

the model misspecification. Nevertheless, this analysis only estimates the indirect effect at the zero mean of the moderator z , but does not estimate the moderated indirect effects for other moderator values.

3.3.2 Example: Omitted mediators

When a mediation model is not saturated, that is, the model has some paths left out, χ^2 testing of model fit can be used to reject the hypothesized model. Even when a model fits the data well in terms of the χ^2 test, however, the model may be incorrect. The data could come from other models but the analysis model is such that the misspecifications do not seriously harm the χ^2 test. Parameter estimates are, however, distorted causing incorrect conclusions to be drawn. The solution to this problem is to be aware of possible alternative models that the data could have come from and to challenge the hypothesized model by fitting alternative models. Following is an example of this situation.

This example illustrates model misspecification for a mediation model where a nonsignificant mediator is omitted from the model. Consider the mediation model in Figure 3.4 (a) where there are two mediators $m1$ and $m2$. Assume for simplicity that there is no direct effect from the covariate x to the outcome y . This means that the χ^2 test of model fit has one degree of freedom due to the left-out arrow. Note that there is a residual covariance between the two mediators so that they correlate beyond what is explained by them both being influenced by the covariate. This can be due to omitted covariates that influence both mediators or the mediators having different omitted covariates that are correlated. This seems to be a common possibility. Consider the situation where the Figure 3.4 (a) model has generated the data but the data are analyzed by the misspecified model of Figure 3.4 (b). It is instructive to explore the consequences of this model misspecification using Monte Carlo simulations.

Table 3.13 shows the input for a Monte Carlo simulation with two mediators as shown in Figure 3.4 (a). In this input, the second mediator is not influenced by the covariate, that is, the population value of the slope of $m2$ regressed on x is zero. Small, non-zero slope values give similar results to the zero value used here. A sample of $n = 400$ is generated using 500 replications and saved for analyses in subsequent steps using the SAVE option. Parameter values are chosen to give realistic R^2 values. The variance of the binary covariate x is $0.5^2 = 0.25$. The mediator $m1$ has variance $0.5^2 \times 0.5^2 + 0.75 = 0.81$ and the regression of $m1$ on x has $R^2 = 0.5^2 \times 0.5^2 / 0.81 = 0.08$. The residual correlation between the two