```
> fitMedBoot <- mediate(fitM, fitY, boot = TRUE, sims =
10000, treat = "X", mediator = "M")
> summary(fitMedBoot)
```

```
> summary(fitMedBoot)

Causal Mediation Analysis

Nonparametric Bootstrap Confidence Intervals with the Percentile Method

               Estimate 95% CI Lower 95% CI Upper p-value
ACME            0.28078      0.14112         0.43  <2e-16 ***
ADE            -0.11179     -0.29548         0.09   0.273
Total Effect    0.16899     -0.00862         0.35   0.066 .
Prop. Mediated  1.66151     -3.92801        10.91   0.066 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Sample Size Used: 100


Simulations: 10000
```

- We now see that the ACME is the only one that is significant - this tells us we have a significant moderator - with no direct effect of our predictor or combined effect of predictor and moderator when the moderator is taken into consideration.

Moderation Effects

- Moderation tests whether a variable (Z) affects the direction and/or strength of the relation between an IV (X) and a DV (Y).

- In other words, moderation tests for interactions that affect <u>when</u> relationships between variables occur.

- Imagine we are interested in whether the relationship between the number of hours of sleep (X) a student receives and the attention that they pay to this lecture (Y) is influenced by their consumption of coffee (Z).