Random Assignment

The article by Elgin and colleagues (2011) is an illustrative example of a research study that started as evidence-based practice project, searching for an answer to an important clinical issue. When an answer could not be found in the literature, investigators moved to conducting a research study. In particular, they wanted to know which of two methods was best for practice. This boils down to a simple yes/no question: Is method A (0.9% sodium chloride infusion) better than method B (0.9% sodium chloride continuous infusion)? For questions such as this, an experimental model is best (Melnyk & Fineout-Overholt, 2010). Elgin and colleagues designated subjects to one of the two methods by using random assignment and then compared them statistically. Random assignment to groups is an important technique to use whenever clinically and practically possible.

Why Is Random Assignment Important?

In random assignment, each subject selected to be in the study has an equal chance to be in either treatment group (Polit & Beck, 2010). Random assignment also is used when a treatment is compared to a control group (no treatment) or to the standard practice on that unit. Assignment can be done a couple of ways: by the flip of a coin (heads a subject is assigned to one group, tails to the other) or use of a random number table. In addition, on-line programs will provide random numbers. In the case of two groups and random numbers, any subject with an even number is placed in one group and any subject with an odd number is placed in the second group. After a person has consented to be in the study, he or she is assigned a number and depending on the number, will receive that particular treatment.

With random assignment, any variables that can affect the outcome of the study will likely be equally divided between the two groups. Demographic variables such as age, gender, and other clinical conditions, for example, should be represented equally in both groups when random assignment is used and the sample is sufficiently large. Other methods are prone to possible bias, which can affect the internal validity of the study negatively (Trochim, 2006).

If random assignment is not used (and sometimes even when it is), some important aspect may not be divided equally between the groups of subjects. For example, in Elgin and colleagues’ study (2011), if groups had not been assigned randomly and one group had more patients who had clotting disorders, study outcomes could be affected. In addition to random assignment, investigators may want to control these disorders by excluding them from the study. On the other hand, if many patients are excluded, this can lead to results that are not applicable to many of a unit’s patients. Usually, investigators collect data on variables that can affect or bias a study in order to better interpret the results.

When using random assignment, a disinterested person should assign the subjects randomly to the groups. There may be an unconscious tendency to assign certain patients into the group one thinks are the most effective. This can happen because of a genuine desire to help people, but it can affect the outcomes of the study assigned negatively.

What If Random Assignment Isn’t Practical?

Random assignment to groups may not always be practical on a busy clinical unit. For example, if the nurse manager wants to institute a new patient teaching program, it may not be possible to have a group that receives no program (control group) when members can see or talk to others who are receiving the program. In that case, it may be more practical to collect data on patients before the program is started to serve as a control group. After the program has started, these patients can be the treatment group. In other studies, investigators might use two different units with similar patients. In these two examples, no random assignment to groups is used. It would be important to recognize these groups could be different in certain aspects. Investigators will need to collect data on variables that could affect the study and then determine if the groups are equal on those variables. This is not as strong a design as one using random assignment, but may be the only practical approach.

Do Not Confuse Random Assignment With Random Selection

Whenever possible, investigators who are comparing groups should use random assignment to groups to strengthen the validity of their study. This random assignment to groups should not be confused with random selection of subjects for a study. Random selection is a different issue, with subjects for a study randomly chosen from all possible subjects (population). Most medical and nursing studies do not use random selection as it would be hard to identify all possible subjects (Fain, 2009). If random selection is not feasible, random assignment to groups is often possible.

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