Research Methods of the Health Sciences

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**Study objectives**

* To access the reporting of adverse drug reaction reporting among nurses in tertiary care hospitals
* To determine the factors that are associated with the poor reporting of ADR among nurses

**Describe the type of sampling strategy most appropriate for your research study.**

There are four basic samplings strategies (Ingham-Broomfield, 2014).

* Random sampling
* Stratified random sampling
* Rational subgrouping
* Systematic sampling

In this study, a simple random strategy will be used. Random sampling is that in which each unit in the population has an equal chance of being selected in the sampling process. Random sampling usually protects against the bias that can be introduced in the sampling process and it helps in getting a representative sample. In this study, probability sampling is used to ensure that all doctors, nurses and pharmacists working in different clinical units have an equal opportunity to be selected in this study.

The approximate number of nurses, pharmacists, and doctors in each clinical unit will be established and therefore a proportionate number of participants will be requested to fill the questionnaire, relative to the number of participants present in that clinical unit and the hospital.

**Identify your target population and how you would determine your sampling frame and sample size.**

The participants of this study will be nurses and pharmacists and pharmacists working in tertiary hospitals.

The inclusion and exclusion criteria for this study will be:

* All doctors, nurses and pharmacists that are working in tertiary care hospitals and are in a position to handle adverse drug reaction in patients.
* All pharmacists, nurses and physicians who will be willing to participate in this study.
* Those nurses, pharmacists, and physicians will not be included in this study who are not involved directly in the clinical care of patients.
* Those who will not be willing to participate in this study.

**Determination of the Sample Size**

The sampling frame is defined as a list from which population units are drawn as a sample. A sampling frame is important so that everyone is identified in the population and have an equal opportunity to be selected. In this study, sampling frame will be determined by getting the list of all the pharmacists, nurses, and physicians that will be working in the tertiary care hospitals.

The sample size is defined as part of the population that is chosen for an experiment and a survey. In a quantitative research study, it is very important to determine the sample size that can represent the target population. Most of the researchers want to work on a large sample but it is not always possible especially for students as it requires money, time and resources. For this study, Cochran’s formula for the minimum sample size will be determined by using the following formula (Kotrlik & Higgins, 2001).



Where;

𝑛 = required sample size

Ζ = Standard deviation at 95% confidence level

Ρ = Proportion of the respondents

𝒬 = [1-Ρ]

d = precision level at 5%

**Discuss the merits and shortcomings of your selected sampling strategy.**

In this study, random sampling is used. A random sampling includes simple random sampling, stratified sampling or cluster sampling. Following are some advantages of using this strategy (Sedgwick, 2014).

**Equal chance of selection**

Random sampling allows everyone to have an equal chance of being selected within a defined region. This increases accuracy and fairness” into the research that is being conducted process. As individuals are chosen randomly and have an equal chance of being selected in a larger population and due to this, there is a chance of bias.

**Simplicity**

It is the simplest form of data collection. As random sampling takes some respondents from a large population, it is easy to create a sample group from a larger sampling frame. This helps to begin the data collection process faster than any other form of data collection allowed.

 **Generalizability**

Random sampling allows the results to be generalized to the whole population. Random sampling is a preferred method in which external validity can be optimized to the maximum level as in random sampling, each respondent has an equal chance to participate in a study.

**Disadvantages**

**Complex and time-consuming method of research.**

 With random sampling, it involves more resources and more time to collect data from the respondents, which makes this process tedious and time-consuming.

 **High cost and difficulty in obtaining a list of large populations.**

Other than the time which it takes to collect data, there is also a high cost that is associated with it.

 **Require high skills and experience.**

Random sampling usually requires high skills and experience to efficiently collect the data.

**Explain how you will address the shortcomings in terms of threats to internal and external validity.**

Internal validity defines how well a specific study is conducted, whereas external validity relates to the generalizability of the findings to the whole population. Internal validity can be enhanced by the Randomization to remove bias, binding, random selection, experimental manipulation and by defining the study protocol. The factors which threatened the internal validity are maturation, testing, a section of subject and instrumentation. According to Fraenkel and Wallen, standardization of those conditions under which research study is conducted is a way to reduce the threat from instrumentation and history. By gathering as much information as possible helps to minimize the threat from the selection. By choosing a proper research design also helps to minimize threats to internal validity (McDermott, 2011).

 The threats to the external validity include selection biases, confounding and construct. These threats can be minimized by using random sampling instead of non-random sampling. Blind data collection methods can also help to increase the external validity.

**References**

Ingham-Broomfield, R. (2014). A nurses' guide to quantitative research. *Australian Journal of Advanced Nursing, The, 32*(2), 32.

Kotrlik, J., & Higgins, C. (2001). Organizational research: Determining appropriate sample size in survey research appropriate sample size in survey research. *Information technology, learning, and performance journal, 19*(1), 43.

McDermott, R. (2011). Internal and external validity. *Cambridge handbook of experimental political science*, 27-40.

Sedgwick, P. (2014). Cross sectional studies: advantages and disadvantages. *Bmj, 348*, g2276.