**Gold standard answers - Extraneous Variables**

**Correlation (Slide 3)**

Correlation describes the strength and direction of a relationship between two variables, ranging from -1 to 1. A value close to 1 indicates a strong positive relationship, while a value close to -1 indicates a strong negative one. Importantly, correlation does not imply causation. It only shows that two variables change together. A third variable may influence both, which is why identifying extraneous variables is essential.

**Confounders (Slide 5 + 6)**

A confounder is a variable that is related to both the independent and dependent variables and can create a false impression of a relationship between them. It can make it seem like X causes Y, when in reality the confounder might be responsible for the effect. For example, physical activity may influence both the likelihood of following a diet and the amount of weight lost.

**Moderators (Slide 7 + 8)**

A moderator affects the strength or direction of the relationship between an independent and a dependent variable. It helps researchers understand under what conditions or for whom an effect occurs. For instance, stress may change how effective a diet is in producing weight loss by altering eating habits or metabolism. Identifying moderators can provide more nuanced insights into how variables interact.