

Confounding factors are those variables or factors other than the treatment that could influence the outcome. In other words, variables or factors that can provide a **plausible alternative explanation** for the outcome.

Note that confounding means confusing or ambiguous. That is, if there is confounding in a study it makes it difficult to determine which factors brought about the outcome. Is it the treatment or another factor, or both? This can threaten the internal validity of the study.

For example:

Hypothesis: Adults with a history of substance use disorders who receive cognitive behavioral therapy (CBT) are more likely than those who receive psychoanalysis to show improvement in depressive symptoms.

Independent Variable = Treatment (CBT and Psychoanalysis)

Dependent Variable = Depression Score (which will be measured using a scale)

Possible Confounding Factors = Marital Status, Age, Prior Treatment

If for example, most of the participants in the CBT group are **married**, and we find that CBT was more effective, then it could be that **marital status** contributed to the positive outcome by providing social support. Hence the study will be confounded, that is, it is not clear which factor (marital status or treatment) brought about the outcome.

Similarly, a plausible explanation could be offered for **age** and **prior treatment**.

This is why it is important to identify potential major confounding factors at the beginning and implement strategies to control for these. For example, you could perform “matching” by making the experimental and control subjects alike based on the potential confounding factors.

In this case, we would ensure that both cases and controls are married (that is, controlling for marital status), so that they are “equal” for that factor, and therefore there will be no “advantage” of one group over the other in terms of “benefiting from that factor”.

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