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This tutorial covers blinding. Blinding is when some or all of the participants and researchers don't know the information about the treatments. This is done because it reduces the chances of the participants or researchers affecting the outcomes of the experiment.

One type of blinding is called single blind. In single-blind, the participants don't know what group they're in, but the researchers do. This means that the participants aren't exerting an effect on the outcome of the trial. If we don't have single-blind and the participants know what group they're in, sometimes they report things differently.

For example, if we're looking at a drug trial and the participants in the treatment group got a pill and then the control group got nothing, you would know you were in the treatment group if you had a pill. Now, people who are in the treatment group would be more likely to report their changes in their life. So for example, if they all of a sudden got a headache or a different rash or if they were more alert or sluggish than normal, they would attribute those things mentally to the drug that they were taking.

Now, the people in the control group, they might feel a little sluggish one day. They might have a headache or get a little bit of a rash, but they wouldn't mention those to the researchers because they don't think that they're a side effect. So because the researchers can't tell whether or not the headache or the drug or the sluggishness are a side effect or just something that happened to everybody, there is no real way of telling exactly what the drug does.

So the single-blind trials where participants in both groups get pills but the ones in the control group, it just does nothing-- it's filled with sugar-- everybody's going to report the same things. Everybody is going to report changes in their life, so the researchers can more accurately determine what comes from the drug and what doesn't.

A downside to doing a single-blind is that the researchers know what's happening and they can exert an effect. This is called experimenter bias. Experimenter bias is when researchers consciously or unconsciously treat a participant differently based on which group they're in. They could even give the subjects clues as to what group they're in, and the subjects end up being influenced by the experimenter's bias.

This could be done very subtly. If the researcher knows someone's in a treatment group and instead of saying, what have you experienced in the last few weeks? they say, what side effects have you noticed? this is biasing the subject. The subject is looking to think of side effects in their life, and the

subject is also pretty sure that they're in the treatment group. So the researcher is exerting a bias and is changing the outcomes of the study, whether or not that's intentional.

Another time that experimenter bias and experimenter effect, rather, can come in is afterwards, when the study is being evaluated, if the people evaluating the study have ideological or monetary reasons for having one outcome over another. This was accused of happening in the different aspartame trials. So companies like diet soda companies wanted aspartame to be shown to be safe. So they ran a series of experiments, and those experiments showed that aspartame didn't have a negative effect. When random groups did these same experiments, they found that aspartame did have an effect.

So afterwards in the evaluation in the ways that the variables were looked at and compared, people who have a reason for one outcome to come out might find that reason anyways, even if the data doesn't exactly support it. It's fudging the data a little bit because you know what you want. You know what you're looking for. So it's really important to eliminate the effects of the experimenter as well.

Another example of when the experimenter can have an effect is in police lineups. In a police lineup, the policeman knows which of the six people in the photo he expects to be found guilty. He knows that he's placed five dummy photos and the one person that they have in custody. So when he presents those six photos to the witness, there's the potential for the police officer to lead the witness, to unduly affect what the witness finds, to unduly affect the results of the-- not necessarily trial-- but the experimenter. The police officer, in that case, is affecting the results.

Let's look at what a double-blind trial would be, where experimenter effect is eliminated. In a double-blind trial, neither party-- neither the participants nor the researchers-- know who's in which group. This is a little bit more difficult to do because you need an outside person to do the assigning. However, it prevents researcher bias. If the researcher doesn't know who's in treatment or control, they end up treating everyone equally. If the participant doesn't know who's in research and in control, they end up acting the same.

Now, this is done in pharmaceutical drug trials because there, it's very important to know the effects of the drugs and to eliminate the kinds of bias that might come out from the participants or the researchers. So most pharmaceutical drug trials involve double-blind trials. This has been your tutorial on blinding.