1. 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

Initial design: A/B Testing

Bias: Time period of sending email

Assumption: The result of this test cannot clearly provide a good scale of comparison because the two groups of email were sent in two different time periods.

The number of potential customers for each of these time period may differ because they received email in different seasons. People purchase bathing suit more in a warm season than others.

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

Initial design: A/A Testing

Bias: Convenient Sampling

Assumption: Patients who visit the clinic already have anxiety, and the sampling method is not appropriate to conclude the result for the general population.

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

Initial design: A/B Testing

Bias: we cannot be sure If there is just one connection between visiting website and the new ad.

Assumptions: there might be other reasons that people are visiting the website more. We also should consider other factors.

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

Initial design: A/B Testing

Bias: A loyalty program is usually for existence customers

Assumption: checking to have a higher number of website visitors might not be a good way if the loyalty program works. A program to get new customers’ attention may have a different result.