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Editorial

First Things First – The Model of Research Shape the Results

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1. INTRODUCTION

In the past years, the number of scientific journals and publications has risen considerably [1] and will keep rising. Even for the scientific journals that have a peer-review system, a lot of articles do not have methodology quality nor have the results misinterpreted by the authors and the readers. Therefore exist an urgent need to clarify some points that remain obscure due to the overcomplicating of scientific terms, so health care professionals can understand and apply in clinical practice what they are reading.

By reading, interpreting critically, and applying in practice the available evidence, the professional uses in the most correct way the term "Evidence-Based Practice", defined as the use of the best available evidence applied to the clinical practice [2].

Mainly, in medicine and health sciences, we have three types of different studies, observational, interventional, and reviews.

2. OBSERVATIONAL STUDIES

Observational studies usually, as the proper name defines, observe and understand associations and correlations between two or more variables, and cannot be used to define relations of cause and effect [3].

- **Transversal**

In this type of study, the researchers define one specific moment of time of the chosen sample. It is used to define the prevalence (%) of some variable in the sample [3].

i.e. What is the prevalence of cardiopathy, in this region, that eats fast food?

- **Case-Control**

This is a retrospective study, so the researchers seek associations between one or more current conditions with variables that happened in the past [3].

i.e. The research has a sample of 100 cardiopathy

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volunteers, what health habits are associated with heart diseases?

- **Cohort**

This is a prospective study, so the researchers will develop a follow-up program for a determined sample to understand the incidence of a condition with time.

i.e. The research has a sample of 100 healthy volunteers, is fast food-related to heart diseases? The researchers will follow up with these volunteers for a determined time (it can be 3 months, 1 year, 10 years – it depends on the research) and be able to identify changes in health status as heart diseases.

The cohort studies are the most reliable in the observational studies because the researcher can control some of the possible variables that can influence the result of the study [3].

3. INTERVENTIONAL OR CLINICAL TRIALS

Clinical Trials are made to understand the relation cause and effect, also to test and validate a null or alternative hypothesis. This type of study assists the health care professionals in decision-making. This kind of interventional studies can be:

- **Controlled and Non-controlled**

A Controlled Clinical Trial is when the research has two or more groups, being one of those groups a control/placebo. When there is no control/placebo group the research is defined as a Non-controlled Clinical Trial [4].

i.e. For a controlled trial, the researcher wants to try the effectiveness of drug therapy, so the sample is divided into two groups: The test group will receive the drug pill and the control/placebo will receive an empty pill.

- **Randomized and Non-randomized**

Randomization is the random allocation of the sample participants into the groups. It is made so the individual characteristics of the participants do not impact the results of the research, since there is 50% (in two-group research) allocation chance in any of the groups. When the research is non-randomized, the individual characteristics may cause a negative/positive bias impact [4].

i.e. To randomize the researcher may use playing cards, a coin flip, a computer randomization program.

- **Blinded, Double-Blinded, Triple-Blinded, or Non-Blinded**

Blinded is when one of the parts of the study does not know if they are allocated to the test or control group. Double-blinded and triple-blinded follows the same idea, when two or three parts of the study, respectively, do not know about the test or control group [4].

i.e. Blinded: Only the sample does not know. Double-Blinded: The sample and the professional applying the therapy do not know. Triple Blinded: The double-blinded case and also the statistical analyzer do not know.

4. REVIEWS

- **Literature Review**

This review is the simplest and less reliable review. Authors may be partial to their own opinion and influence the results of the review, therefore it is not recommended for publishing articles (except when it is a narrative or critical review that has different objectives) [5].

- **Systematic Review**

It is the most common review in the scientific field. There is a protocol, search, data extraction, quality appraisal, and data analysis explicit and well defined. The author needs to be impartial and non-opinion, reducing the risk of bias and influence in the results [5].

- **Meta-analysis**

It is the most reliable review type and meta-analysis will always be systematic reviews. In a meta-analysis the researchers group the clinical trials from the systematic review and re-analyze the statistics (only possible to Meta-analyze when the trials have at least one statistical measured variable in common) as one big clinical trial [5].

5. CONCLUSIONS

Although these definitions are not the only aspects of research, as all have statistical analysis, interpretation of the own results, and discussion of those results, it is important for the researcher to keep in mind that for each kind of research question, there is a specific research model, and the model of research will shape the results and the interpretation of it.

In addition, the cited definitions must be clear for the reader to interpret, introduce, and use evidence-based practice into the clinical practice, enhancing efficacy, results, and safety of the treatments.

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