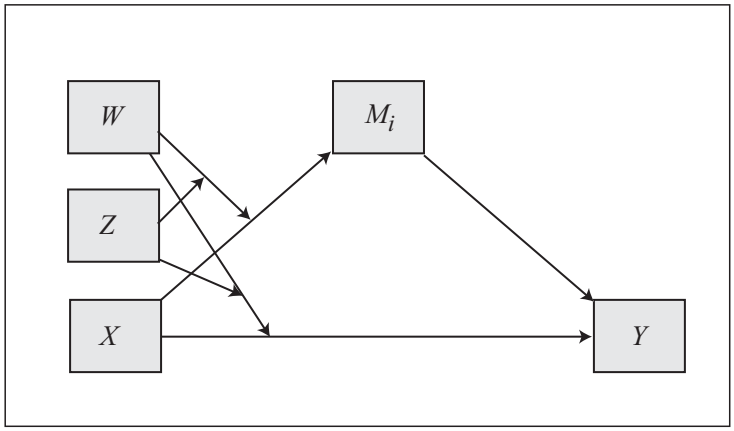
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)\ b_i$

Direct effect of X on $Y = c'$

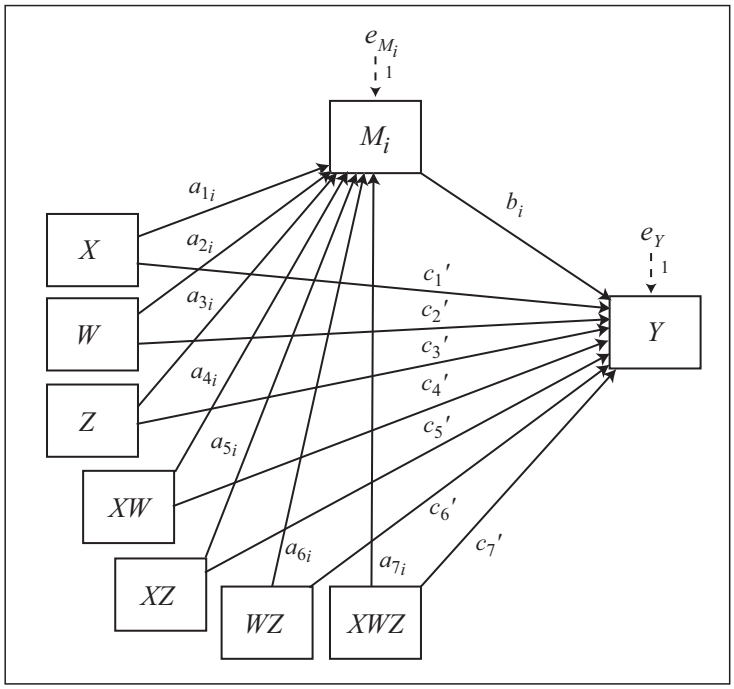
*Model 11 allows up to 10 mediators operating in parallel

Model 12

Conceptual Diagram



Statistical Diagram

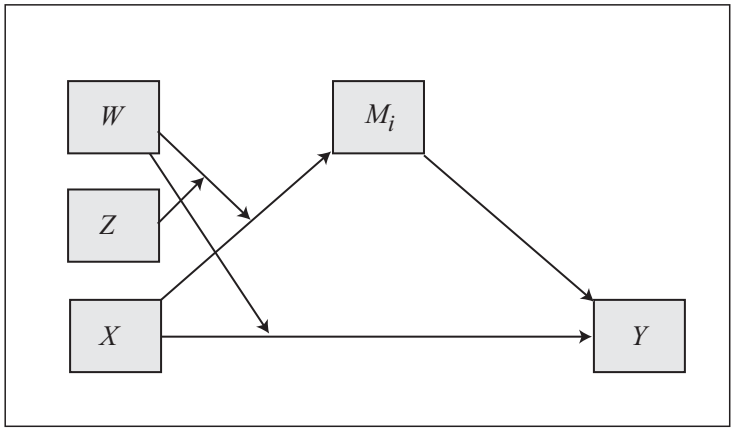


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)\ b_i$
Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'WZ$

*Model 12 allows up to 10 mediators operating in parallel

Model 13

Conceptual Diagram



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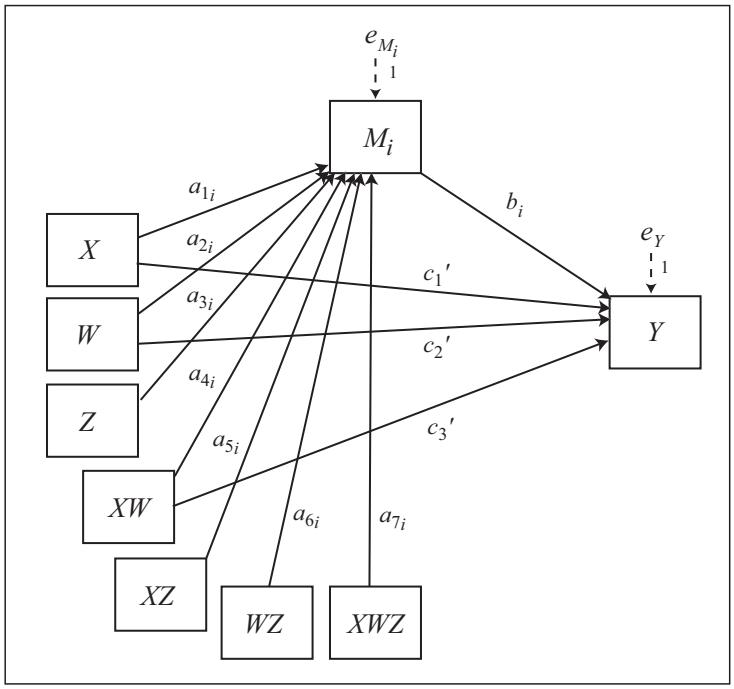
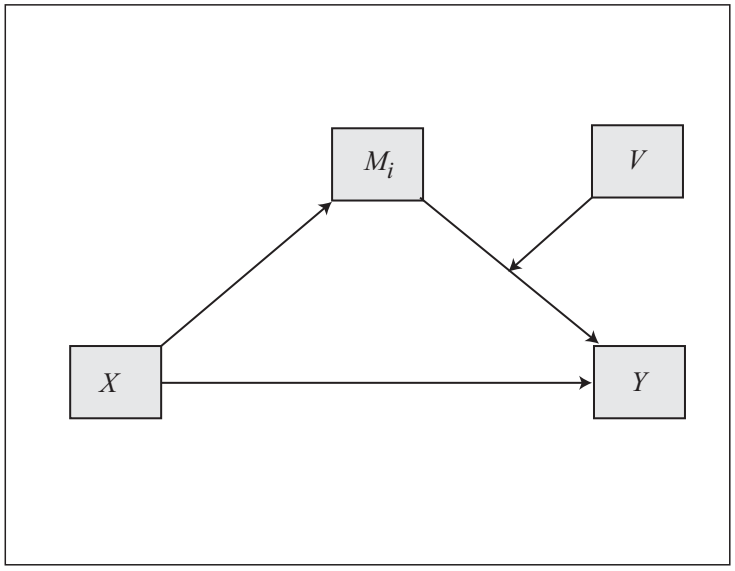


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)\, b_i$
Conditional direct effect of X on $Y = c_1' + c_3'W$

*Model 13 allows up to 10 mediators operating in parallel

Model 14

Conceptual Diagram



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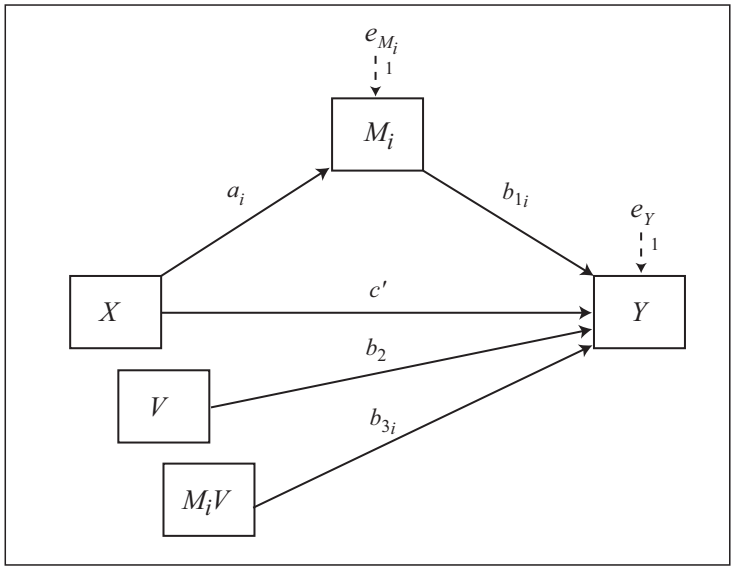


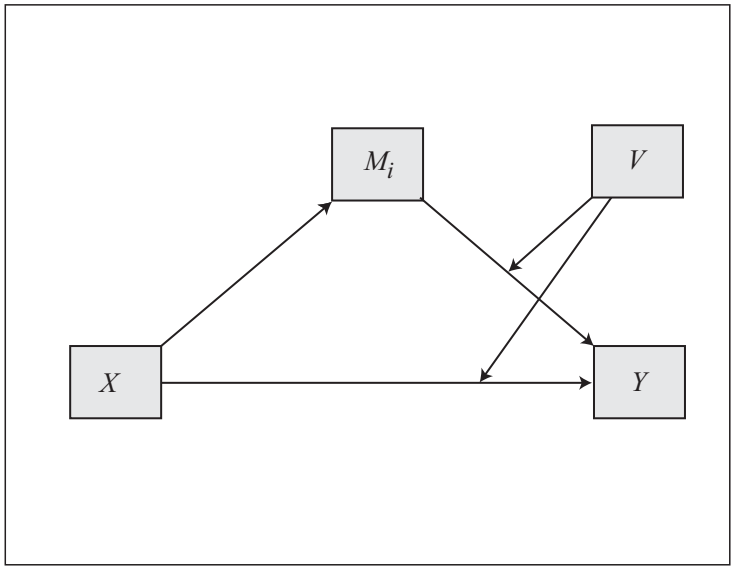
Conditional indirect effect of X on Y through $M_i = a_i (b_{1i} + b_{3i}V)$

Direct effect of X on $Y = c'$

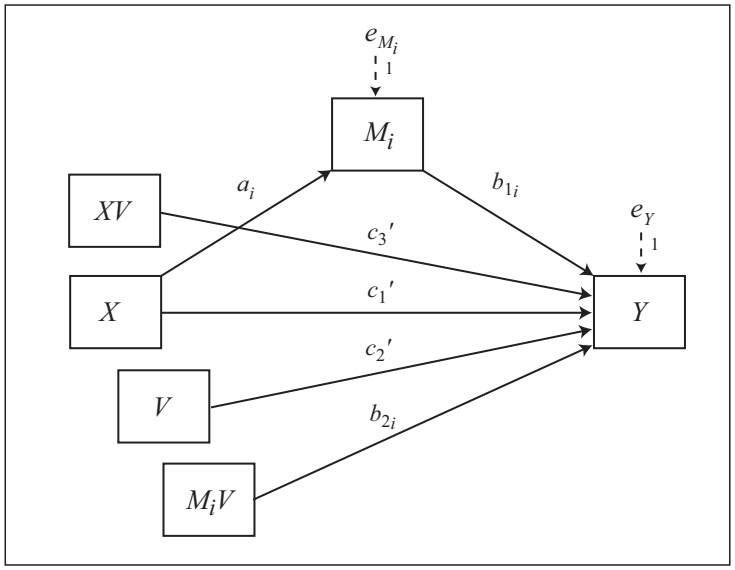
*Model 14 allows up to 10 mediators operating in parallel

Model 15

Conceptual Diagram



Statistical Diagram

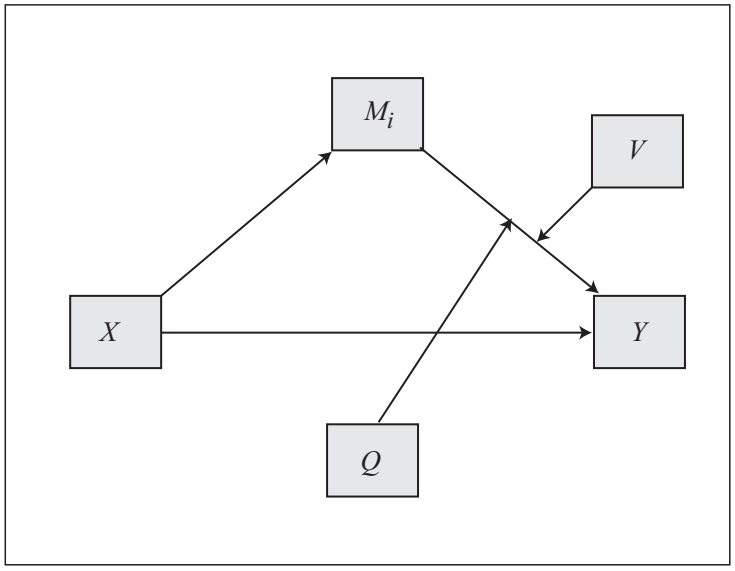


Conditional indirect effect of X on Y through $M_i = a_i (b_{1i} + b_{2i}V)$
Conditional direct effect of X on $Y = c_1' + c_3'V$

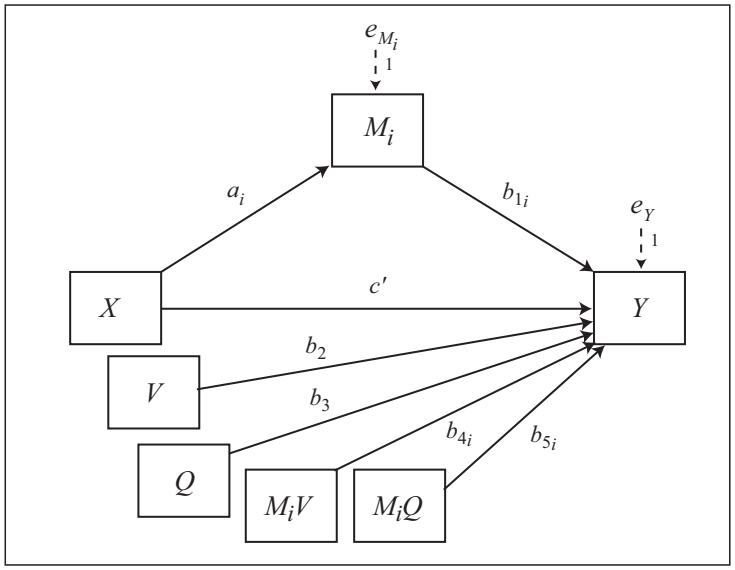
*Model 15 allows up to 10 mediators operating in parallel

Model 16

Conceptual Diagram



Statistical Diagram



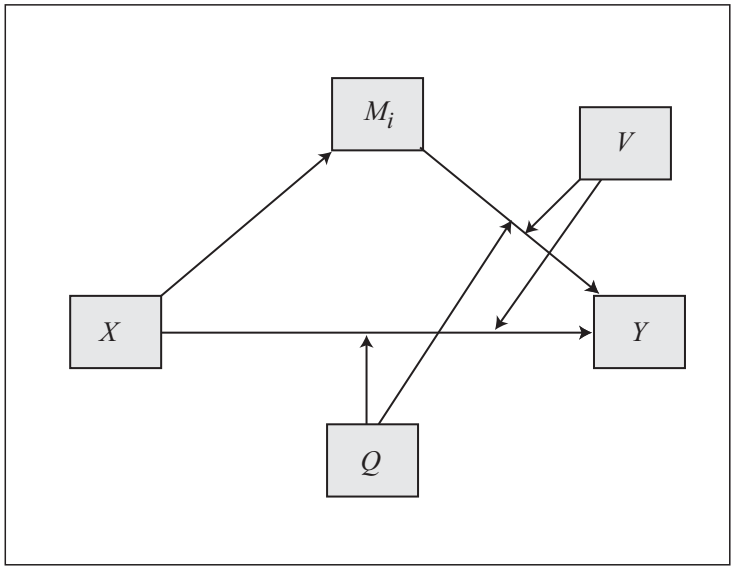
Conditional indirect effect of X on Y through $M_i = a_i (b_{1i} + b_{4i}V + b_{5i}Q)$

Direct effect of X on $Y = c'$

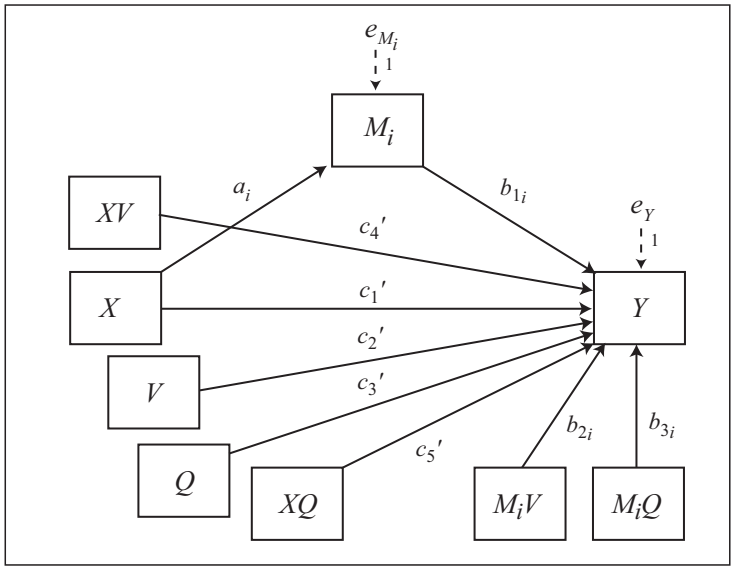
*Model 16 allows up to 10 mediators operating in parallel

Model 17

Conceptual Diagram



Statistical Diagram



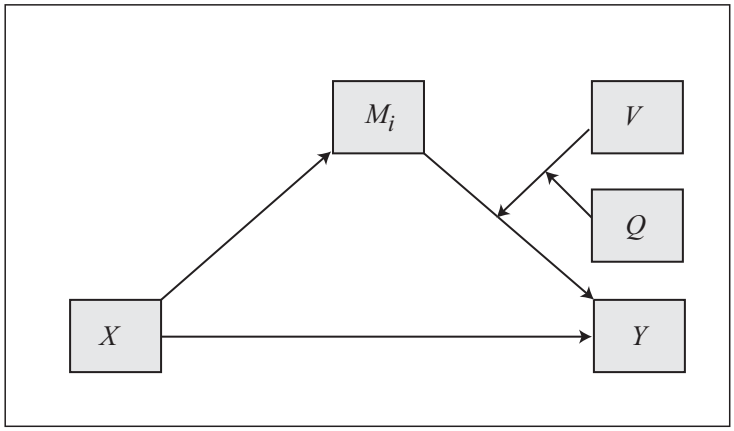
Conditional indirect effect of X on Y through $M_i = a_i\,(b_{1i} + b_{2i}V + b_{3i}Q)$

Conditional direct effect of X on $Y = c_1' + c_4'V + c_5'Q$

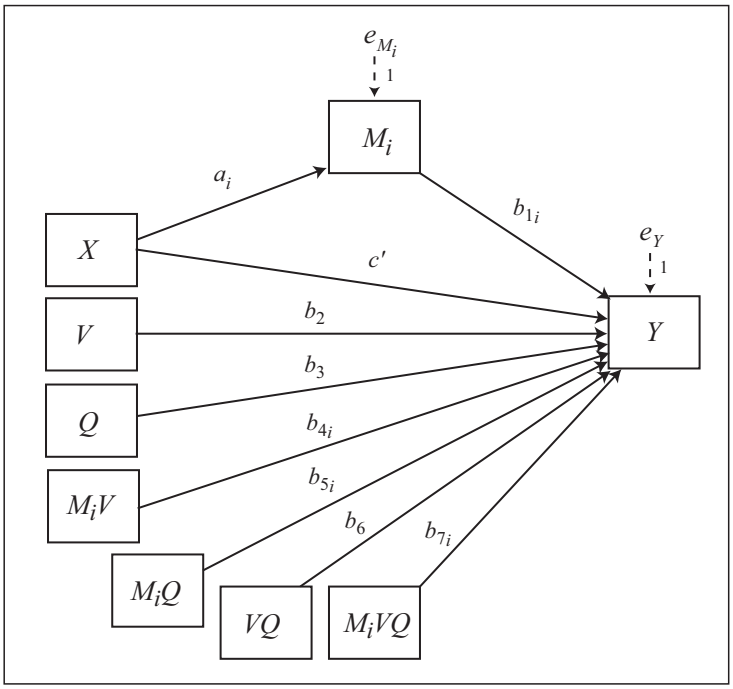
*Model 17 allows up to 10 mediators operating in parallel

Model 18

Conceptual Diagram



Statistical Diagram



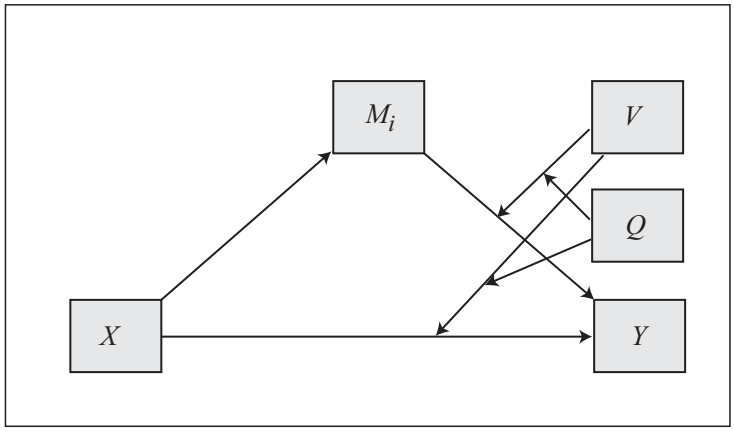
Conditional indirect effect of X on Y through $M_i = a_i (b_{1i} + b_{4i}V + b_{5i}Q + b_{7i}VQ)$

Direct effect of X on $Y = c'$

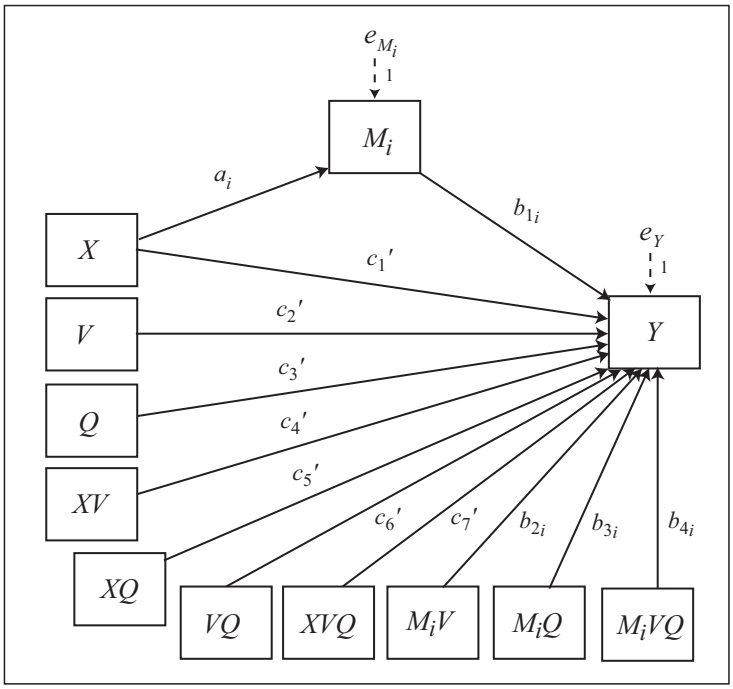
*Model 18 allows up to 10 mediators operating in parallel

Model 19

Conceptual Diagram



Statistical Diagram

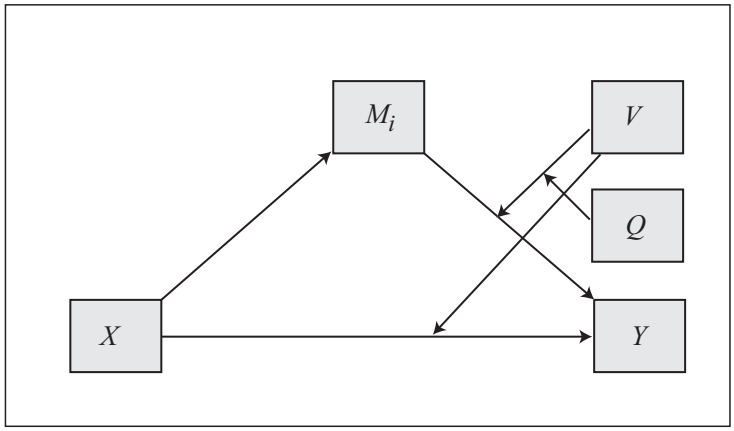


Conditional indirect effect of X on Y through $M_i = a_i(b_{1i} + b_{2i}V + b_{3i}Q + b_{4i}VQ)$
Conditional direct effect of X on $Y = c_1' + c_4'V + c_5'Q + c_7'VQ$

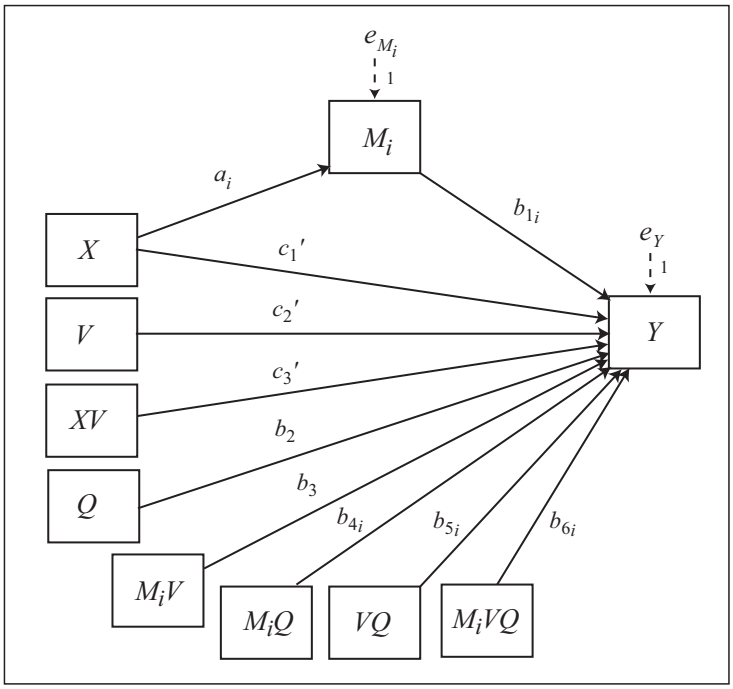
*Model 19 allows up to 10 mediators operating in parallel

Model 20

Conceptual Diagram



Statistical Diagram



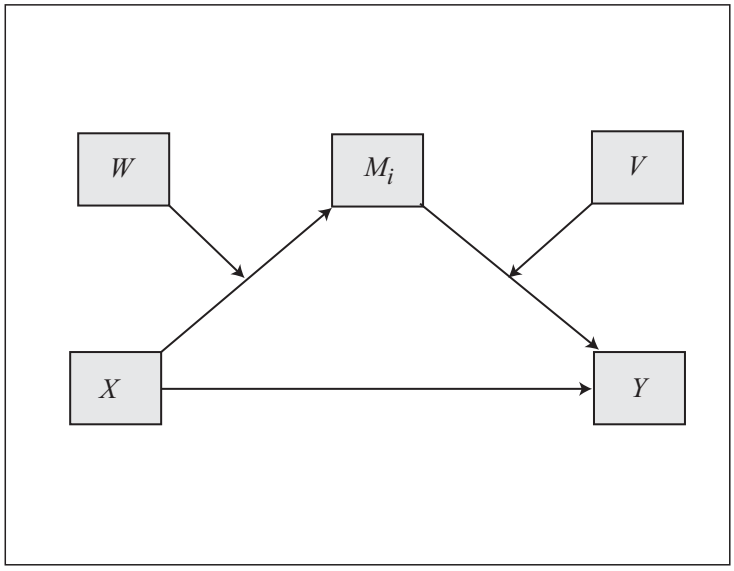
Conditional indirect effect of X on Y through $M_i = a_i(b_{1i} + b_{3i}V + b_{4i}Q + b_{6i}VQ)$

Conditional direct effect of X on $Y = c_1' + c_3'V$

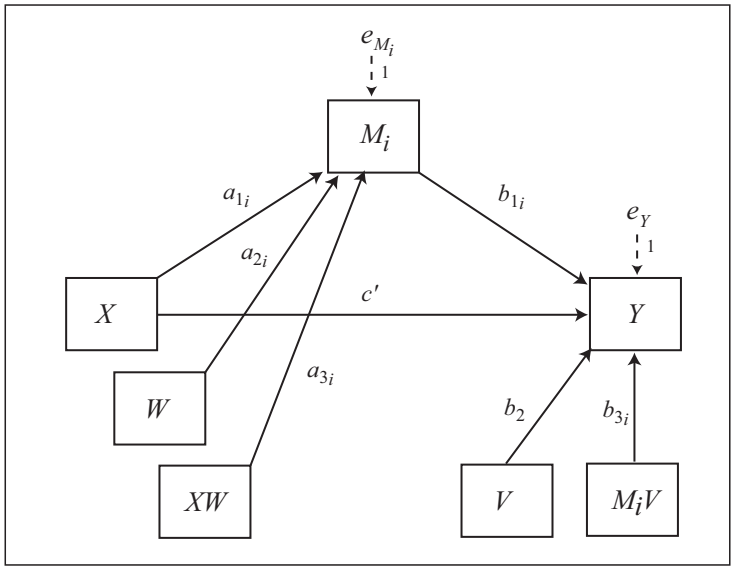
*Model 20 allows up to 10 mediators operating in parallel

Model 21

Conceptual Diagram



Statistical Diagram



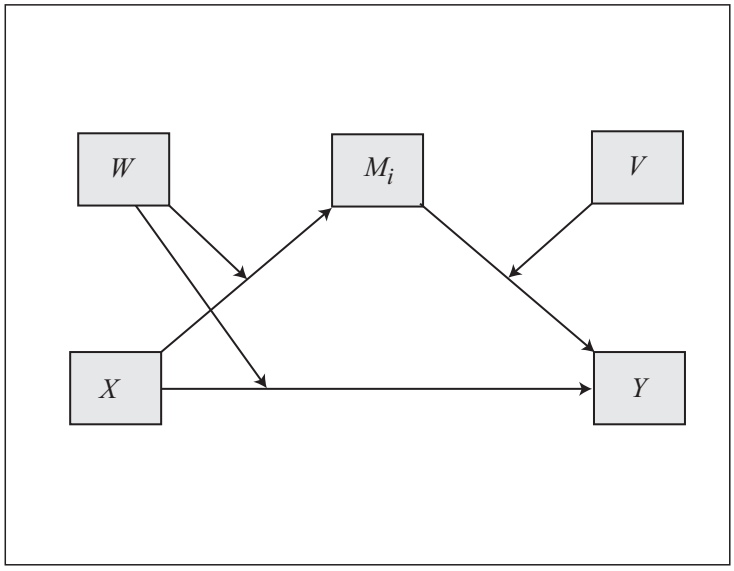
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{3i}V)$

Direct effect of X on $Y = c'$

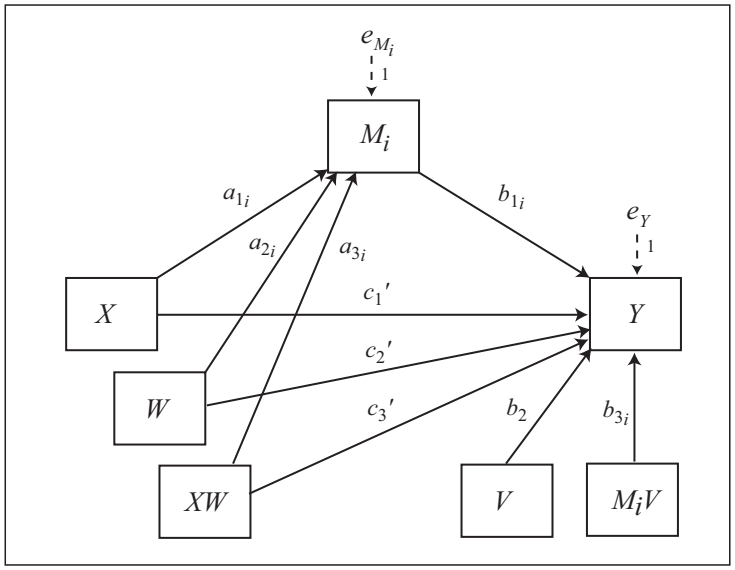
*Model 21 allows up to 10 mediators operating in parallel

Model 22

Conceptual Diagram



Statistical Diagram



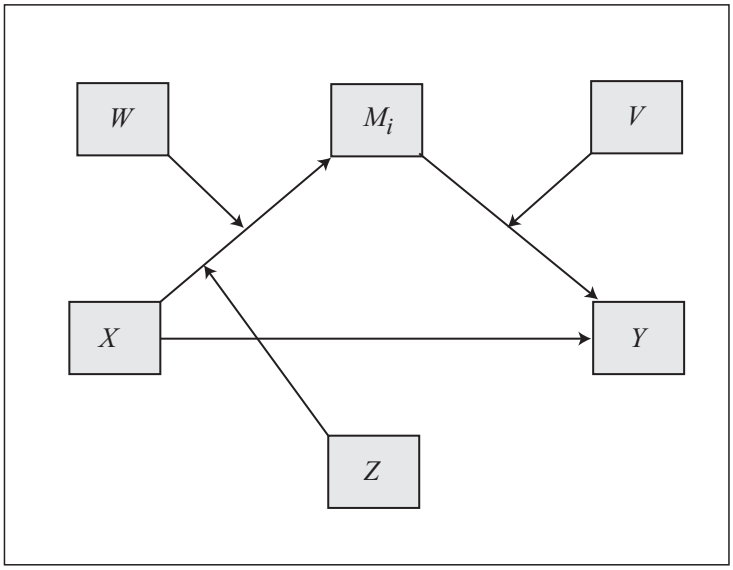
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{3i}V)$

Conditional direct effect of X on $Y = c_1' + c_3'W$

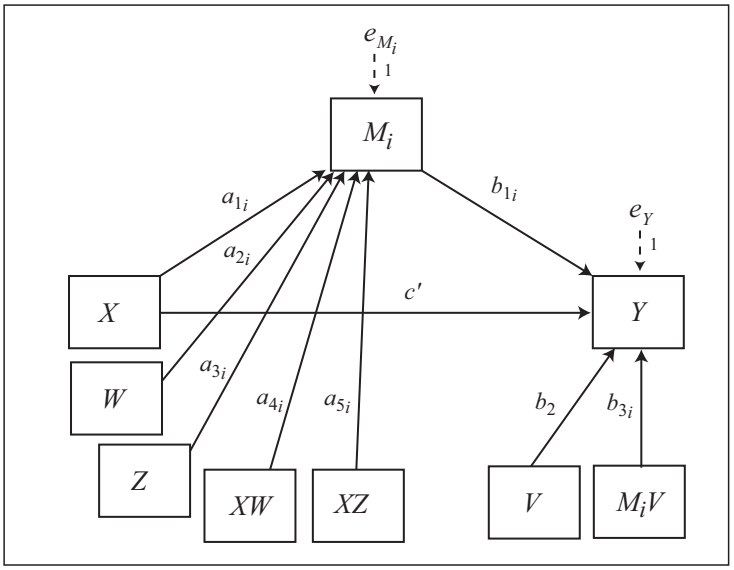
*Model 22 allows up to 10 mediators operating in parallel

Model 23

Conceptual Diagram



Statistical Diagram



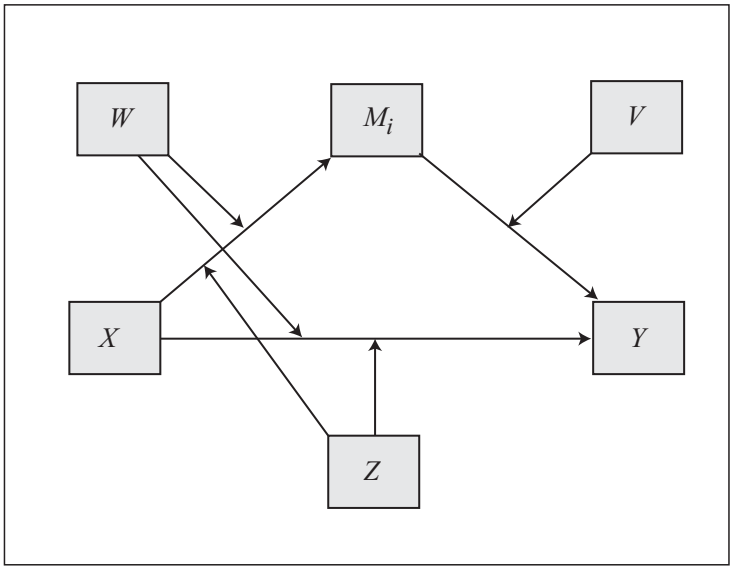
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{3i}V)$

Direct effect of X on $Y = c'$

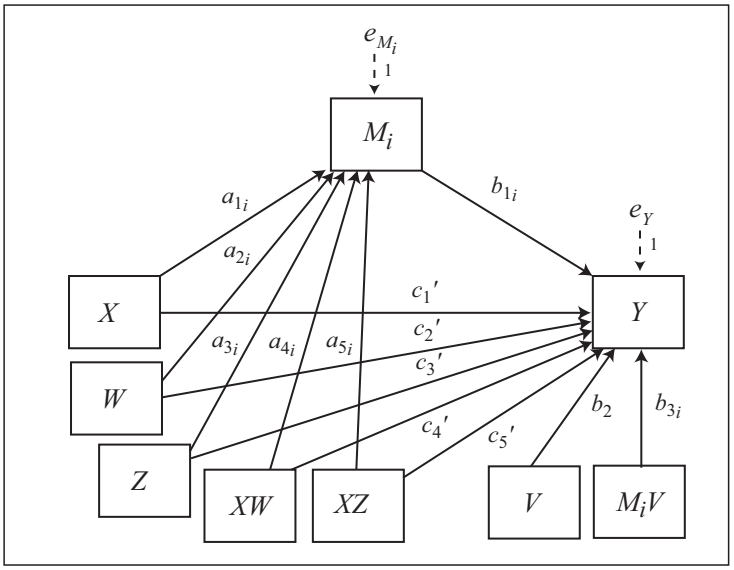
*Model 23 allows up to 10 mediators operating in parallel

Model 24

Conceptual Diagram



Statistical Diagram



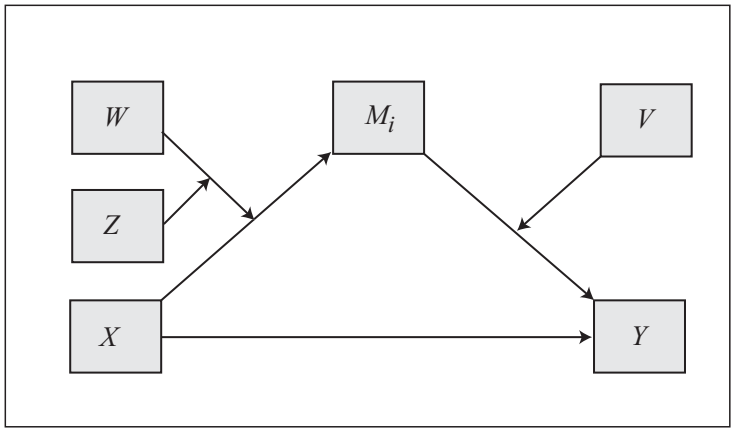
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{3i}V)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z$

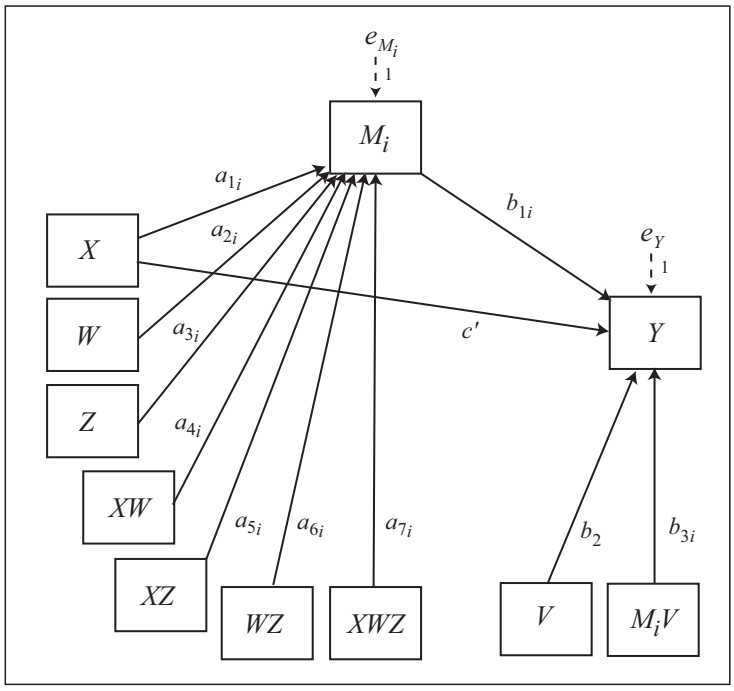
*Model 24 allows up to 10 mediators operating in parallel

Model 25

Conceptual Diagram



Statistical Diagram



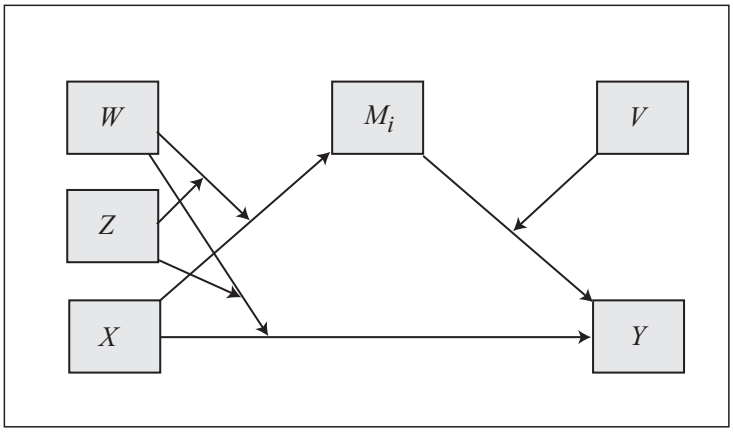
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{3i}V)$

Direct effect of X on $Y = c'$

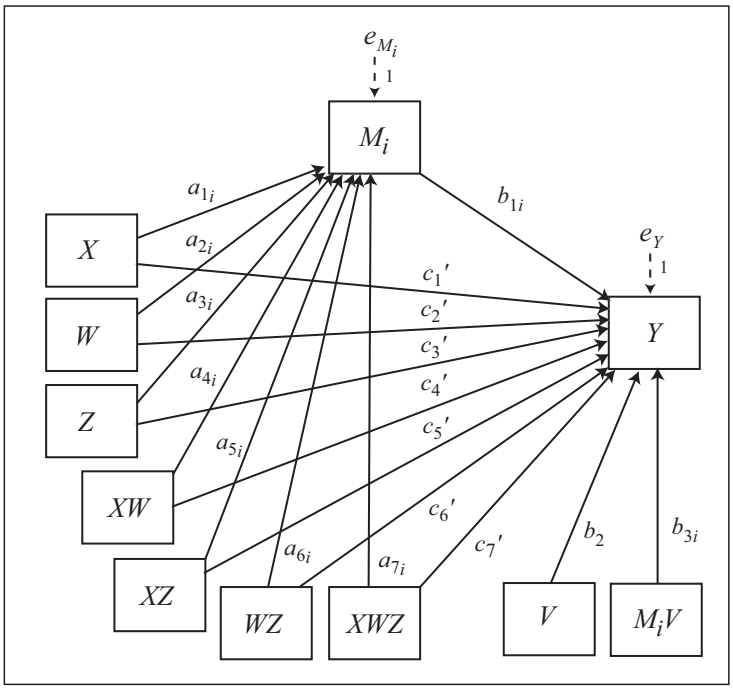
*Model 25 allows up to 10 mediators operating in parallel

Model 26

Conceptual Diagram



Statistical Diagram



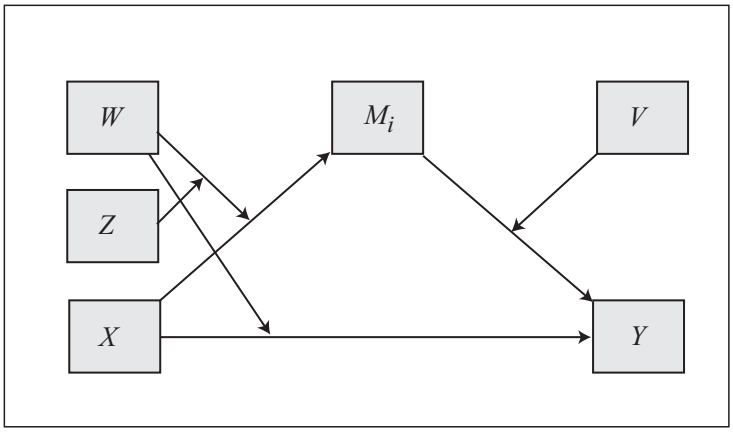
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{3i}V)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'WZ$

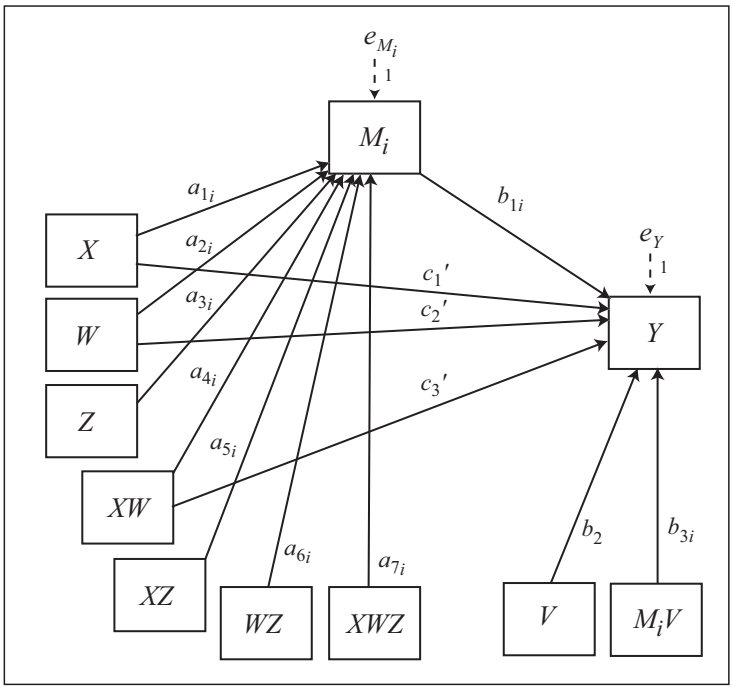
*Model 26 allows up to 10 mediators operating in parallel

Model 27

Conceptual Diagram



Statistical Diagram



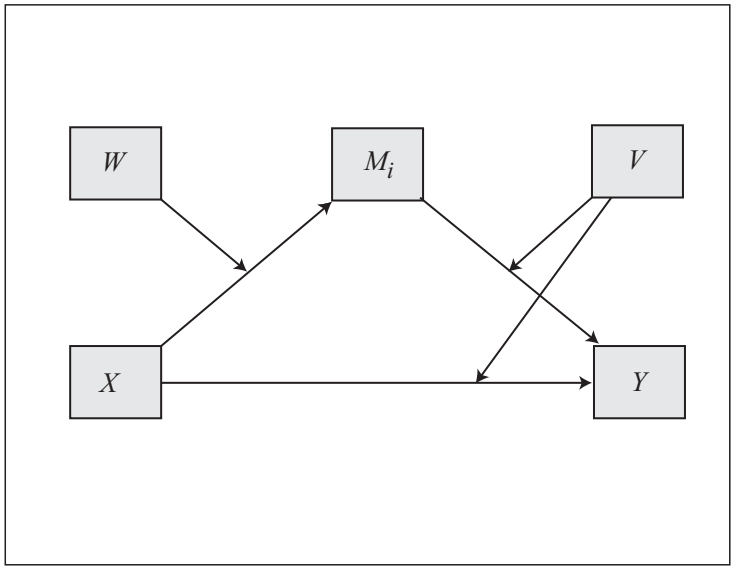
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{3i}V)$

Conditional direct effect of X on $Y = c_1' + c_3'W$

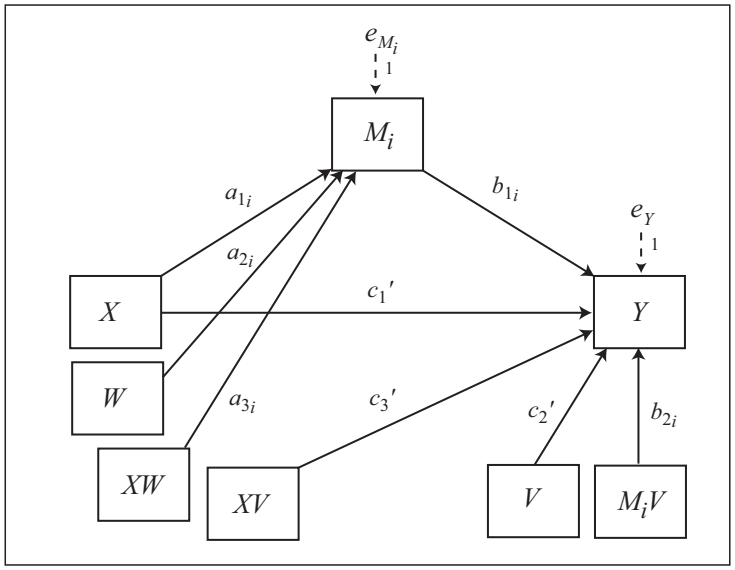
*Model 27 allows up to 10 mediators operating in parallel

Model 28

Conceptual Diagram



Statistical Diagram

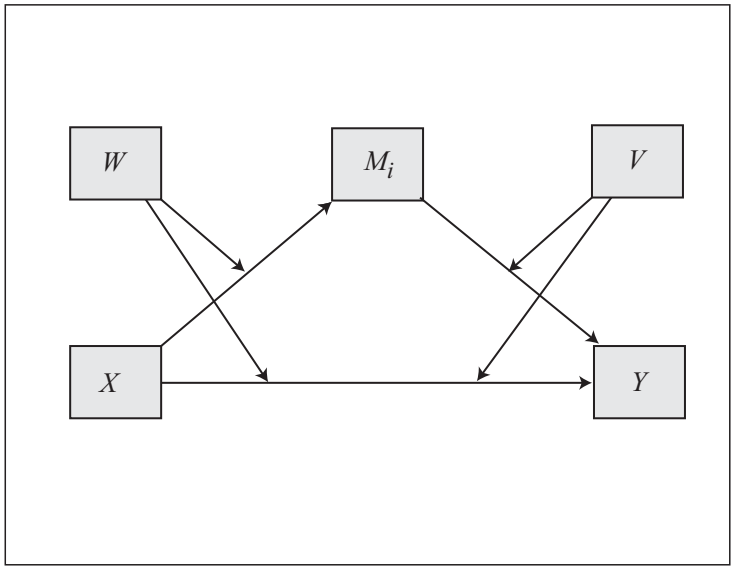


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}V)$
Conditional direct effect of X on $Y = c_1' + c_3'V$

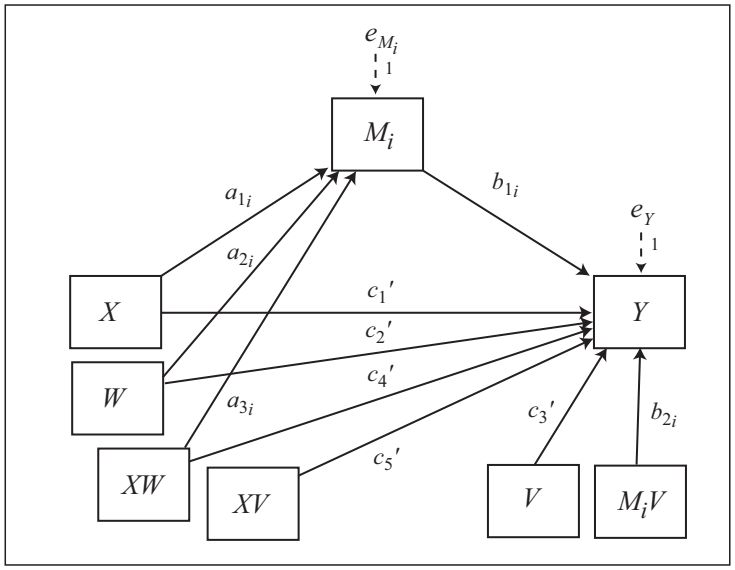
*Model 28 allows up to 10 mediators operating in parallel

Model 29

Conceptual Diagram



Statistical Diagram



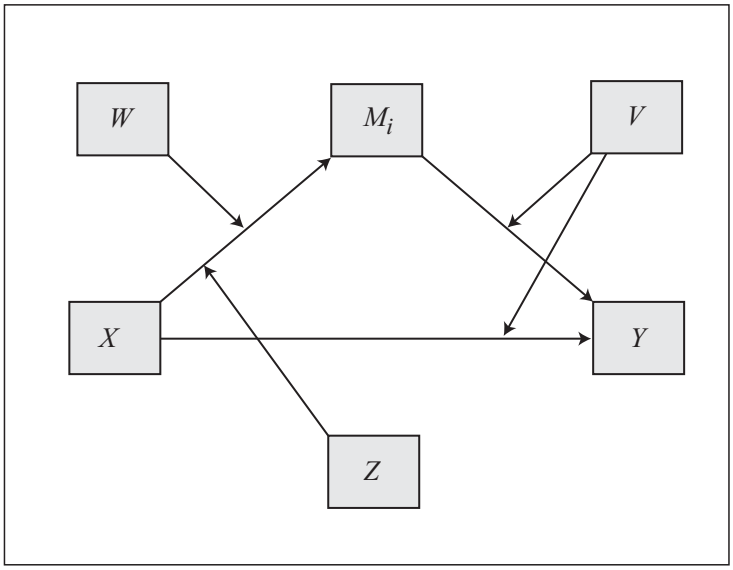
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}V)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'V$

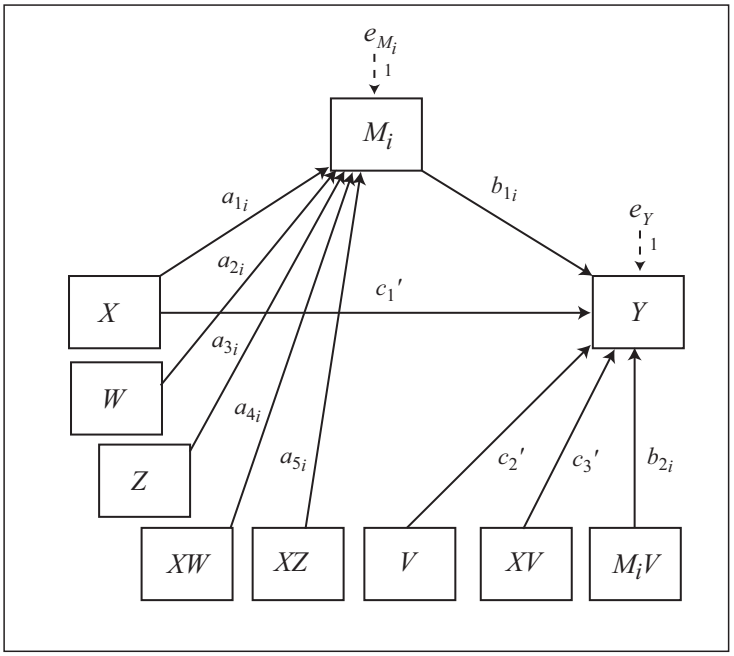
*Model 29 allows up to 10 mediators operating in parallel

Model 30

Conceptual Diagram



Statistical Diagram



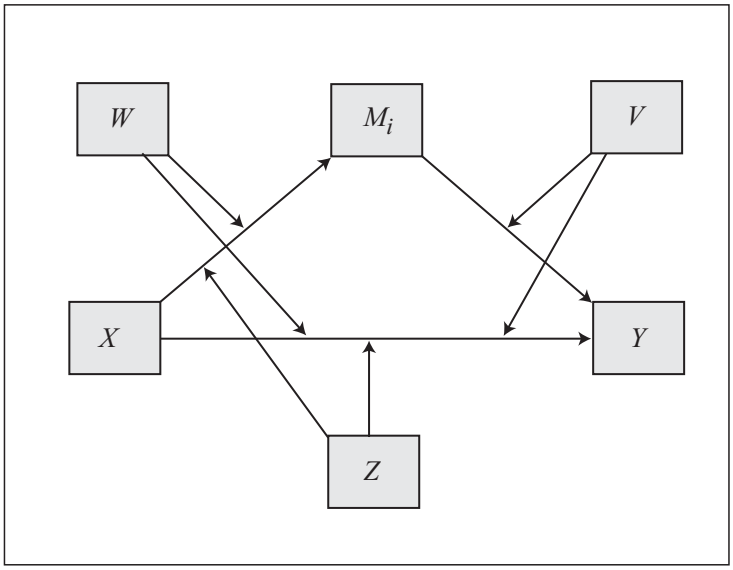
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{2i}V)$

Conditional direct effect of X on $Y = c_1' + c_3'V$

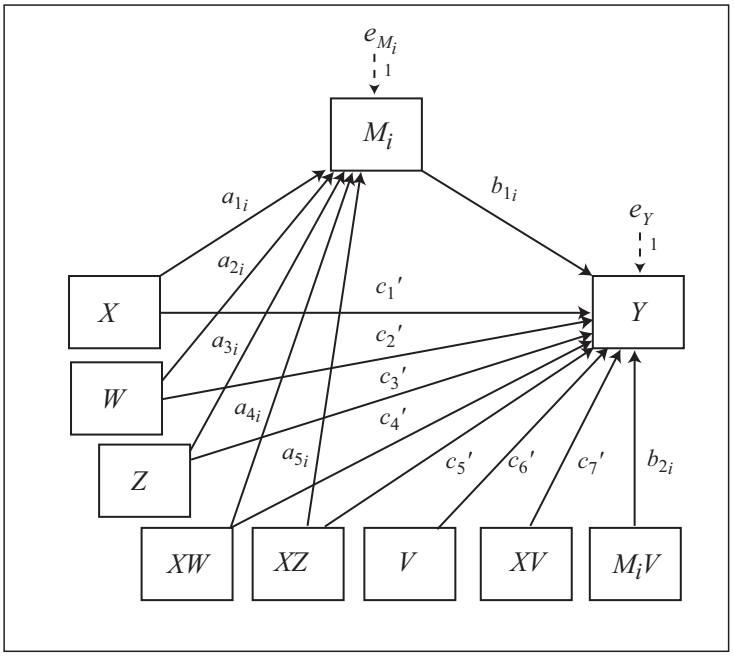
*Model 30 allows up to 10 mediators operating in parallel

Model 31

Conceptual Diagram



Statistical Diagram



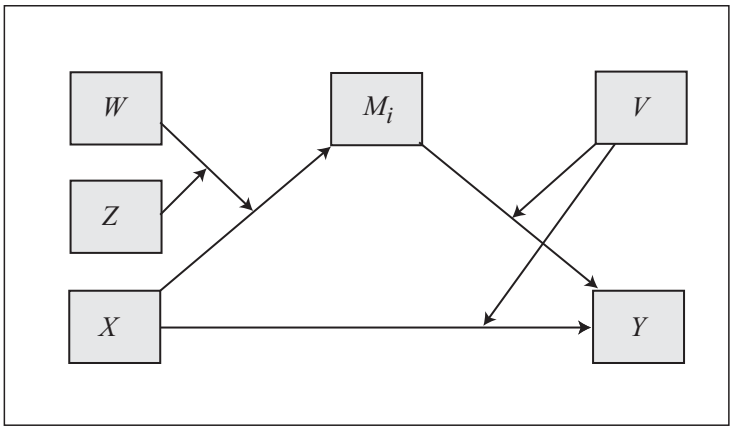
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{2i}V)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'V$

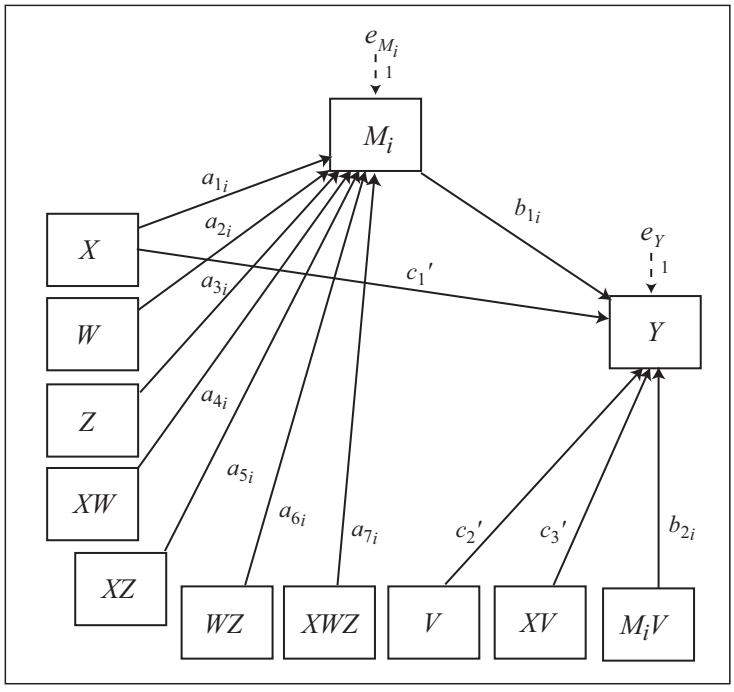
*Model 31 allows up to 10 mediators operating in parallel

Model 32

Conceptual Diagram



Statistical Diagram



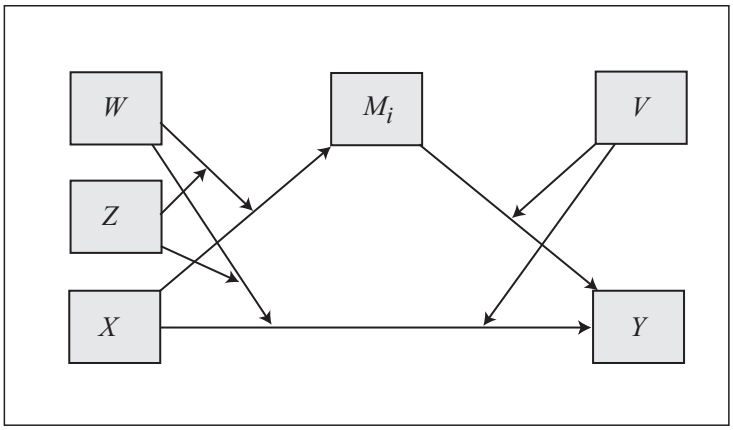
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{2i}V)$

Conditional direct effect of X on $Y = c_1' + c_3'V$

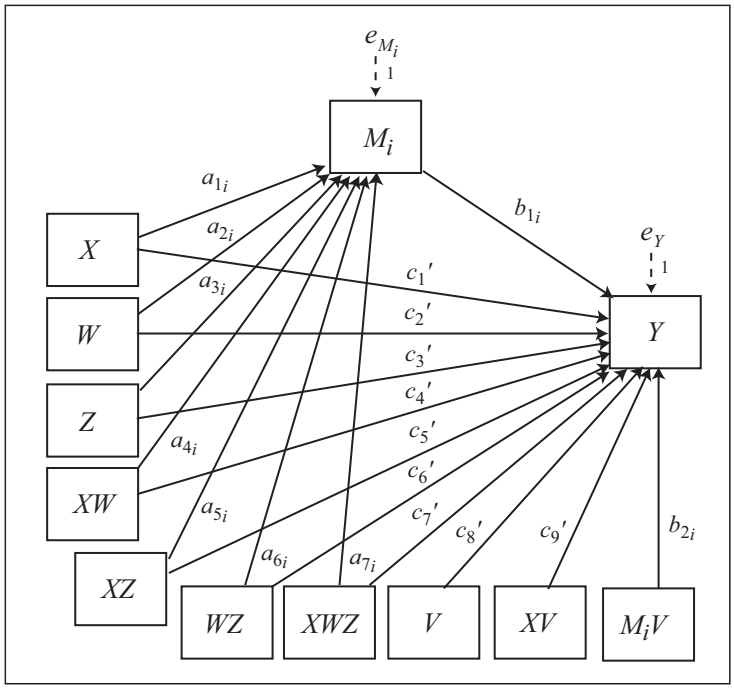
*Model 32 allows up to 10 mediators operating in parallel

Model 33

Conceptual Diagram



Statistical Diagram



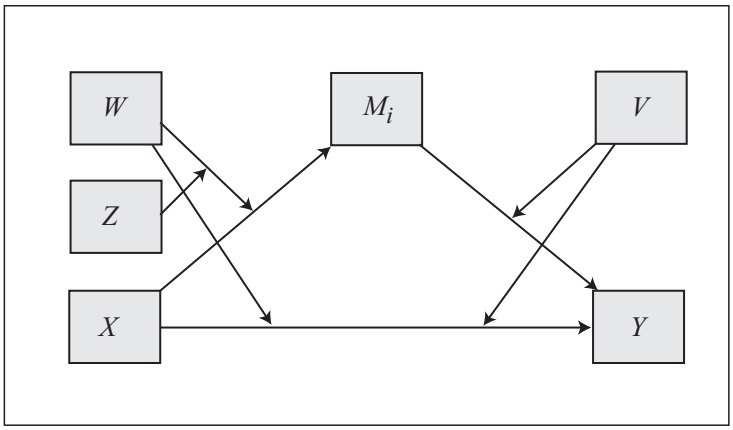
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{2i}V)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'WZ + c_9'V$

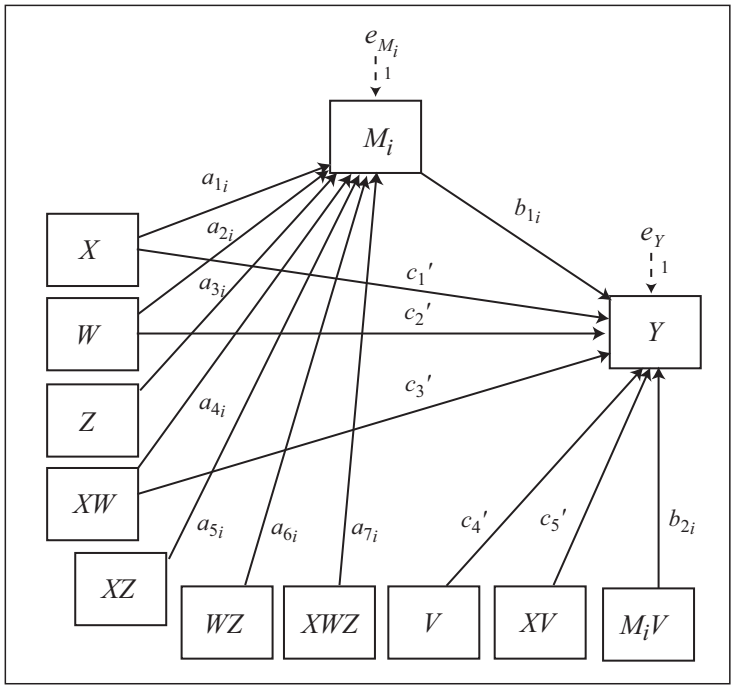
*Model 33 allows up to 10 mediators operating in parallel

Model 34

Conceptual Diagram



Statistical Diagram



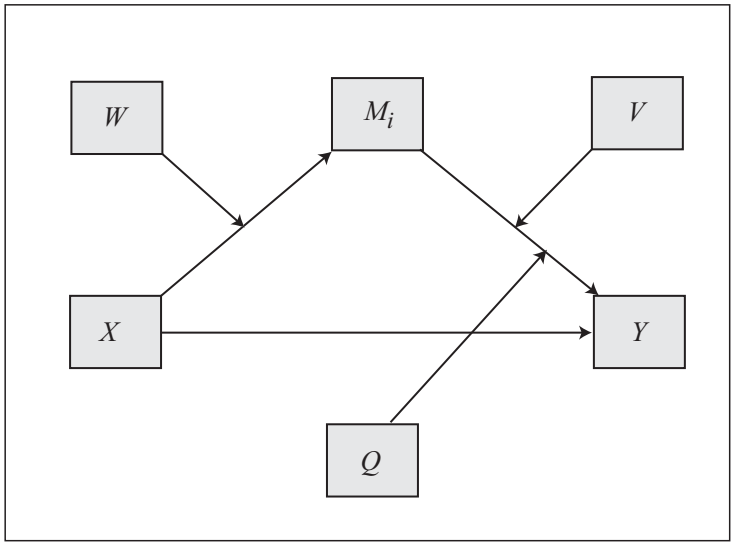
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{2i}V)$

Conditional direct effect of X on $Y = c_1' + c_3'W + c_5'V$

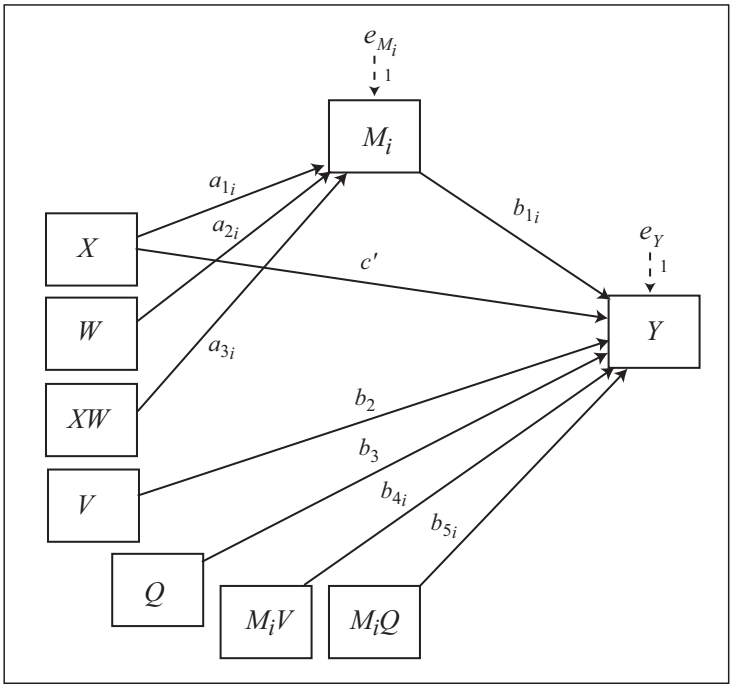
*Model 34 allows up to 10 mediators operating in parallel

Model 35

Conceptual Diagram



Statistical Diagram



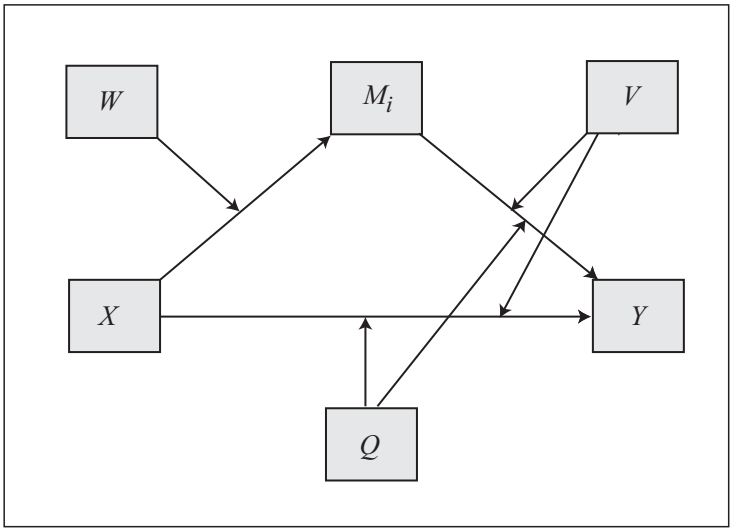
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{4i}V + b_{5i}Q)$

Direct effect of X on $Y = c'$

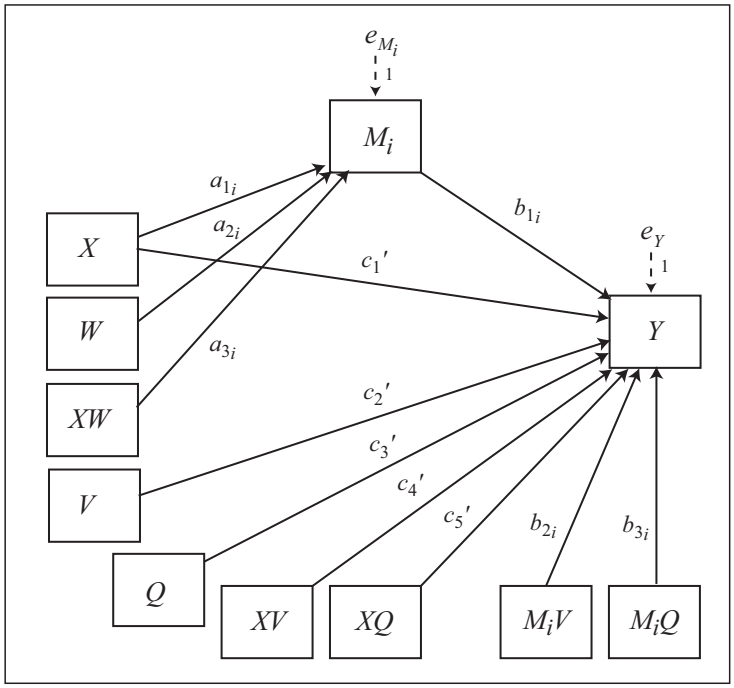
*Model 35 allows up to 10 mediators operating in parallel

Model 36

Conceptual Diagram



Statistical Diagram



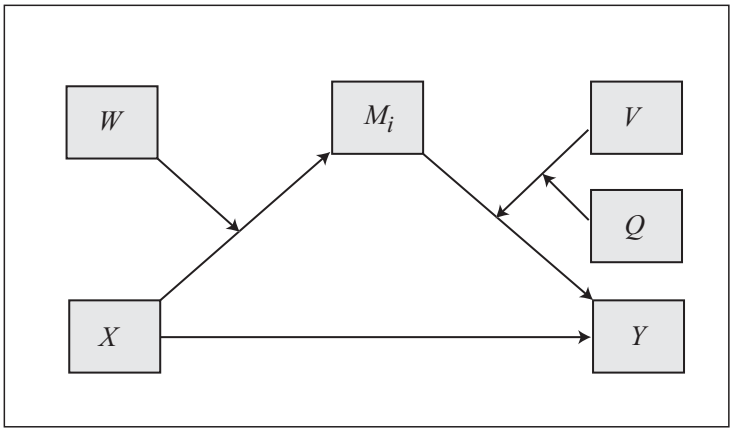
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}V + b_{3i}Q)$

Conditional direct effect of X on $Y = c_1' + c_4'V + c_5'Q$

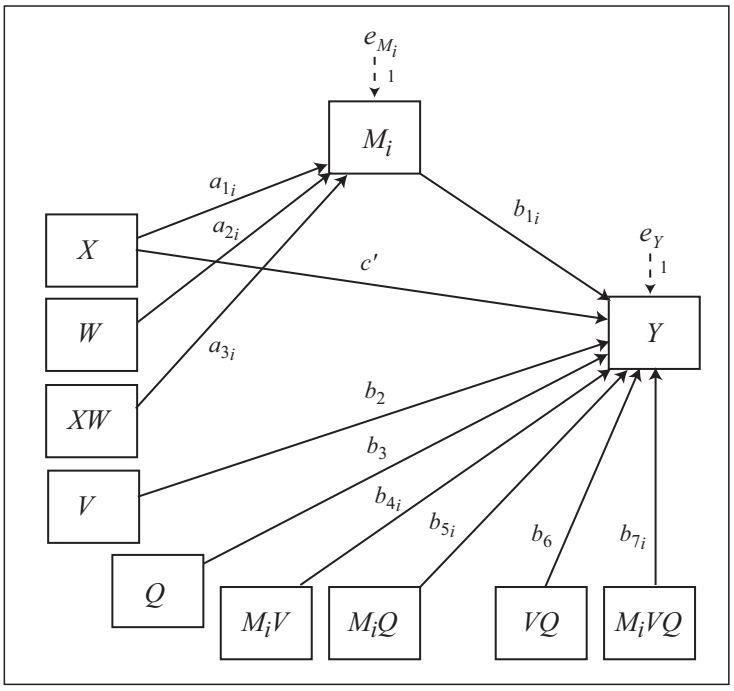
*Model 36 allows up to 10 mediators operating in parallel

Model 37

Conceptual Diagram



Statistical Diagram



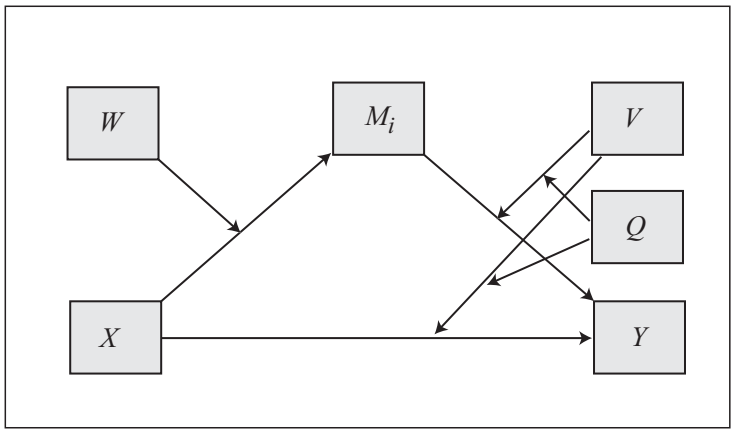
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{4i}V + b_{5i}Q + b_{7i}VQ)$

Direct effect of X on $Y = c'$

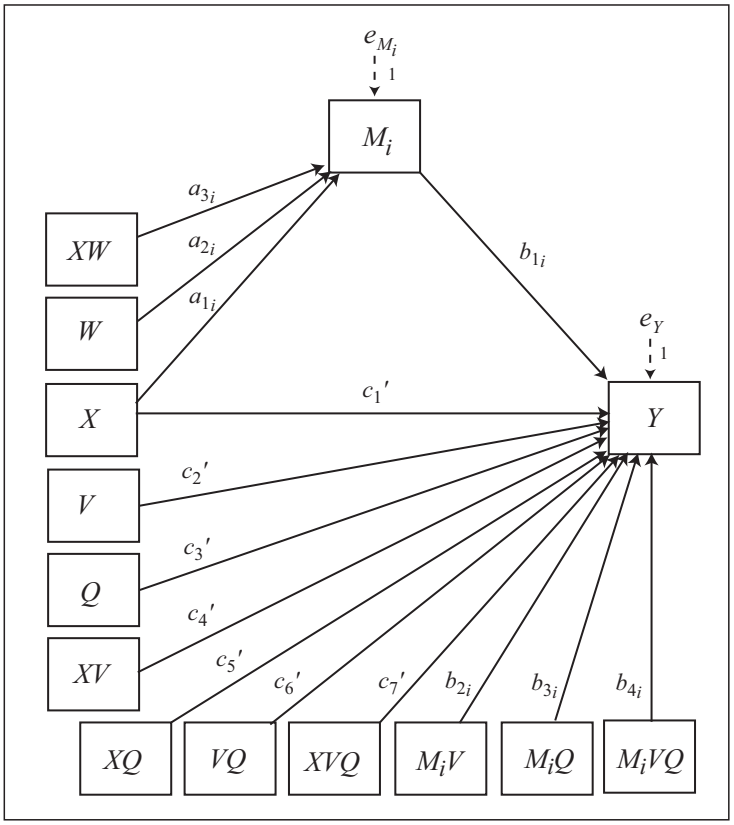
*Model 37 allows up to 10 mediators operating in parallel

Model 38

Conceptual Diagram



Statistical Diagram



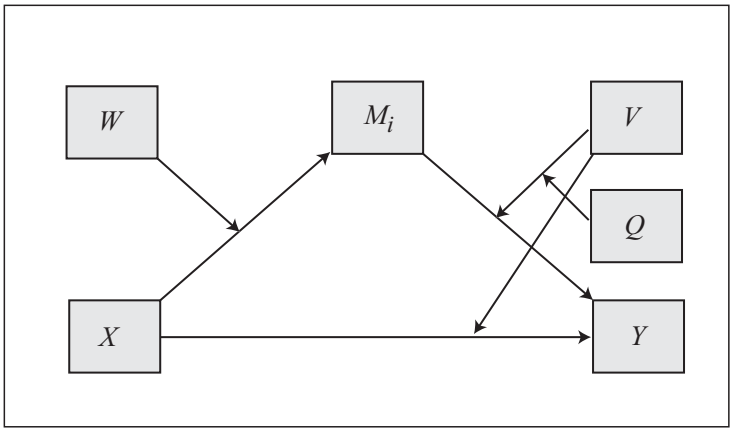
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}V + b_{3i}Q + b_{4i}VQ)$

Conditional direct effect of X on $Y = c_1' + c_4'V + c_5'Q + c_7'VQ$

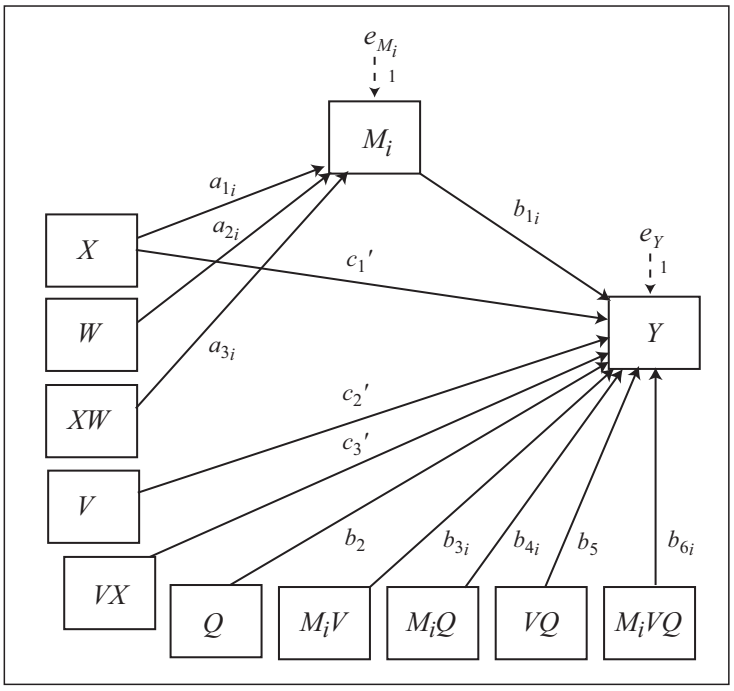
*Model 38 allows up to 10 mediators operating in parallel

Model 39

Conceptual Diagram



Statistical Diagram



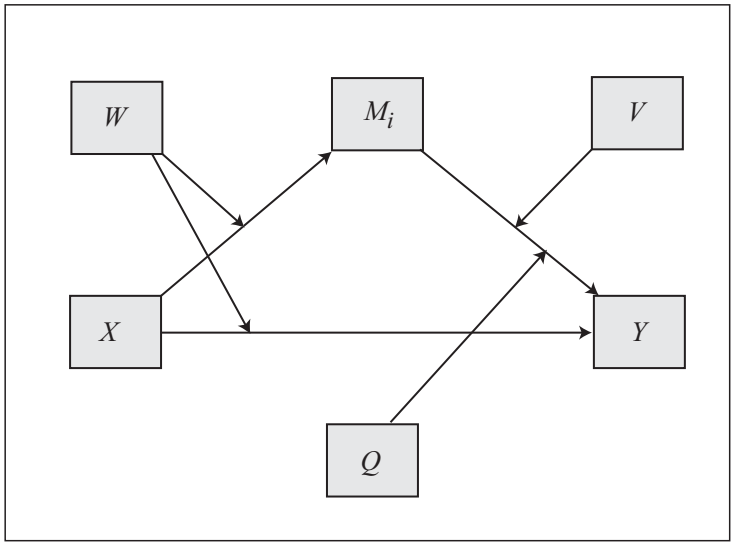
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{3i}V + b_{4i}Q + b_{6i}VQ)$

Conditional direct effect of X on $Y = c_1' + c_3'V$

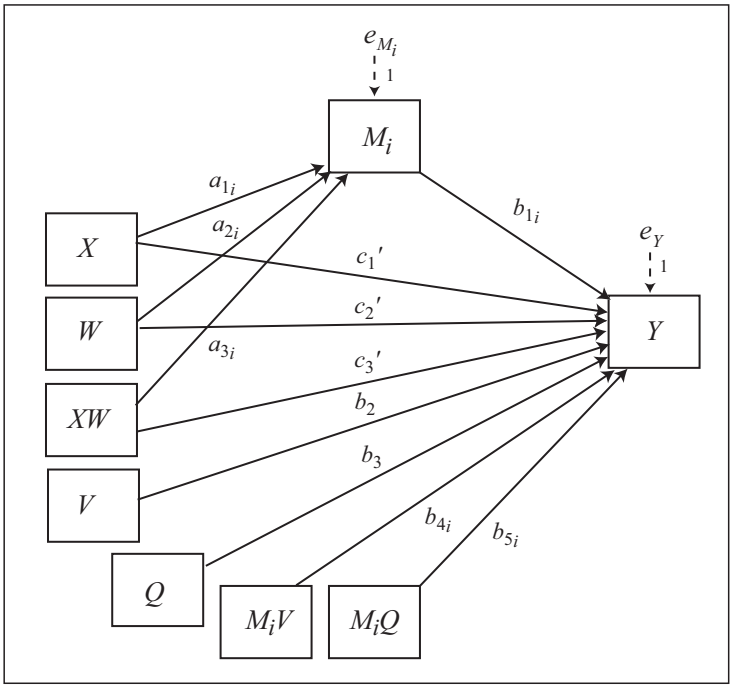
*Model 39 allows up to 10 mediators operating in parallel

Model 40

Conceptual Diagram



Statistical Diagram



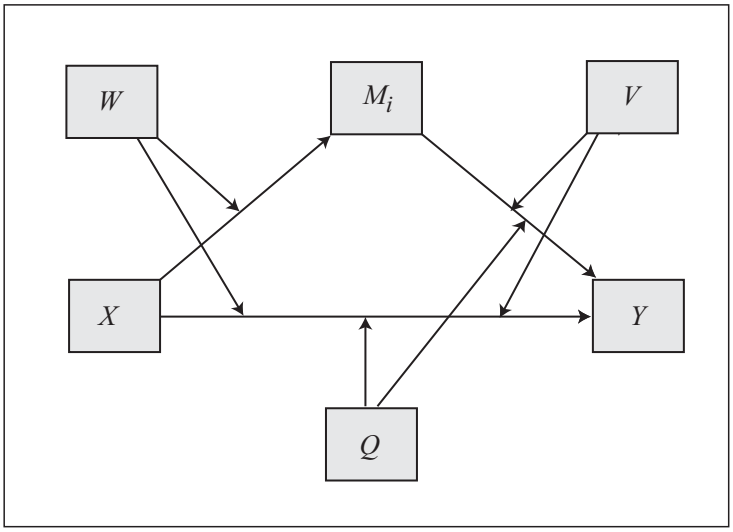
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{4i}V + b_{5i}Q)$

Conditional direct effect of X on $Y = c_1' + c_3'W$

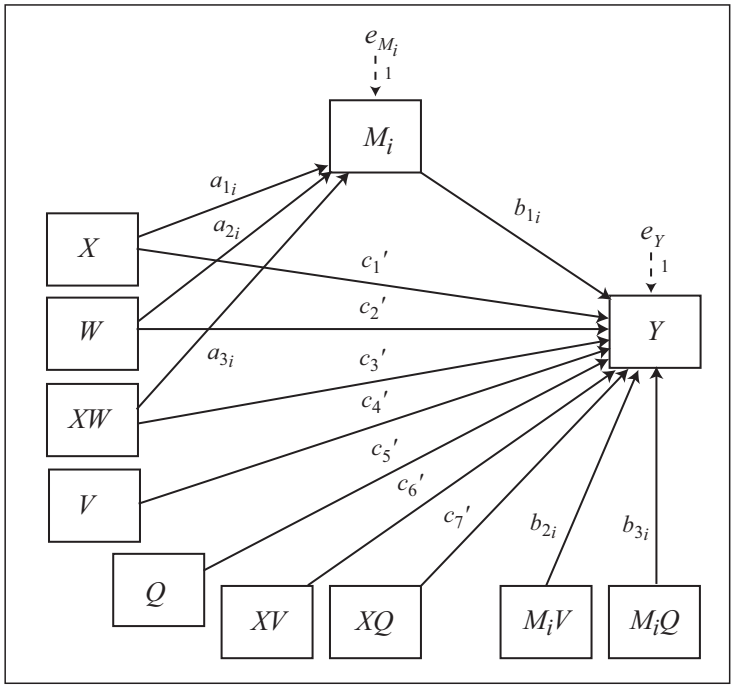
*Model 40 allows up to 10 mediators operating in parallel

Model 41

Conceptual Diagram



Statistical Diagram



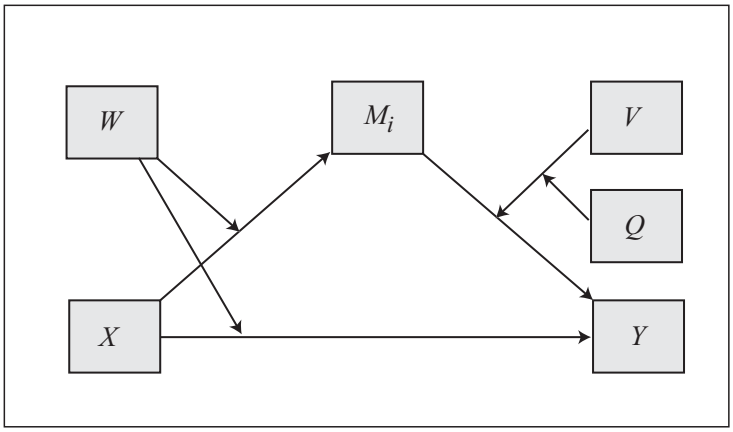
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}V + b_{3i}Q)$

Conditional direct effect of X on $Y = c_1' + c_3'W + c_6'V + c_7'Q$

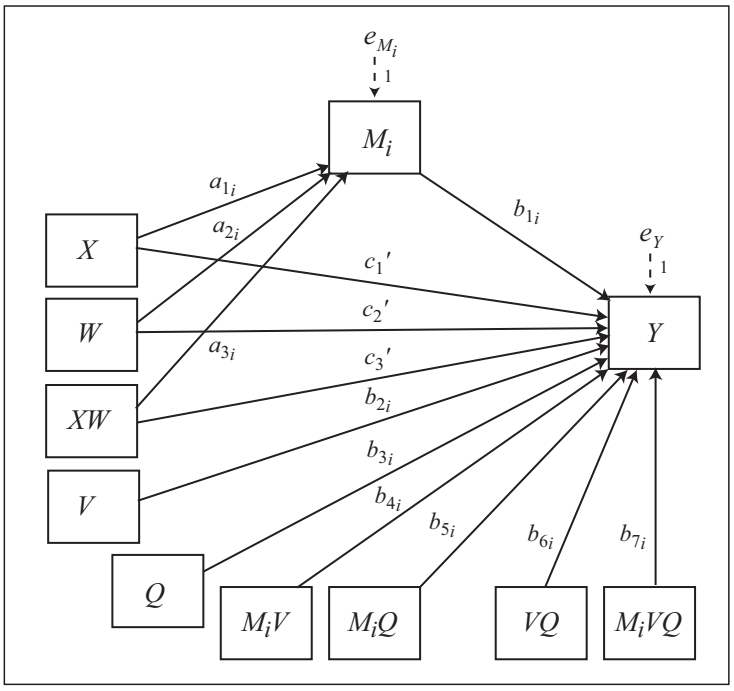
*Model 41 allows up to 10 mediators operating in parallel

Model 42

Conceptual Diagram



Statistical Diagram



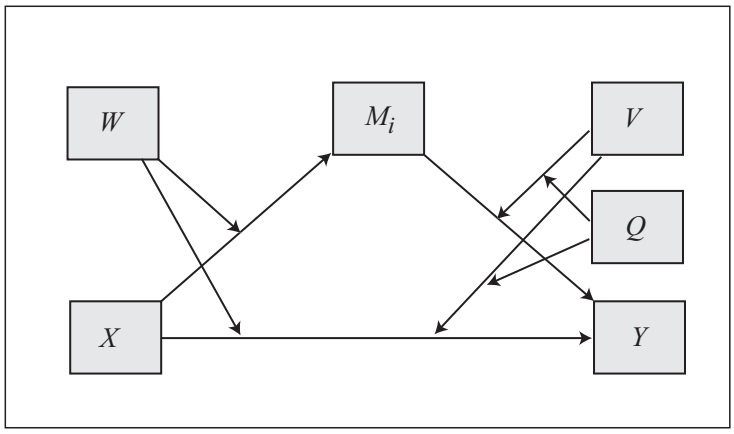
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{4i}V + b_{5i}Q + b_{7i}VQ)$

Conditional direct effect of X on $Y = c_1' + c_3'W$

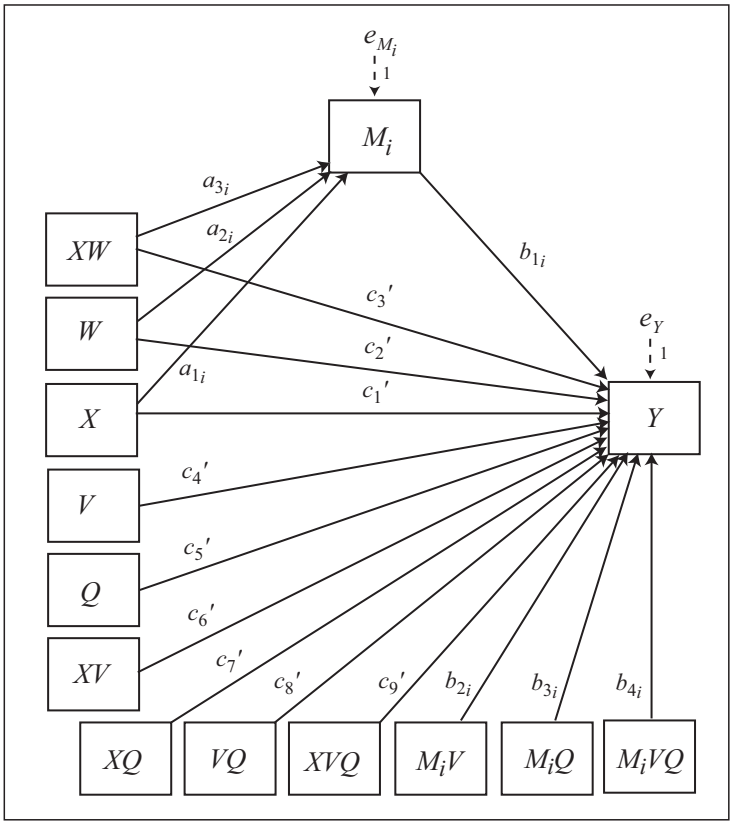
*Model 42 allows up to 10 mediators operating in parallel

Model 43

Conceptual Diagram



Statistical Diagram



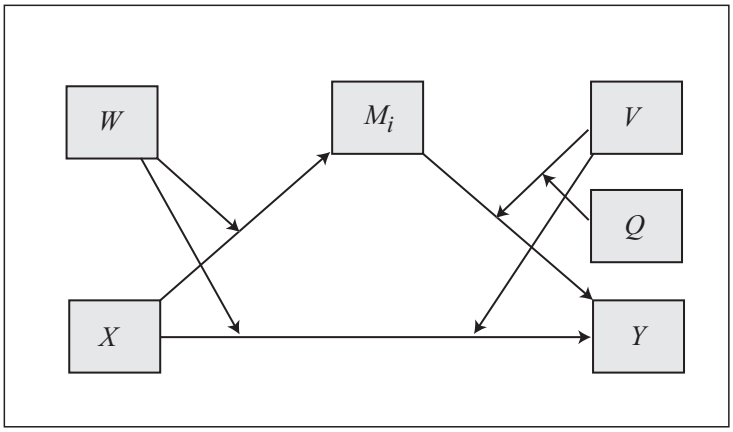
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}V + b_{3i}Q + b_{4i}VQ)$

Conditional direct effect of X on $Y = c_1' + c_3'W + c_6'V + c_7'Q + c_9'VQ$

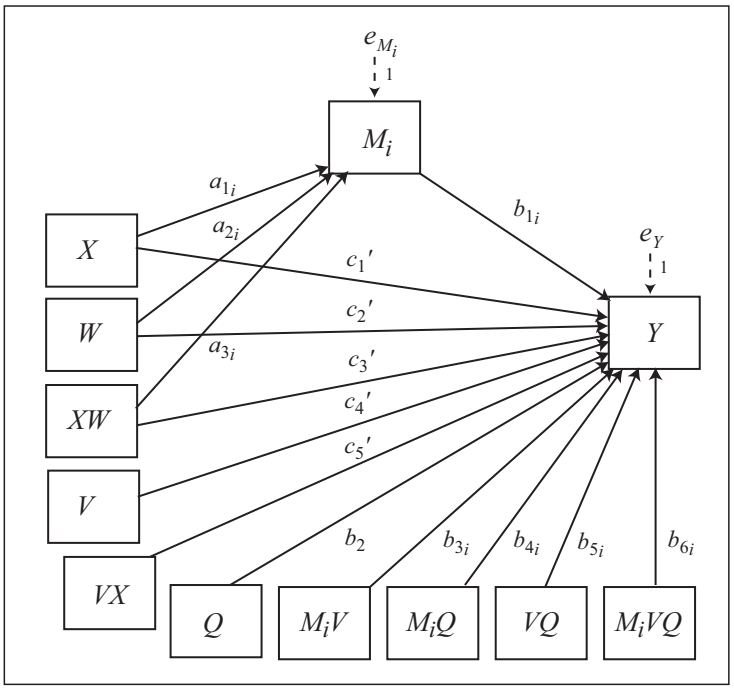
*Model 43 allows up to 10 mediators operating in parallel

Model 44

Conceptual Diagram



Statistical Diagram



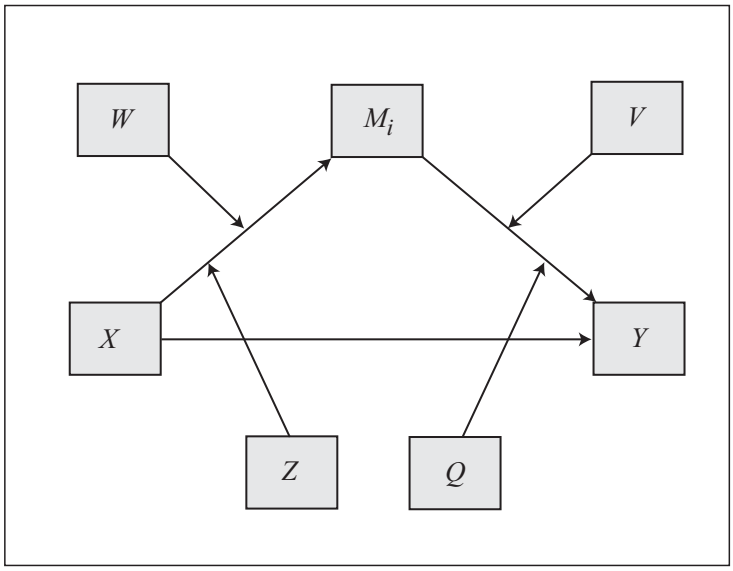
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{3i}V + b_{4i}Q + b_{6i}VQ)$

Conditional direct effect of X on $Y = c_1' + c_3'W + c_5'V$

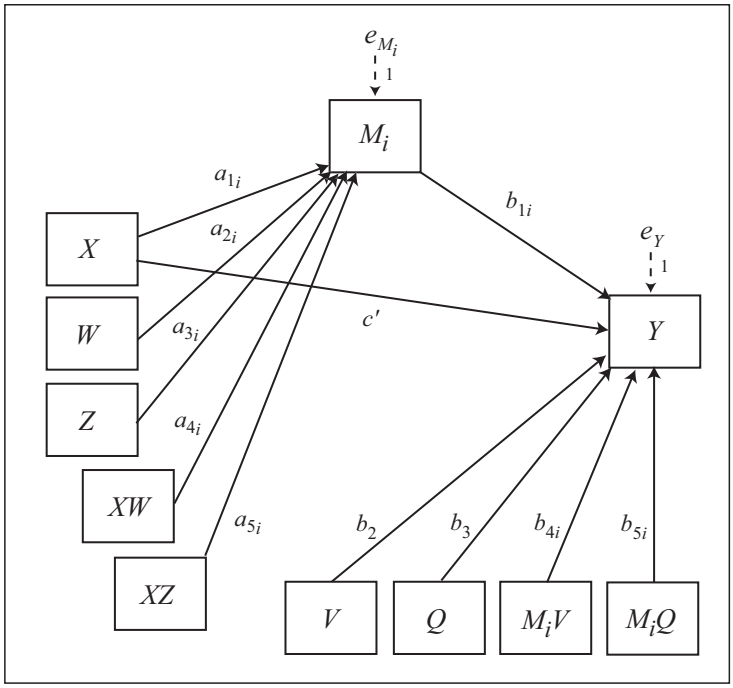
*Model 44 allows up to 10 mediators operating in parallel

Model 45

Conceptual Diagram



Statistical Diagram



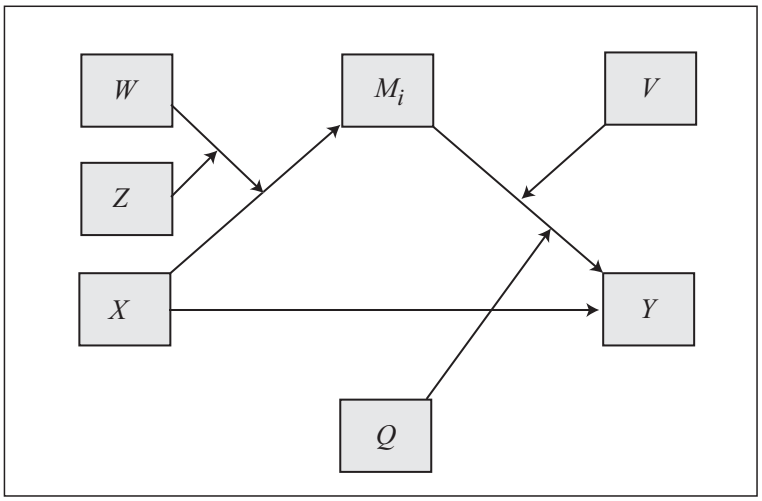
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{4i}V + b_{5i}Q)$

Direct effect of X on $Y = c'$

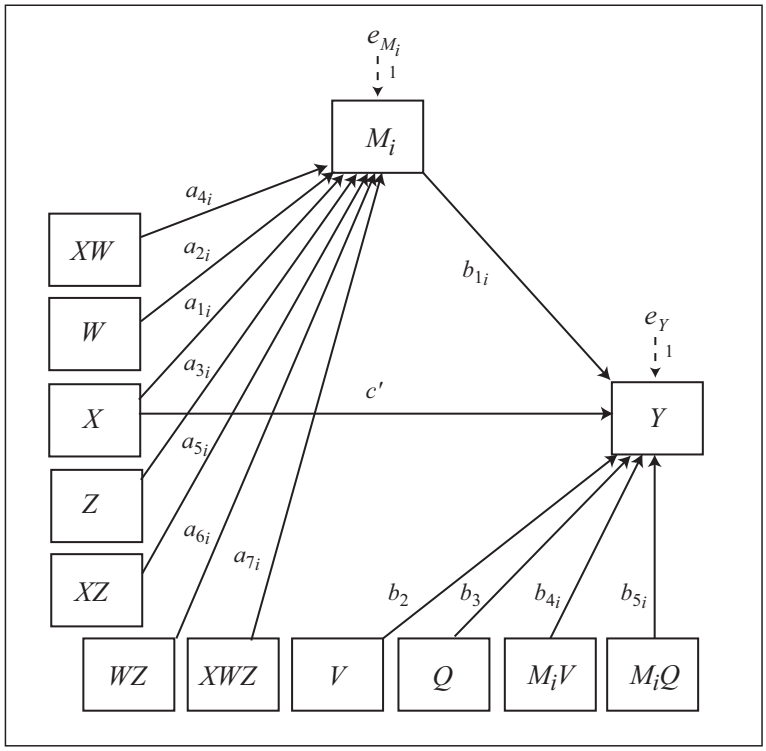
*Model 45 allows up to 10 mediators operating in parallel

Model 46

Conceptual Diagram



Statistical Diagram



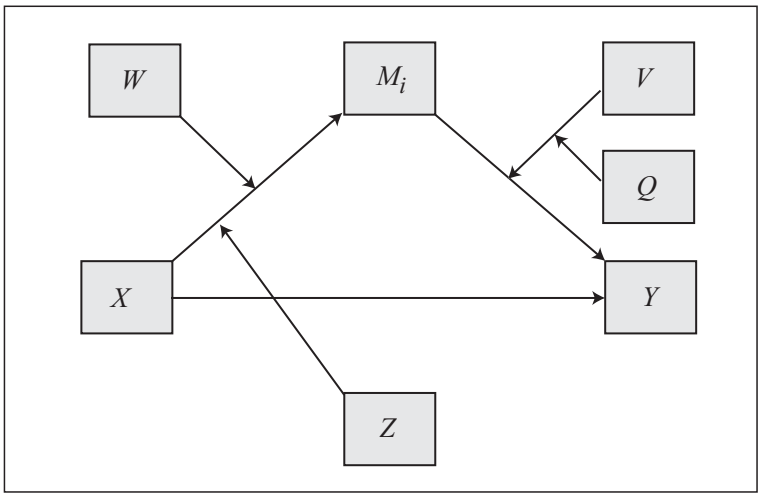
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{4i}V + b_{5i}Q)$

Direct effect of X on $Y = c'$

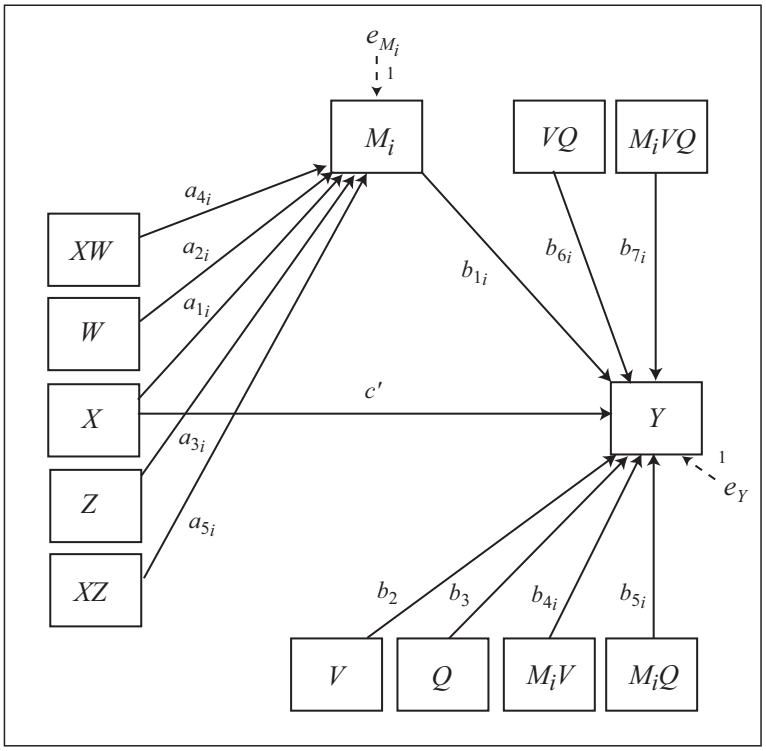
*Model 46 allows up to 10 mediators operating in parallel

Model 47

Conceptual Diagram



Statistical Diagram



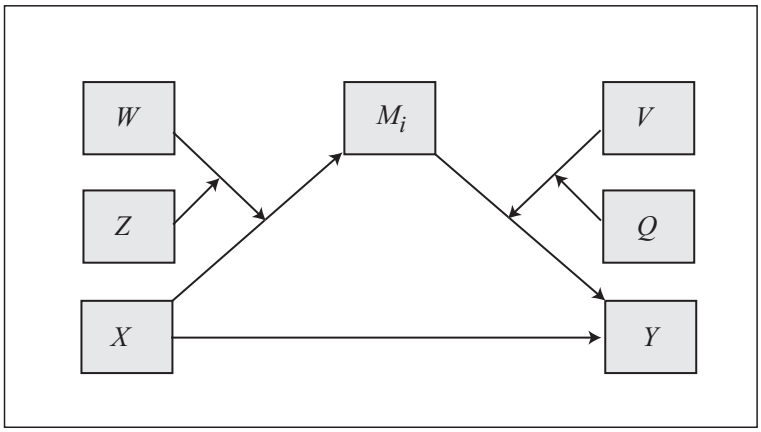
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{4i}V + b_{5i}Q + b_{7i}VQ)$

Direct effect of X on $Y = c'$

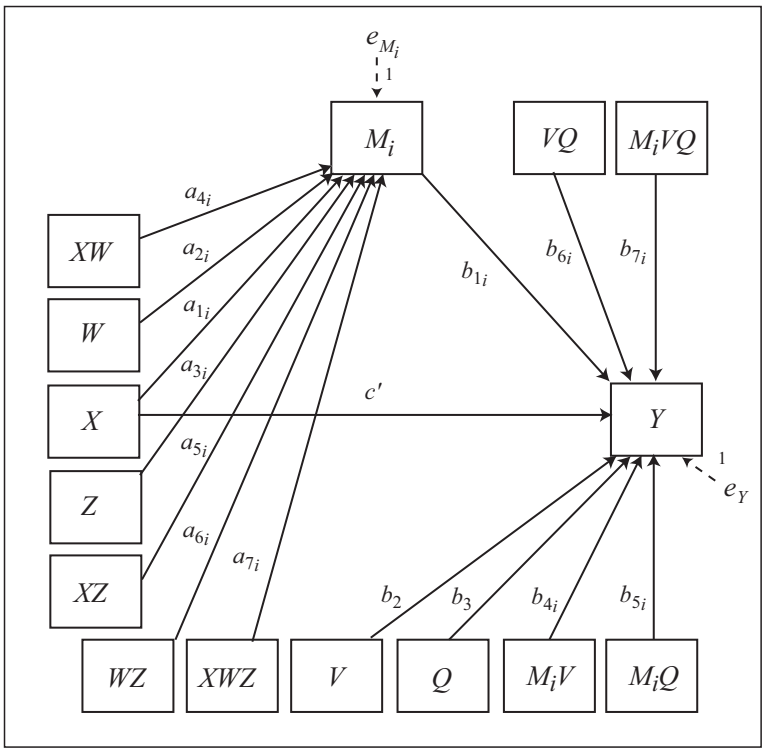
*Model 47 allows up to 10 mediators operating in parallel

Model 48

Conceptual Diagram



Statistical Diagram



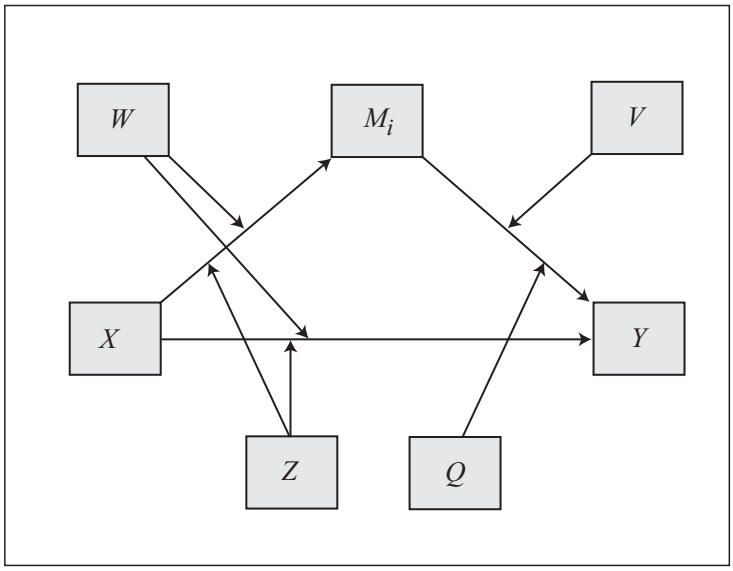
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ) \cdot (b_{1i} + b_{4i}V + b_{5i}Q + b_{7i}VQ)$

Direct effect of X on $Y = c'$

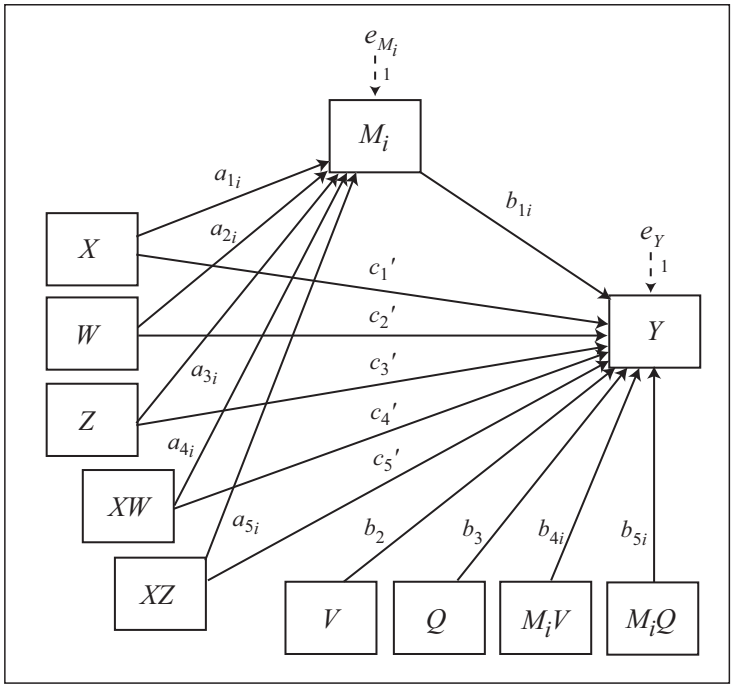
*Model 48 allows up to 10 mediators operating in parallel

Model 49

Conceptual Diagram



Statistical Diagram



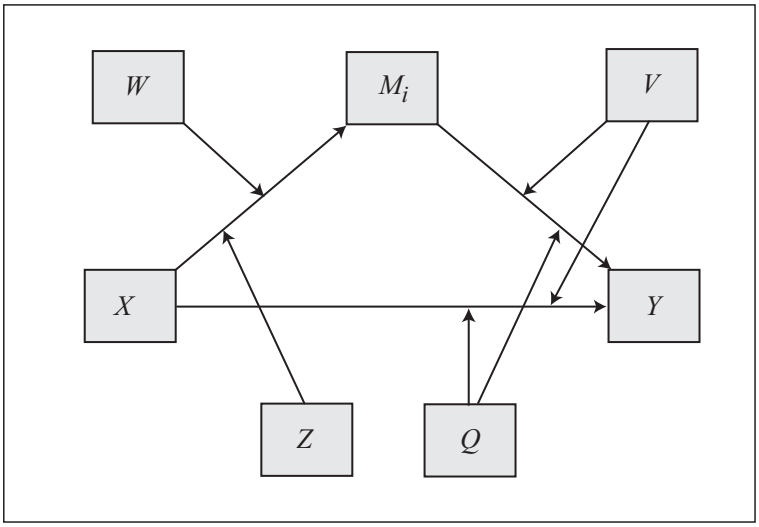
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{4i}V + b_{5i}Q)$

Conditional direct effect of X on $Y = + c_1' + c_4'W + c_5'Z$

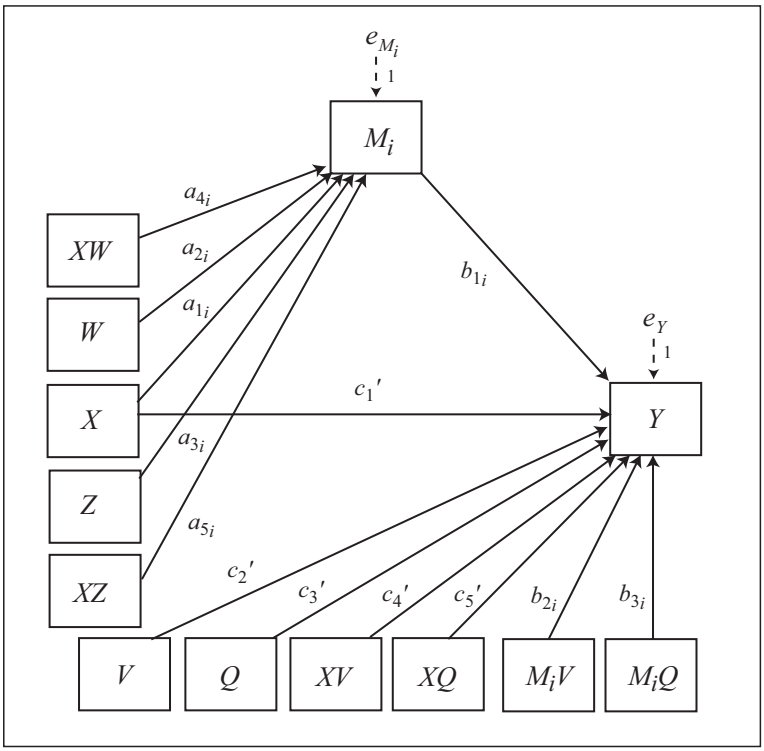
*Model 49 allows up to 10 mediators operating in parallel

Model 50

Conceptual Diagram



Statistical Diagram

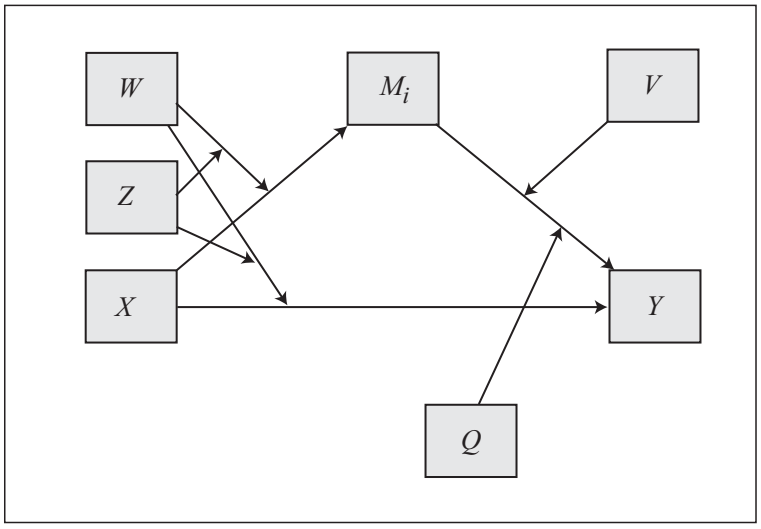


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{2i}V + b_{3i}Q)$
Conditional direct effect of X on $Y = c_1' + c_4'V + c_5'Q$

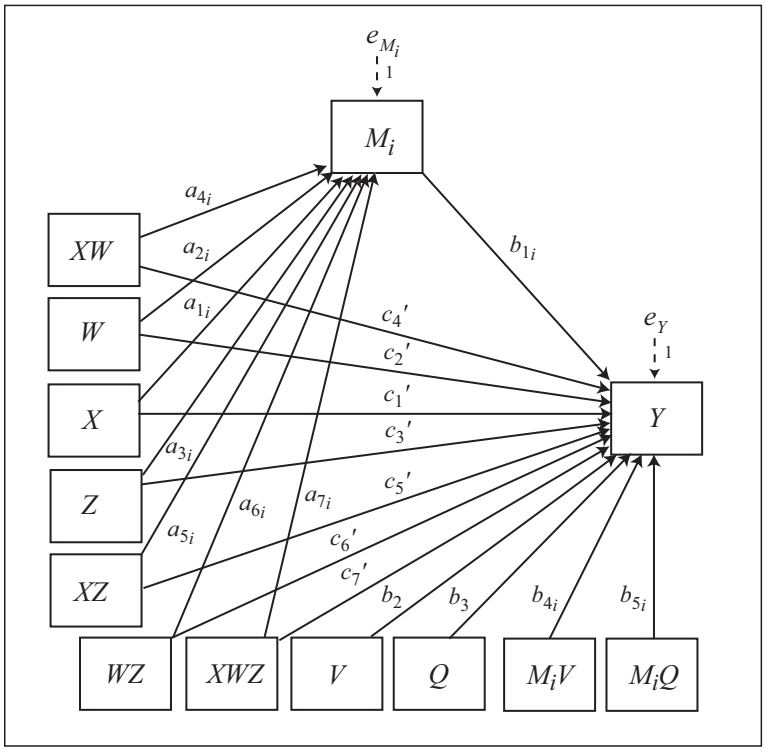
*Model 50 allows up to 10 mediators operating in parallel

Model 51

Conceptual Diagram



Statistical Diagram

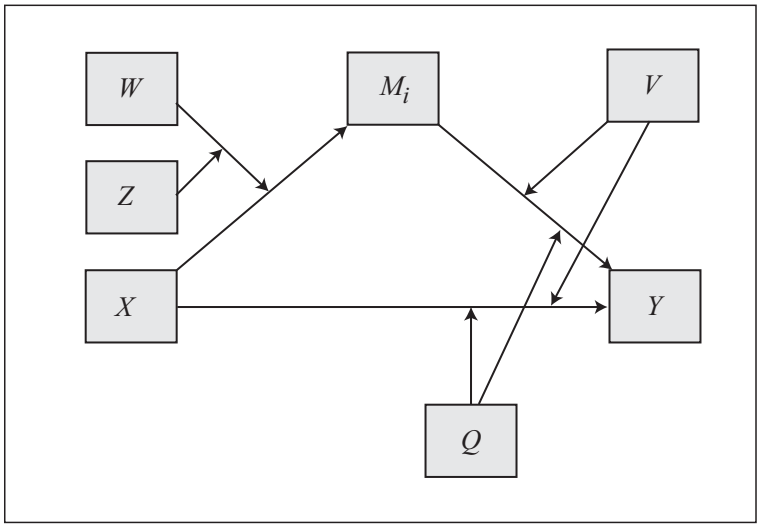


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{4i}V + b_{5i}Q)$
Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'WZ$

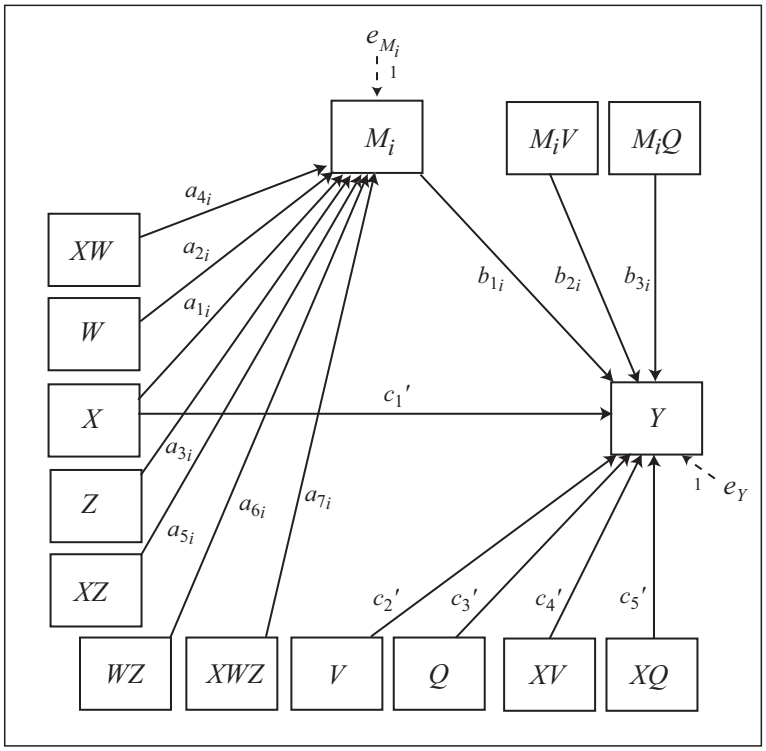
*Model 51 allows up to 10 mediators operating in parallel

Model 52

Conceptual Diagram



Statistical Diagram



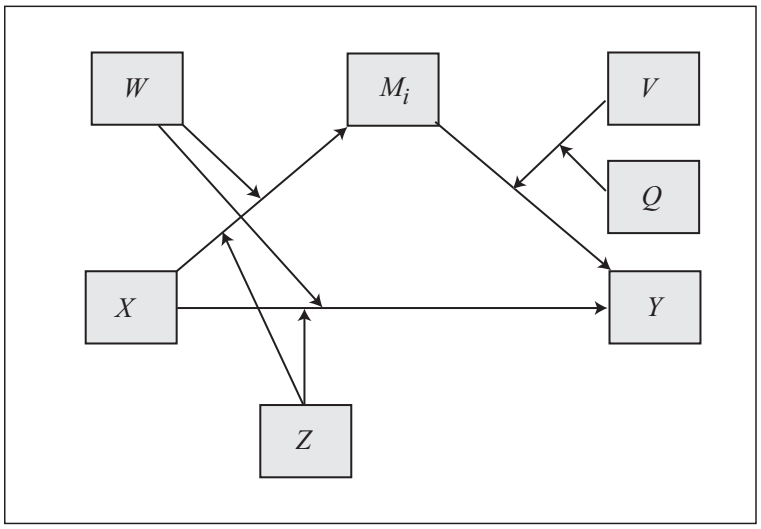
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{2i}V + b_{3i}Q)$

Conditional direct effect of X on $Y = c_1' + c_4'V + c_5'Q$

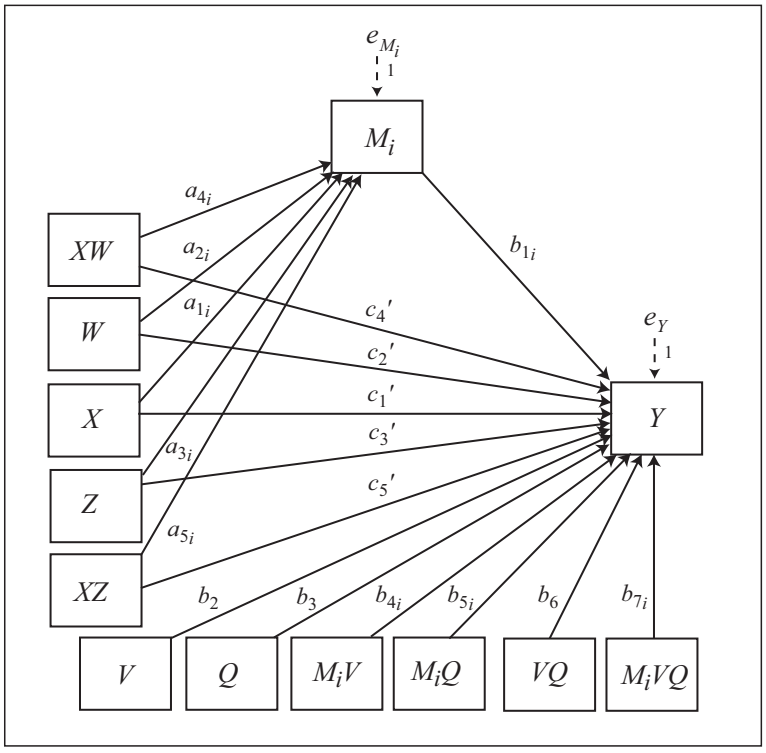
*Model 52 allows up to 10 mediators operating in parallel

Model 53

Conceptual Diagram



Statistical Diagram

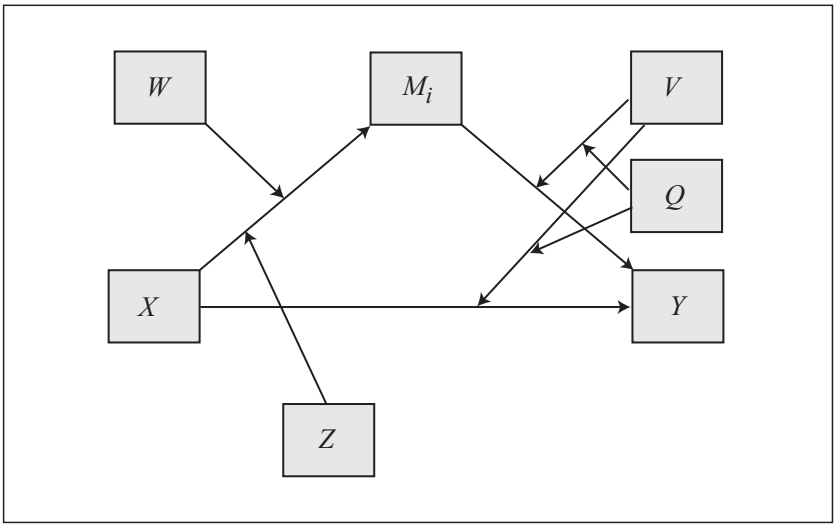


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{4i}V + b_{5i}Q + b_{7i}VQ)$
Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z$

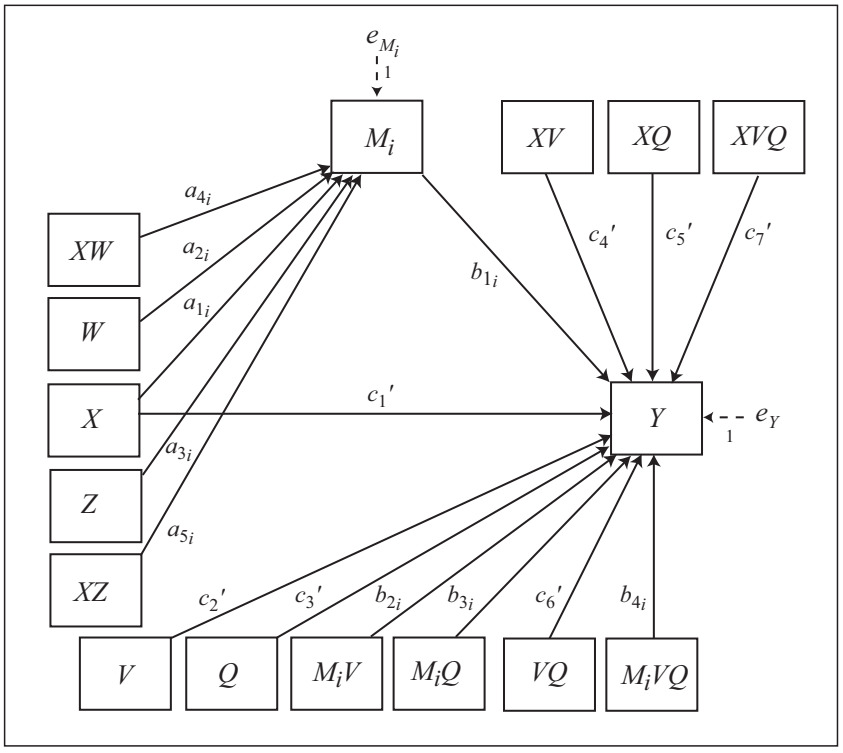
*Model 53 allows up to 10 mediators operating in parallel

Model 54

Conceptual Diagram



Statistical Diagram

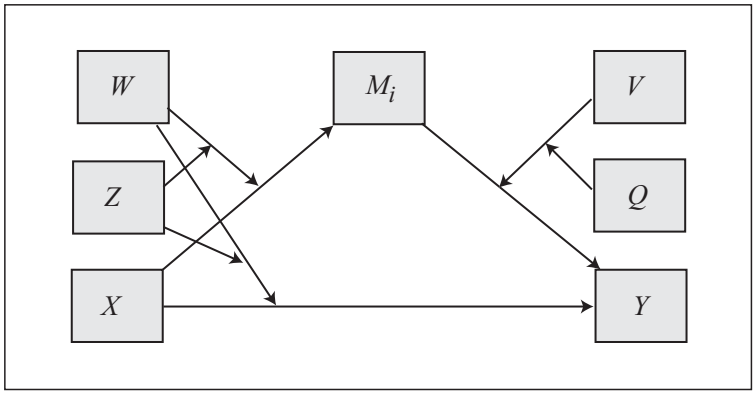


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{2i}V + b_{3i}Q + b_{4i}VQ)$
Conditional direct effect of X on $Y = c_1' + c_4'V + c_5'Q + c_7'VQ$

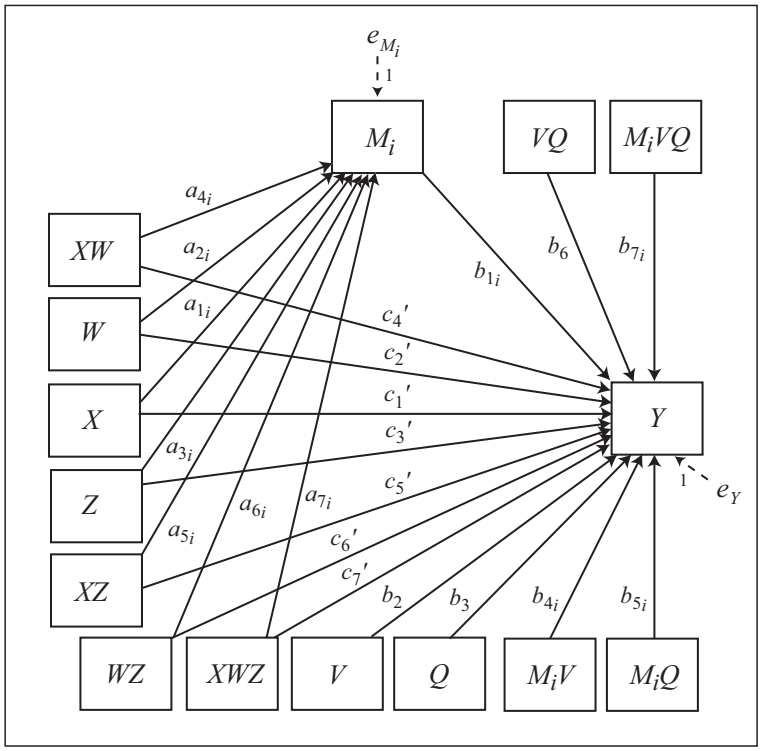
*Model 54 allows up to 10 mediators operating in parallel

Model 55

Conceptual Diagram



Statistical Diagram



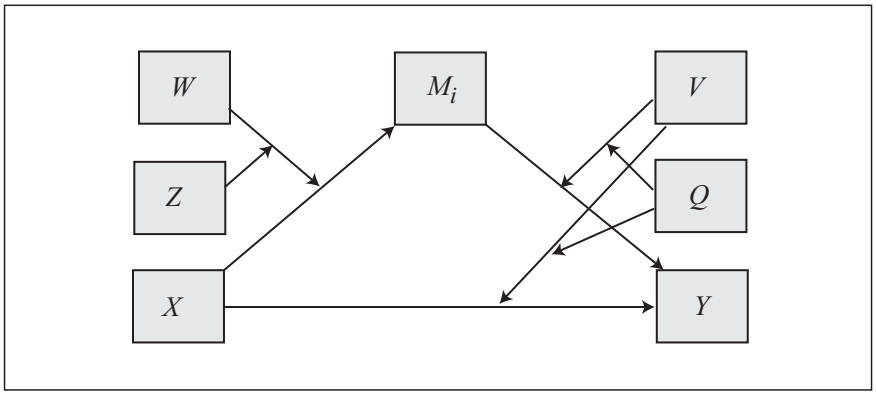
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ) \cdot (b_{1i} + b_{4i}V + b_{5i}Q + b_{7i}VQ)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'WZ$

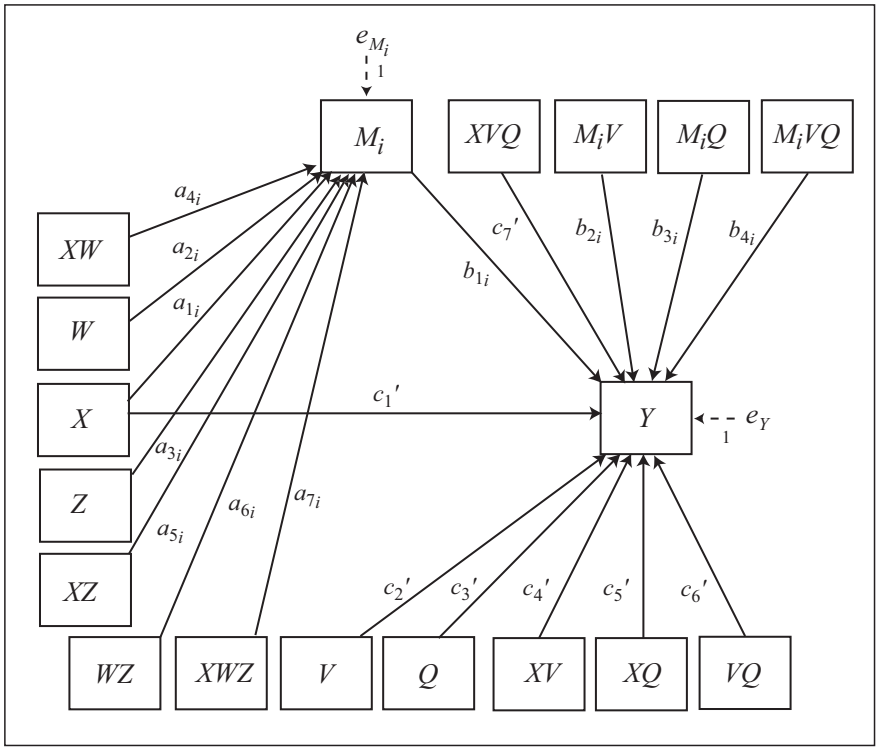
*Model 55 allows up to 10 mediators operating in parallel

Model 56

Conceptual Diagram



Statistical Diagram



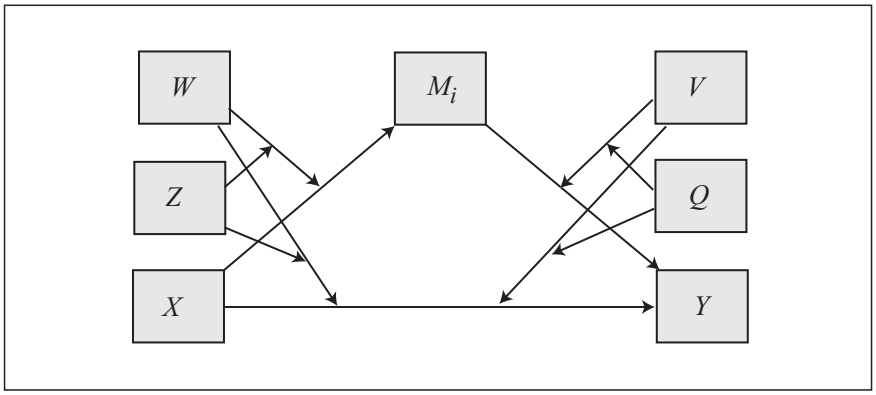
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ) \cdot (b_{1i} + b_{2i}V + b_{3i}Q + b_{4i}VQ)$

Conditional direct effect of X on $Y = (c_1' + c_4'V + c_5'Q + c_7'VQ)$

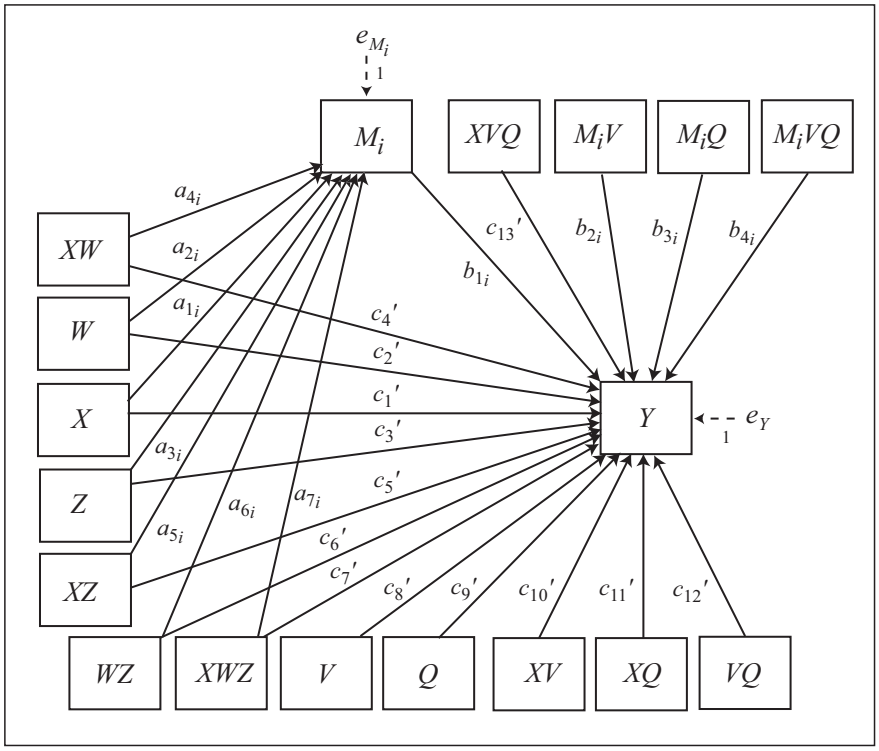
*Model 56 allows up to 10 mediators operating in parallel

Model 57

Conceptual Diagram



Statistical Diagram



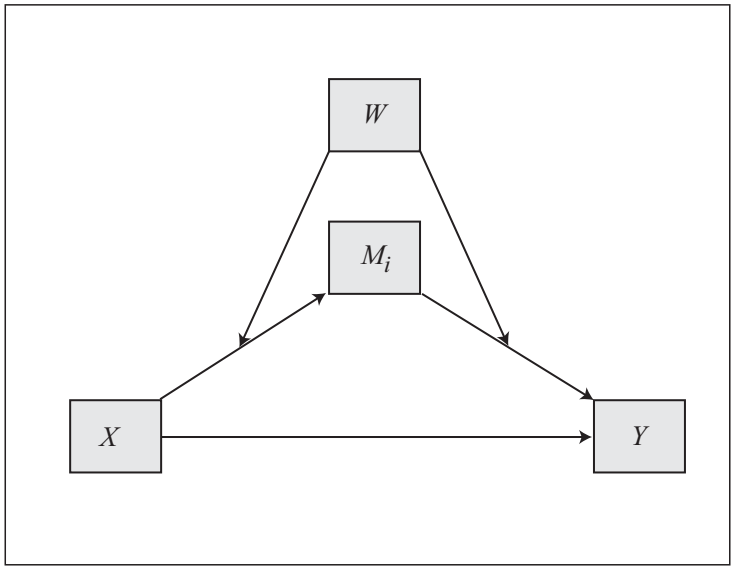
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ) \cdot (b_{1i} + b_{2i}V + b_{3i}Q + b_{4i}VQ)$

Conditional direct effect of X on $Y = (c_1' + c_4'W + c_5'Z + c_7'WZ + c_{10}'V + c_{11}'Q + c_{13}'VQ)$

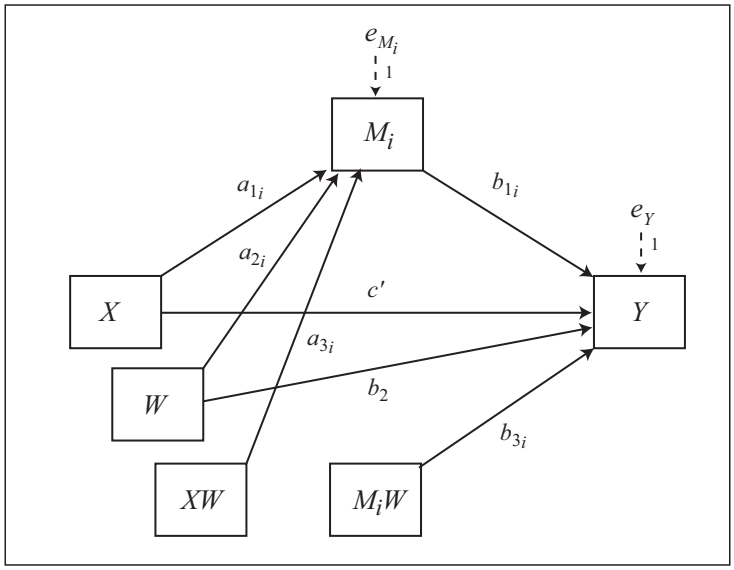
*Model 57 allows up to 10 mediators operating in parallel

Model 58

Conceptual Diagram



Statistical Diagram

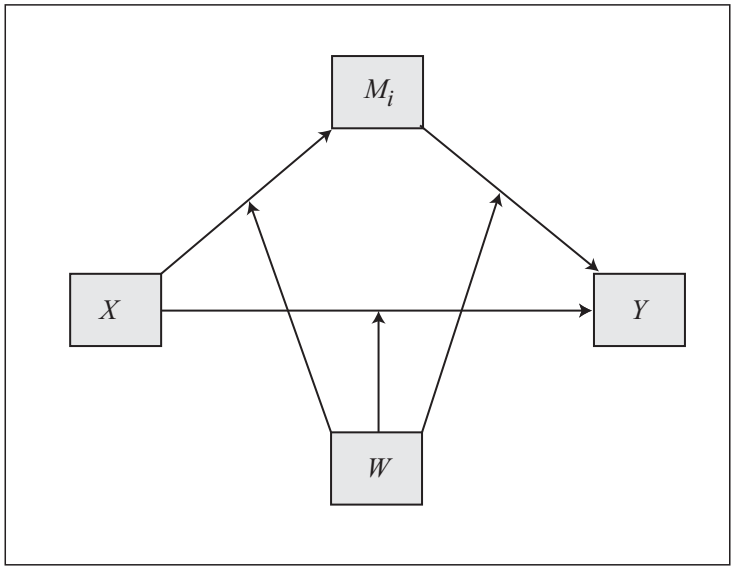


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{3i}W)$
Direct effect of X on $Y = c'$

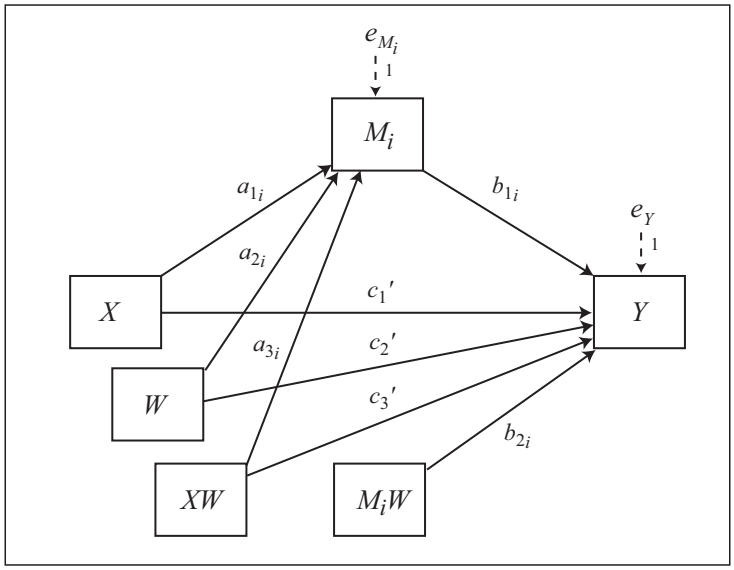
*Model 58 allows up to 10 mediators operating in parallel

Model 59

Conceptual Diagram



Statistical Diagram

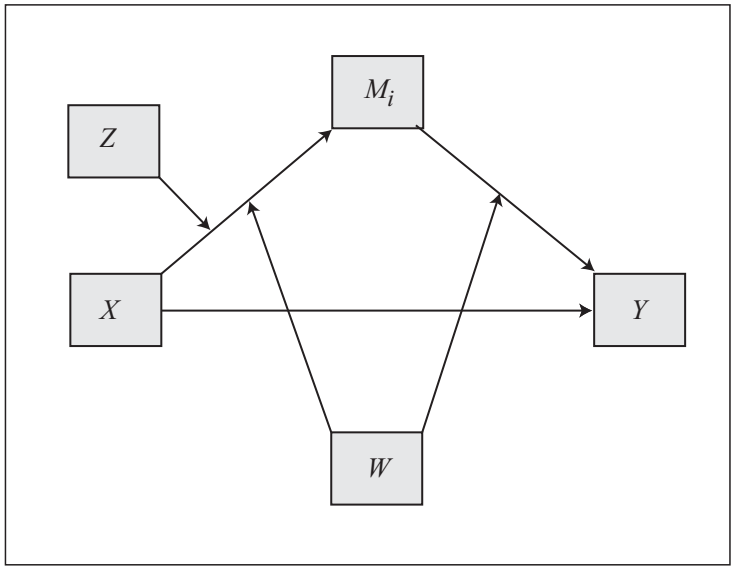


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}W)$
Conditional direct effect of X on $Y = c_1' + c_3'W$

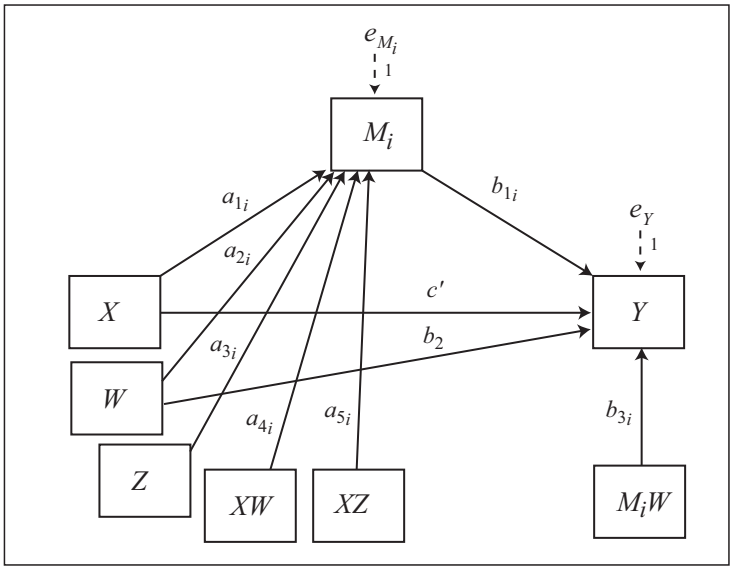
*Model 59 allows up to 10 mediators operating in parallel

Model 60

Conceptual Diagram



Statistical Diagram

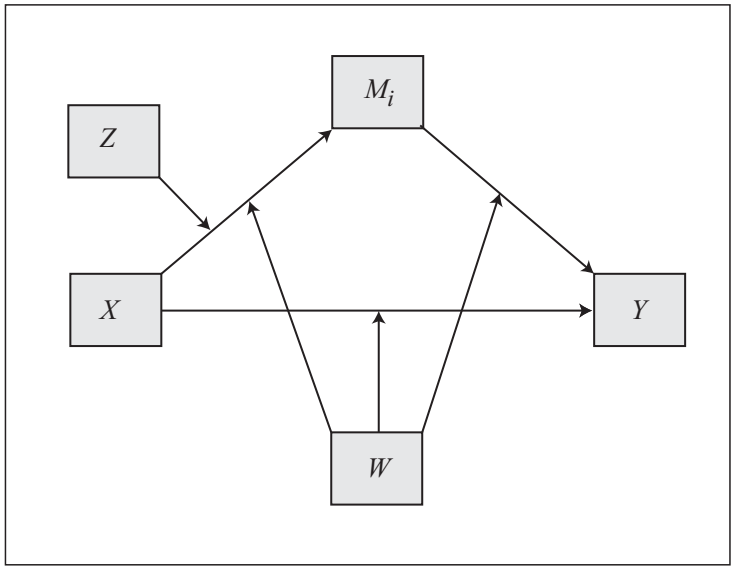


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{3i}W)$
Direct effect of X on $Y = c'$

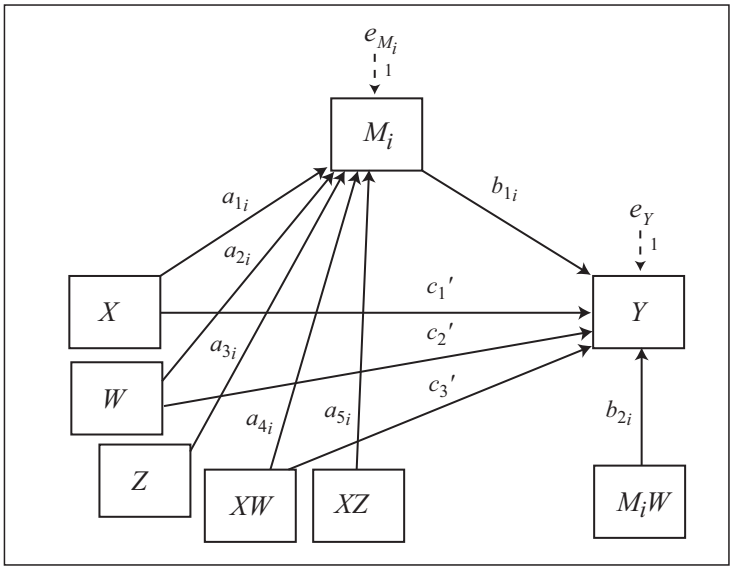
*Model 60 allows up to 10 mediators operating in parallel

Model 61

Conceptual Diagram



Statistical Diagram



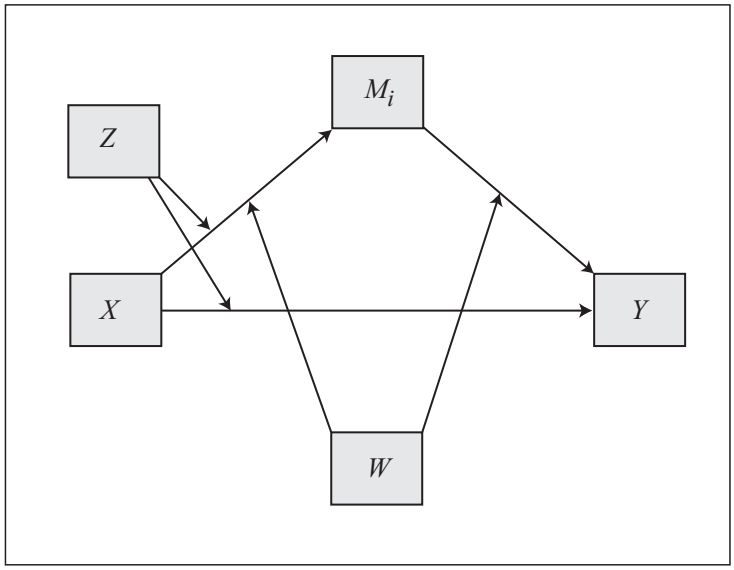
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{2i}W)$

Conditional direct effect of X on $Y = c_1' + c_3'W$

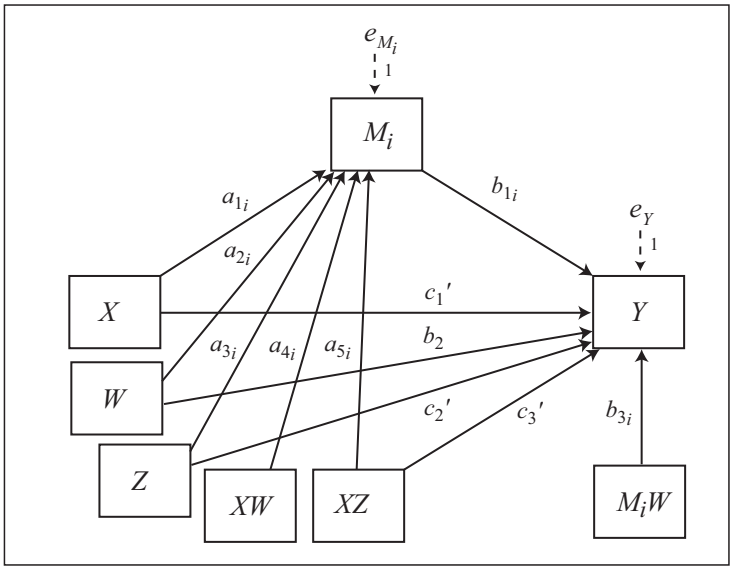
*Model 61 allows up to 10 mediators operating in parallel

Model 62

Conceptual Diagram



Statistical Diagram

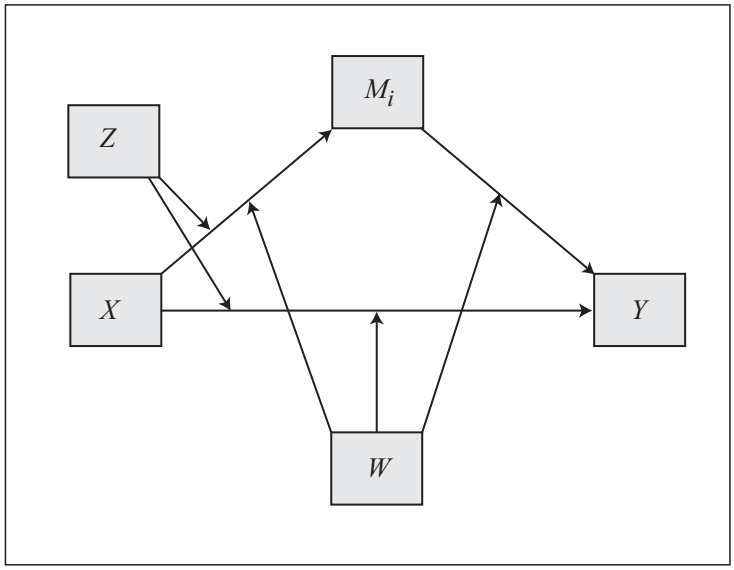


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{3i}W)$
Conditional direct effect of X on $Y = c_1' + c_3'Z$

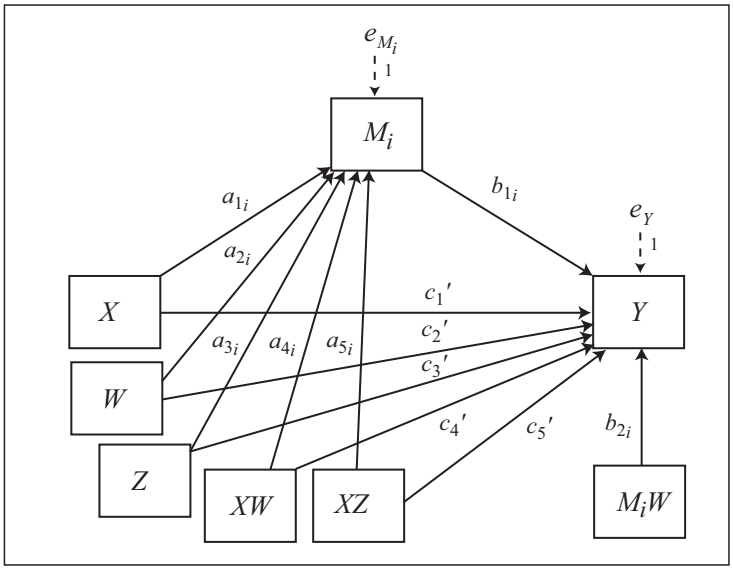
*Model 62 allows up to 10 mediators operating in parallel

Model 63

Conceptual Diagram



Statistical Diagram

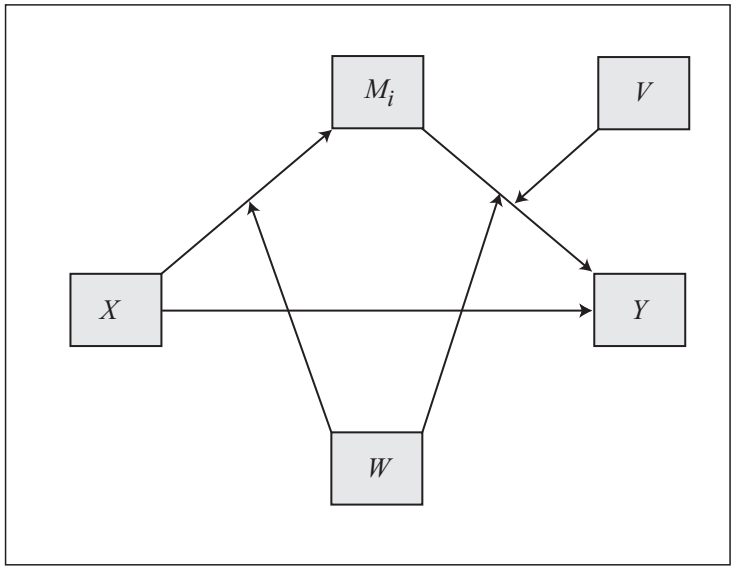


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{2i}W)$
Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z$

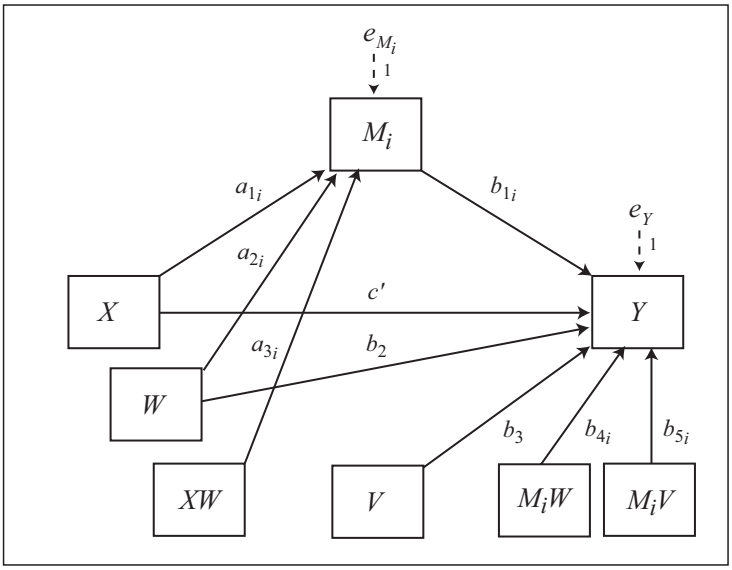
*Model 63 allows up to 10 mediators operating in parallel

Model 64

Conceptual Diagram



Statistical Diagram



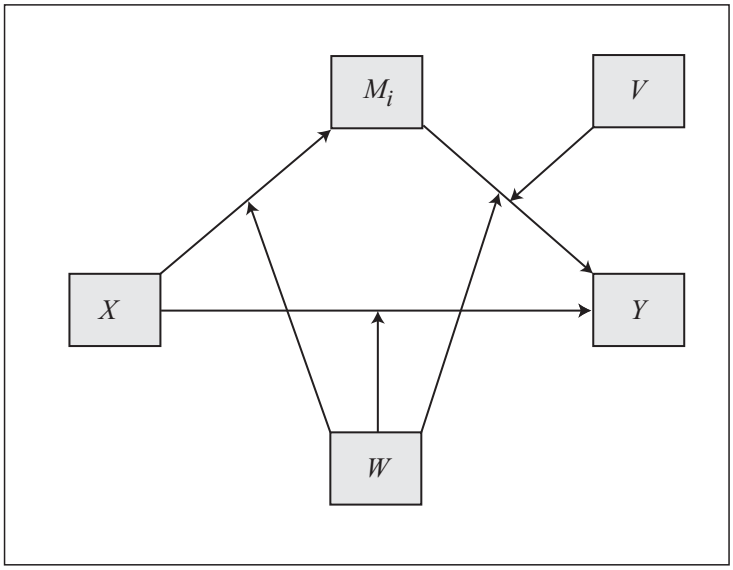
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{4i}W + b_{5i}V)$

Direct effect of X on $Y = c'$

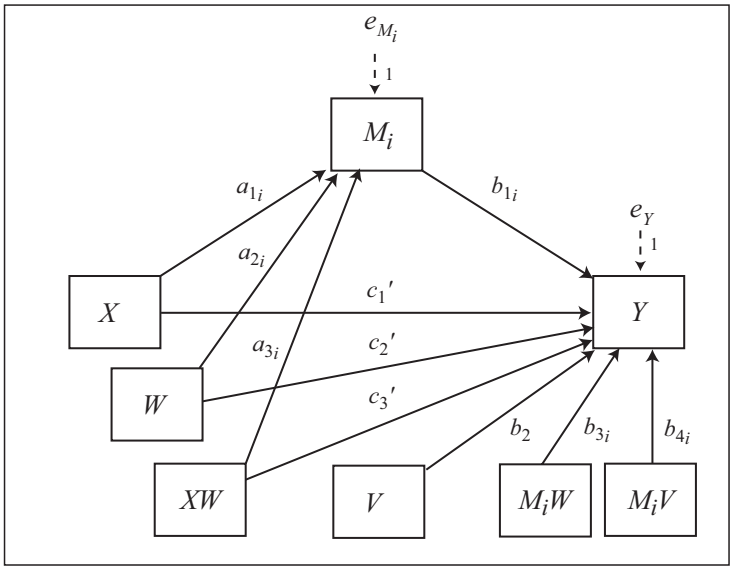
*Model 64 allows up to 10 mediators operating in parallel

Model 65

Conceptual Diagram



Statistical Diagram

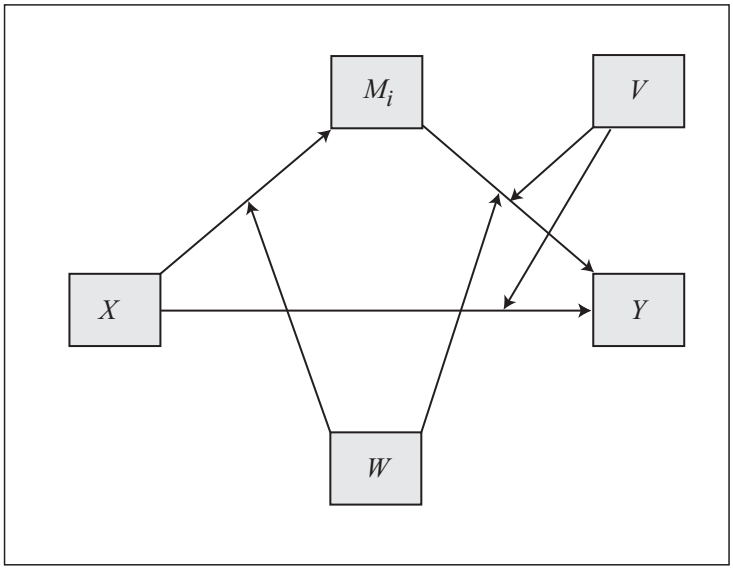


Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{3i}W + b_{4i}V)$
Conditional direct effect of X on $Y = c_1' + c_3'W$

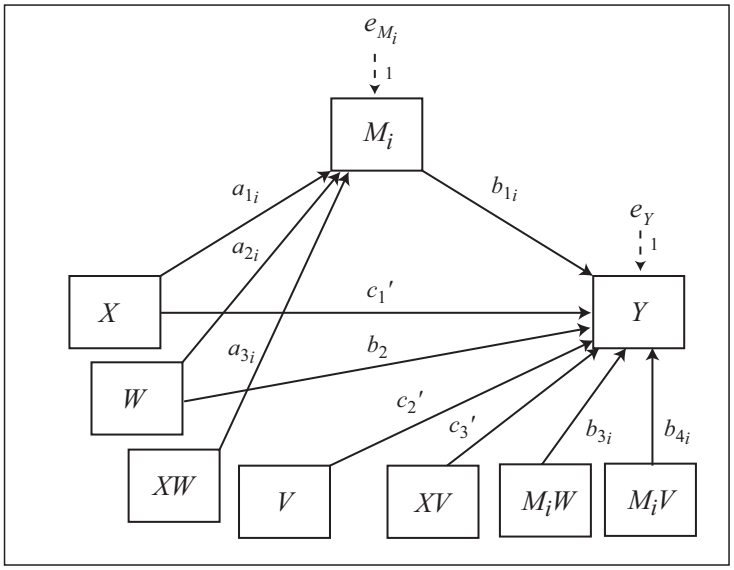
*Model 65 allows up to 10 mediators operating in parallel

Model 66

Conceptual Diagram



Statistical Diagram



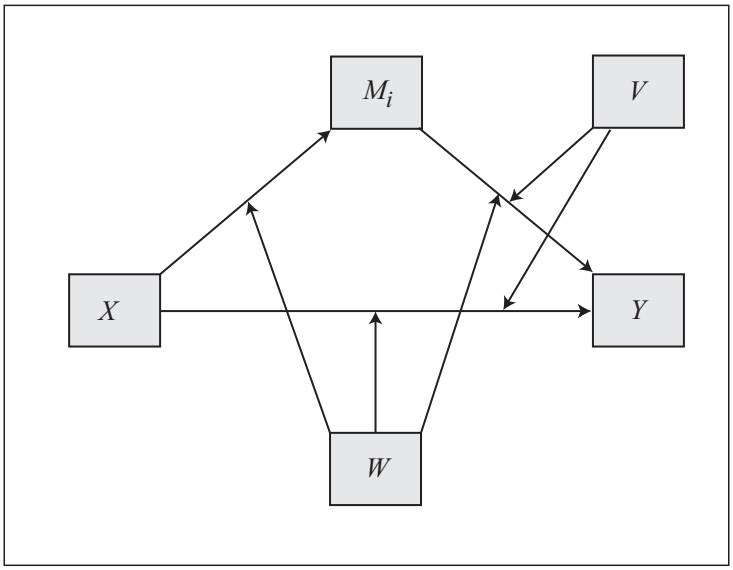
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{3i}W + b_{4i}V)$

Conditional direct effect of X on $Y = c_1' + c_3'V$

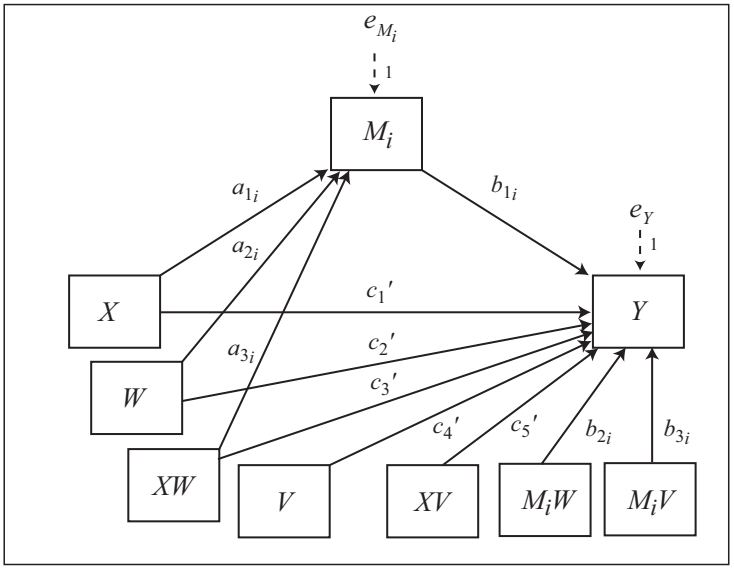
*Model 66 allows up to 10 mediators operating in parallel

Model 67

Conceptual Diagram



Statistical Diagram



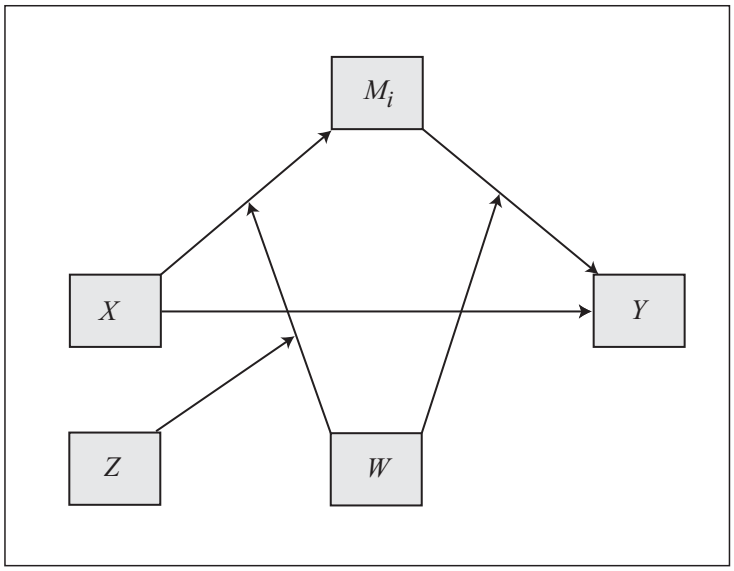
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}W + b_{3i}V)$

Conditional direct effect of X on $Y = c_1' + c_3'W + c_5'V$

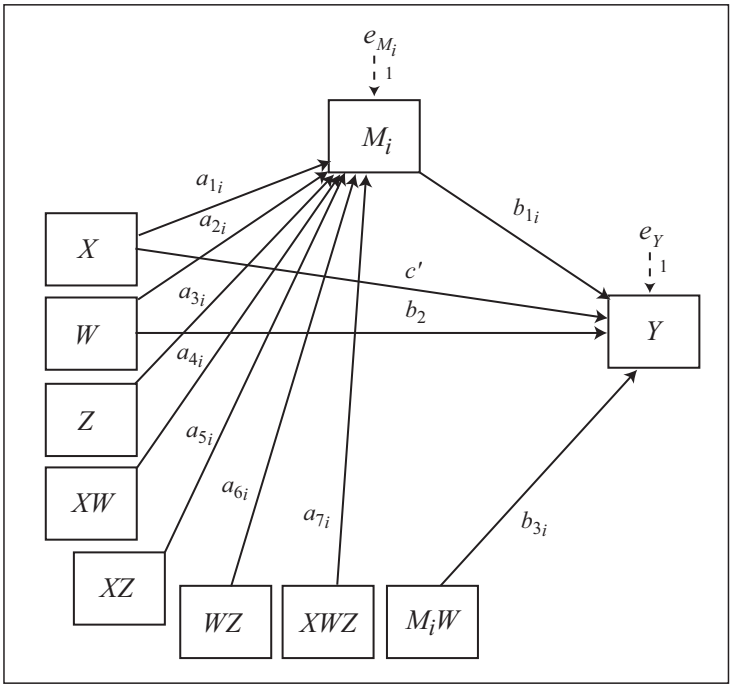
*Model 67 allows up to 10 mediators operating in parallel

Model 68

Conceptual Diagram



Statistical Diagram



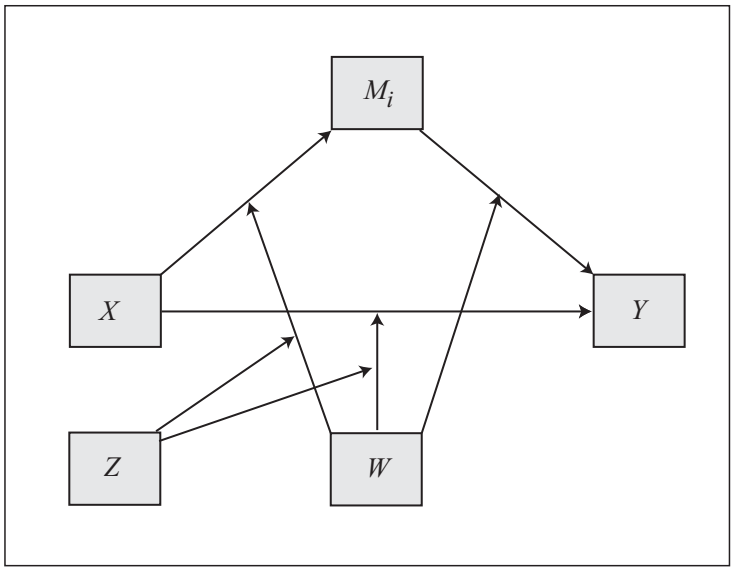
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{3i}W)$

Direct effect of X on $Y = c'$

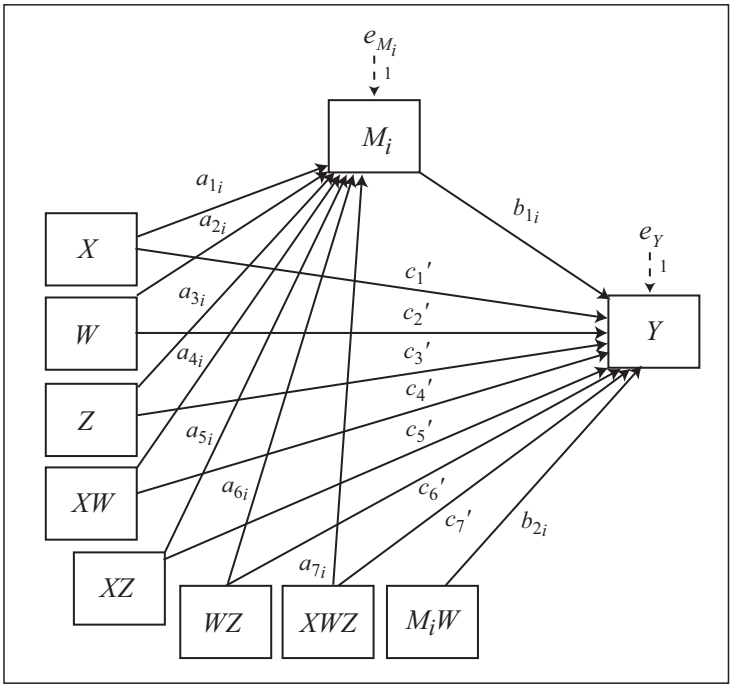
*Model 68 allows up to 10 mediators operating in parallel

Model 69

Conceptual Diagram



Statistical Diagram



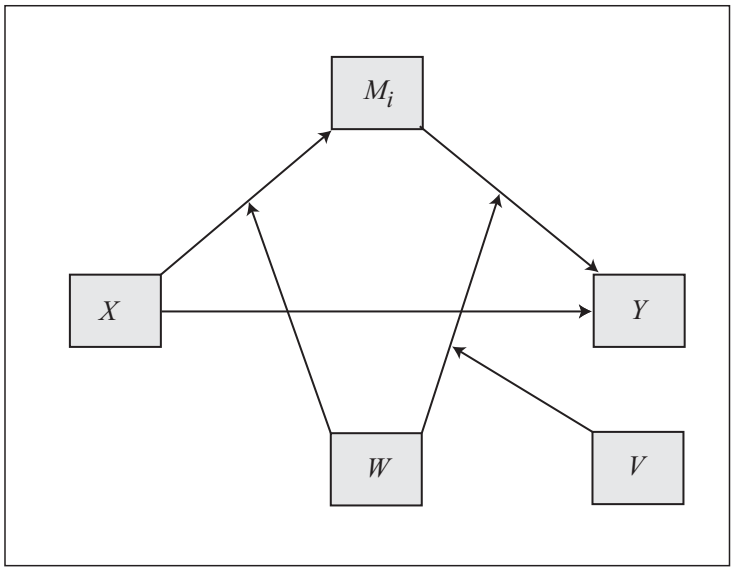
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ)(b_{1i} + b_{2i}W)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'WZ$

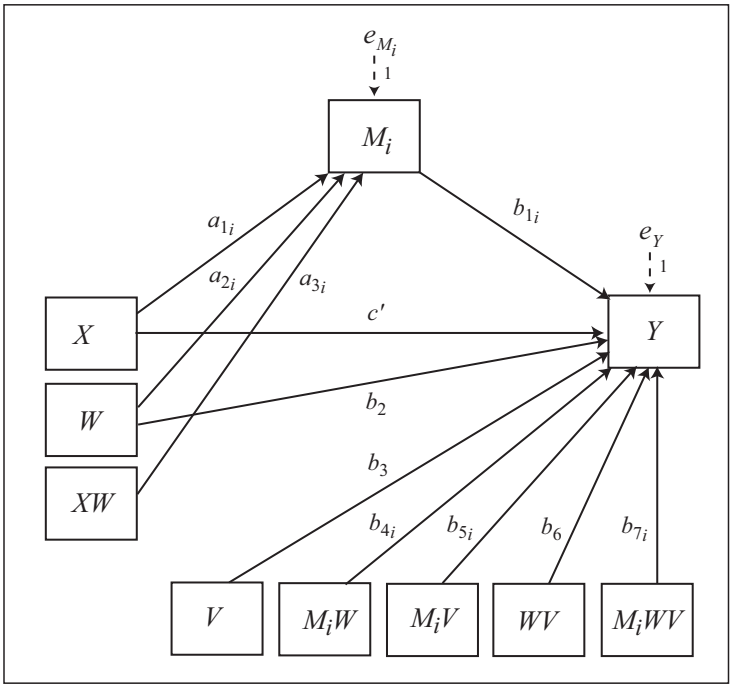
*Model 69 allows up to 10 mediators operating in parallel

Model 70

Conceptual Diagram



Statistical Diagram



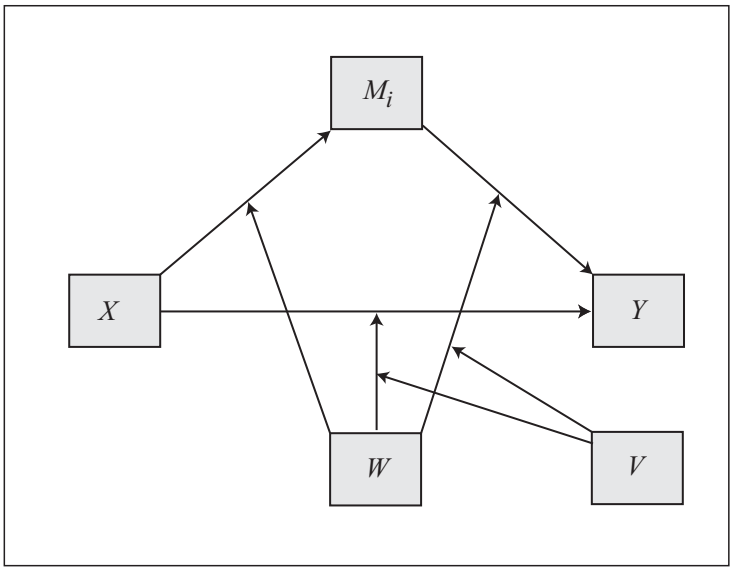
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{4i}W + b_{5i}V + b_{7i}WV)$

Direct effect of X on $Y = c'$

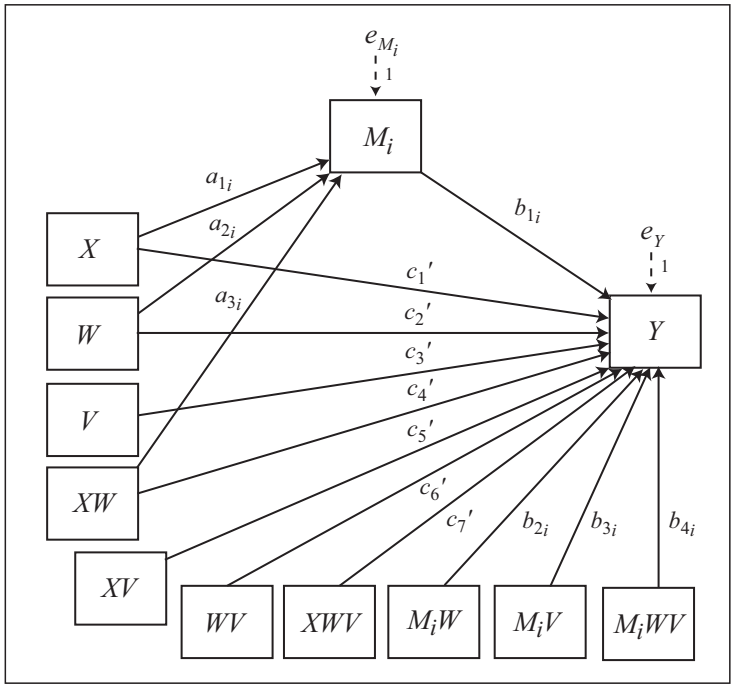
*Model 70 allows up to 10 mediators operating in parallel

Model 71

Conceptual Diagram



Statistical Diagram



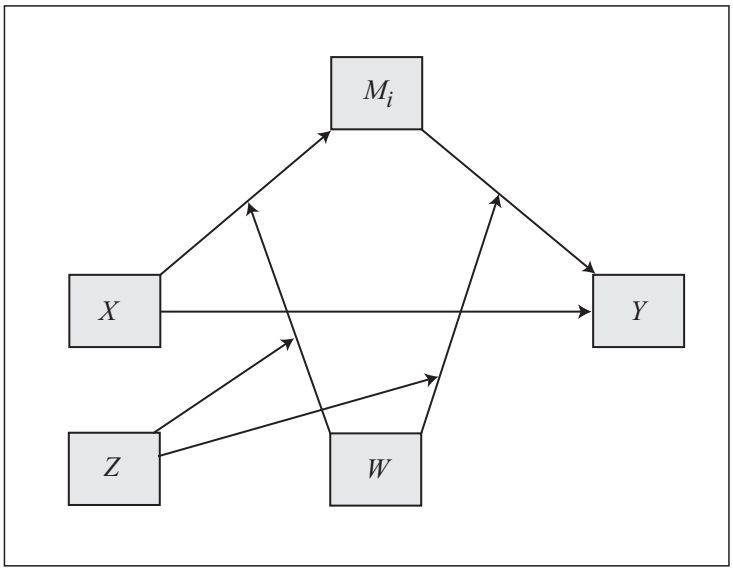
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)(b_{1i} + b_{2i}W + b_{3i}V + b_{4i}WV)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'V + c_7'WV$

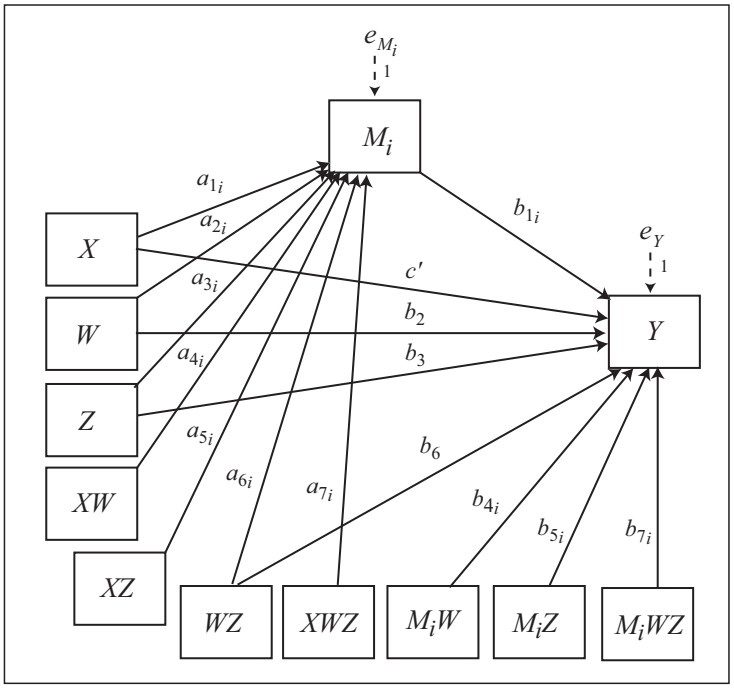
*Model 71 allows up to 10 mediators operating in parallel

Model 72

Conceptual Diagram



Statistical Diagram



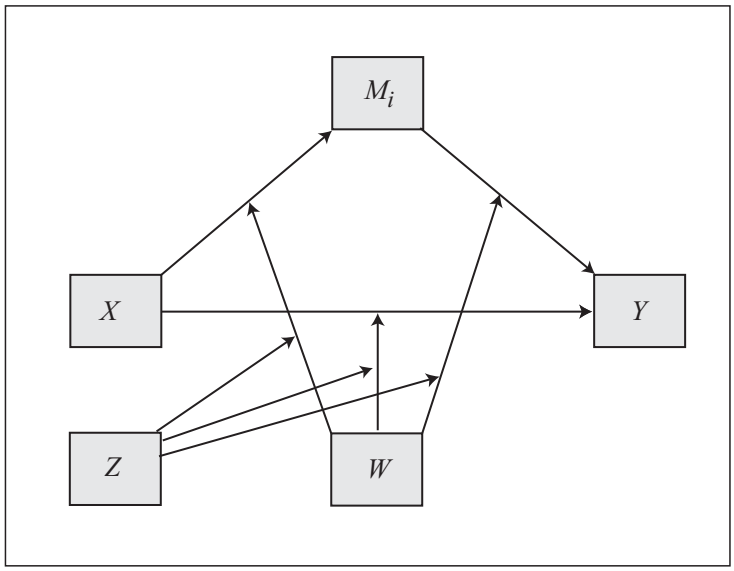
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ) \cdot (b_{1i} + b_{4i}W + b_{5i}Z + b_{7i}WZ)$

Direct effect of X on $Y = c'$

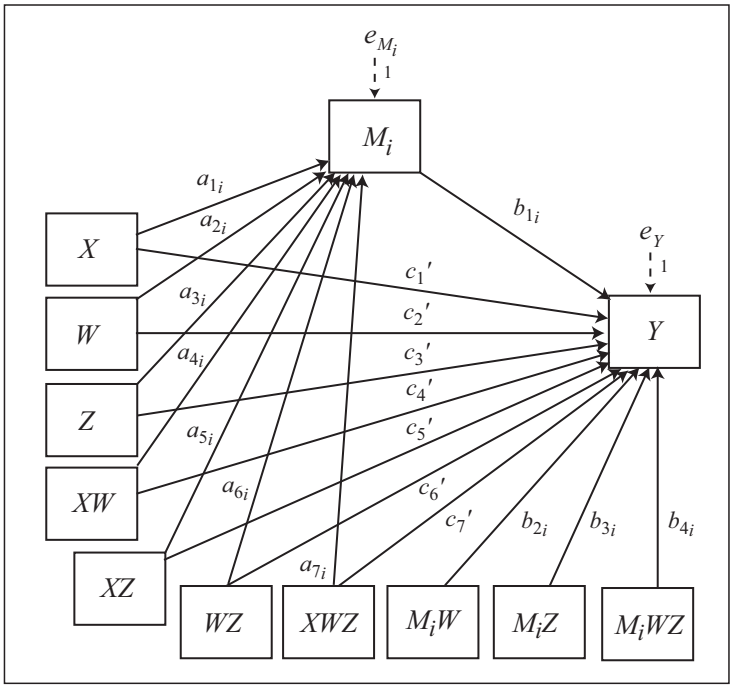
*Model 72 allows up to 10 mediators operating in parallel

Model 73

Conceptual Diagram



Statistical Diagram



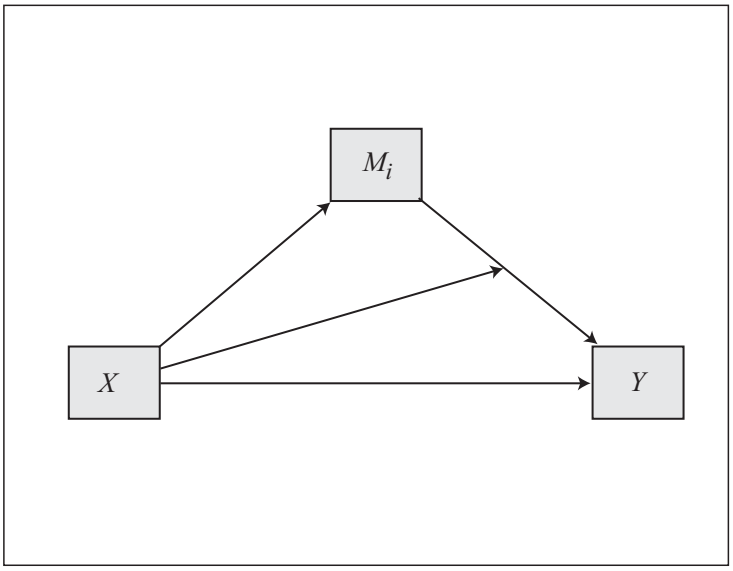
Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z + a_{7i}WZ) \cdot (b_{1i} + b_{2i}W + b_{3i}Z + b_{4i}WZ)$

Conditional direct effect of X on $Y = c_1' + c_4'W + c_5'Z + c_7'WZ$

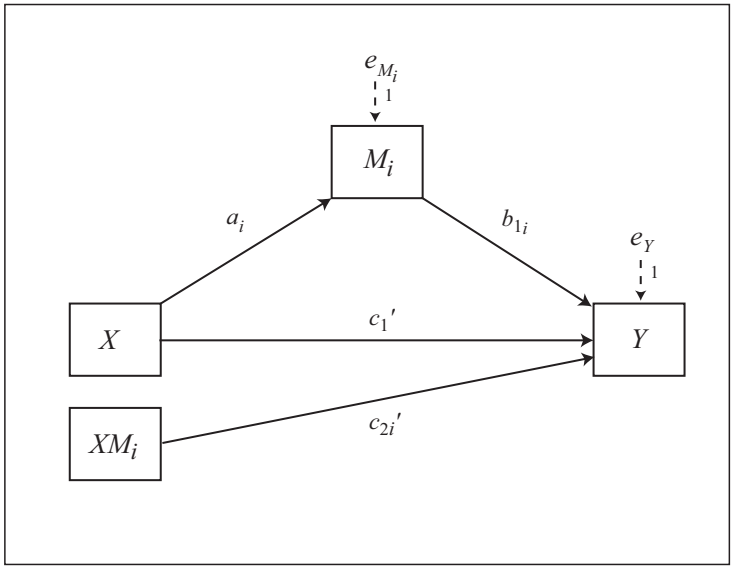
*Model 73 allows up to 10 mediators operating in parallel

Model 74

Conceptual Diagram



Statistical Diagram



Conditional indirect effect of X on Y through $M_i = a_i (b_{1i} + c_{2i}'X)$
Conditional direct effect of $X = c_1' + c_{2i}'M$

*Model 74 allows up to 10 mediators operating in parallel. PROCESS does not produce a table of conditional direct effects for model 74. With only one mediator, use model 1 to generate the conditional direct effects, specifying *M* as *moderator*.