Randomization [1]

Randomization is a sampling method used in scientific experiments. It is commonly used in randomized controlled trials in experimental research.

In medical research, randomization and control of trials is used to test the efficacy or effectiveness of healthcare services or health technologies like medicines, medical devices or surgery.

What is Randomization?

So what is randomization? Let's suppose you have five chocolates bars and total 8 friends to distribute these 5 chocolates to. Now how you are going to do this so the whole distribution process is with a minimum of bias [3]?

You may write down names of each of your friends on a separate small piece of paper, fold all small pieces of papers so no one know what name is on any paper. Then you ask someone to pick 5 names and give chocolates to first 5 names. This will remove the bias without hurting any of your friend's feelings. The way you did this is what we call randomization.

In randomized controlled trials, the research participants are assigned by chance, rather than by choice, to either the experimental group or the control group [4].

Randomization reduces bias [5] as much as possible. Randomization is designed to "control" (reduce or eliminate if possible) bias by all means.

The fundamental goal of randomization is to certain that each treatment is equally likely to be assigned to any given experimental unit.

How Randomization Actually Works?

How to achieve randomization in randomized controlled trials [6]?

Well, there are different options used by researchers to perform randomization. It can be achieved by use of random number tables given in most statistical textbooks or computers can also be used to generate random numbers for us.

If neither of these available, you can devise your own plan to perform randomization. For example, you can select the last digit of phone numbers given in a telephone directory. For

example you have different varieties of rice grown in10 total small plots in a greenhouse and you want to evaluate certain fertilizer on 9 varieties of rice plants keeping one plot as a control.

You can number each of the small plots up to 9 and then you can use series of numbers like 8 6 3 1 6 2 9 3 5 6 7 5 5 3 1 and so on

You can then allocate each of three doses of fertilizer treatment (call them doses A, B, C). Now you can apply dose A to plot number 8, B to 6, and C to 3. Then you apply dose A to 1, B to 2 because dose B is already used on plot 6 and so on.

Blinding: An Excellent Tool to Eliminate Bias in Randomized Controlled Trials

Blinding is commonly employed in clinical research setting and used to further eliminate bias [5] . There are two types of blinding as under:

- In single-blinded trial the participants are completely unaware of which group they are in and what intervention they are receiving until conclusion [7] of the study.
- In double-blind trials [8] neither the participants nor the researcher know to which group the participant belongs and what intervention the participant is receiving until the conclusion of study.

Bias is the most unwanted element in randomized controlled trials and randomization give researchers an excellent tool to reduce or eliminate bias to maximum. Absence of bias means more reliable the results of study are and gives legitimacy to both research and researchers as well.

Source URL: https://staging.explorable.com/en/randomization

Links
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