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Paper Research Methodology

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Q no (2) —

The result section of an original research paper provides answer to this question. "What was found?" The amount of findings generated in a typical research project is often much more than what medical journal can accommodate in one article. So, the first thing the author needs to do is to make a selection of what is worth presenting. Having decided that he/she will need to convey the message effectively using a mixture of text, tables and graphics, the level of details required depends a great deal on the target audience of the paper hence, it is important to check the requirement of journal we intend to send the paper to e.g. the uniform requirement of journals. The article condenses some common general rules on the presentation of research data that we find useful.

Go to:-

Some General Rules

Keep it simple. This golden rule seems obvious but authors who have immersed in their data sometime fail to realize that readers are lost in the mass of data they are a little too keen to present. present too much information tends to cloud the most pertinent facts that we wish to convey.

First general. then specific. Start with response rate and description of research participants (these information give the readers an idea of the representativeness of the research data) than the key finding and relevant statistical analyses.

Data should answer the research question identified earlier

Leave the process of data collection to the methods section do not include any discussion.

These errors are surprising quite common.

Always use past tense in describing results.

Text, tables or graphics?

These complement each other in providing clear reporting of research findings. Do not repeat the same information in more than one format. Select the best method to convey the message.

Qno(5) -

What is hypothesis -

Hypothesis: A testable theory or statement of belief used in evaluation of a population parameter of interest e.g Mean or proportion.

- Suppose of study is being conducted to answer questions about differences between two regimens for the management of diarrhea in children.

the sugar based modern ORS and the time tested indigenous herbal solution made from locally available herbs.

- one question that could be asked is in the population is there a difference in overall improvement (after three days of treatment) between the ORS and the herbal solution.

Test hypothesis: -

Hypothesis testing permits generalization of an association or a difference obtained from a sample to the population from which it came.

Hypothesis testing involves conducting a test of statistical significance and quantifying the degree to which sampling variability may account for the result observed in a particular study. It entails the following steps.

Hypothesis Testing Steps:-

- 1:- Statement of research question in terms of statistical hypothesis (Null and alternate hypothesis)
- 2:- Selection of an appropriate level of significance. The significance level is the risk we are willing to take that a sample which showed a difference was misleading.
5% significance level means that

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We are ready to take a 5% chance of wrong results.

3:— Choosing an appropriate statistics t test, z test for continuous data, chi square for proportions etc.

If Test statistics is computed from the sample data and is used to determine whether the null hypothesis should be rejected or retained.

Test statistics generates p value.

p value: Indicates the probability or likelihood of obtaining a result at least as extreme as that observed in study by chance alone, assuming that there is truly no association between exposure and outcome under consideration.

By convention the p value is set at 0.05 level. Thus any value of p less than or equal to 0.05 indicates that there is a most a 5% probability of

observing an association as larger or larger than that found in the study due to chance alone given that there is not association between exposure and outcome if $p \text{ value} > 0.05$ do not reject the null hypothesis.

4s - performing calculations and rejecting null hypothesis if the $p \text{ value}$ is less than the set significance level.

Test of Significance	True H_0 Hypothesis	False H_0 Hypothesis
Accept H_0 Hypothesis	Correct Decision	Wrong Decision B Error
Reject H_0 Hypothesis	Wrong Decision a Error	Correct Decision.

Q no (4) -

prevalence:-

- prevalence quantifies the portion of individuals in a population who have the disease at a specific instant and provides an estimate of the probability (risk) that an individual will be ill at a point in time.

- The formula for calculating the prevalence $p = \frac{\text{number of existing cases of a disease}}{\text{total population (at a given point in time)}}$

point prevalence:-

- prevalence can be thought of as the status of the disease in a population at a point in time as such is also referred to as point prevalence.

- (3)
- This point can refer to a specific point in calendar time or to a fixed point in the course of event that varies in real time from person to person, such as the onset of menopause or puberty or the third postoperative day.

period prevalence:-

- it represent the proportion of cases that exist within a population at any point during a specified period of time.

The numerator thus includes cases that were present at the start of the period plus new cases that developed during this time

E.g frequency of patients receiving psychiatric Rx between May 31 Dec of 2022.

Q no (3) -

Difference between a relative risk and add ratio.

Relative Risk	add ratio.
it can only be used for data from studies with a randomly selected sample.	it can be used to summarise data from most studies.
it can be used to calculate the attributable risk.	Given an estimate of risk when the prevalence of the outcome is not known -
usually in prospective cross sectional and clinical trial studies.	usually in Retrospective Studies and in cross sectional studies.
it needs incidence of the disease	it does not need incidence for calculation

it demonstrate temporarily

it has good estimate for RR in case of low frequency disease.

Example
you could have two groups of women one group has a mother sister or daughter who has had breast cancer.

Example
if u are normally on call 2 out of 7 days in a week than the odds of you being on call on a certain day of the week is $[(2/7)/(5/7)] = 0.40$

Q no (1)

Mean :-

Given Data :-

48, 50, 62, 70, 77, 79, 89, 90, 92

$$\text{Mean} = \frac{\sum x}{n}$$

$$\text{Mean} = \frac{663}{9}$$

$$\text{Mean} = 73.66$$

Median.

$$\text{Median} = \frac{n+1}{2}$$

$$\text{Median} = \frac{9+1}{2}$$

Median = 5th term in given data.

$$\text{Median} = 77 \text{ (when data is arranged in order of lowest to greatest)}$$

Mode = 0 because there is no repetition of data in a set of given observation.