Drill: Am I biased?

You’re testing advertising emails for a bathing suit company and you test one version of the email in February and the other in May

The design of the study is biased because the ads are tested during two different weather conditions. In February people are much less likely to purchase a bathing suit than in May, at the beginning of the summer season. Therefore there is a clear difference in the sample populations. This will give data that will be skewed and will not reflect the population, which could lead to false conclusions about the advertising campaign. The study should control for this bias by selecting one month and testing both advertising emails version during that month. By testing the email during a particular month and season they will gain more nuanced and accurate information that will enhance their overall advertising campaign.

You open a clinic to treat anxiety and find that he people who visit who a higher rate of anxiety than the general population

The context of the study is problematic because this is not a randomly selected group. The study population already has a higher rate of anxiety than the general population. Therefore will show bias. Would my investment in the success of my anxiety clinic influence my study design? To avoid this, someone knowledgeable about study design should review the experiment design to avoid observer bias. A better study design would sample a random selection of the community where the clinic is located. Ensuring that the sample population is reflective of the population is critical to designing an experiment without bias.

You launch a new ad billboard based campaign and see an increase in website visits in the first week.

There are gaps in the design of this study and limitations in its metrics. This study does not have a control and experimental group. What does the longitudinal data say about the campaign? The study should extend over a period of time that will allow for more data to be collected to understand the impact of the ad campaign. What is the result of these website visits? Are they converting new customers? What are the conditions of the ad campaign? Was it launched during the holidays? A study that does not account for these types of questions most likely will show bias and is not designed well enough to answer a particular question or capture a particular dynamic.

You launch a loyalty program but see no change in visits in the first week

To understand change in visits the study should create two different loyalty programs and test the respective impact on visits. To design the study well and reduce bias an A/A testing could be set up. Divide the visitors to the site in two groups and test the first loyalty program on the both groups. Then evaluate the results to see if they are similar. A third study would design an A/B test in which the study group is sent a loyalty program option and the control group in which the loyalty program is not available. This could be repeated with the comparative loyalty program. This design will provide strong data. What is the role of gender in the study? Perhaps one gender is more likely to respond to one loyalty program over another? Further disaggregation will produce interesting data about visitors and their likelihood to respond to loyalty programs.