Etiological research

Quantitative study articles
Ex: Etiological studies

Abstract

An abstract should essentially contain the study objectives, a short description of the study methods, the main results, and a conclusion.

Unless strictly necessary, avoid presenting generic information about the state-of-the-art knowledge of the study theme in the abstract – such information must be inserted in the introduction section of the article.

In the description of study methods, present the study design, describe the study population, provide basic information about how the variables of interest were measured (measurement questionnaires and instruments) and assessment techniques used in the study.

The description of the main results must be prioritized when writing the abstract. The author should include the main quantitative results, with respective confidence intervals, but should be selective and describe only essential results directly related to the main study objective.

Under "conclusion," avoid common phrases like "further studies are required on the topic," "the results should be considered with caution," or "the results of this study may be useful for the development of prevention strategies." At the end of the abstract, describe in one sentence your conclusion about how the results helped achieve the study objectives. Describe the contribution of the results to the knowledge regarding the studied topic.

Introduction

In the introduction of the article, the author must clearly and concisely describe the current knowledge about the study subject and gaps that justify the investigation. Also, the study question must be clearly presented in the introduction. The theoretical framework should be explained in relation to this question.

To support your statements, references should be cited. These references must be original articles or reviews that directly investigated the topic in question. Avoid references of articles that did not directly investigate the topic and which refer to studies that empirically investigated the topic. In this case, the original article that directly investigated the problem should be cited. The article will not look better or be better supported with the inclusion of a large number of references. The number of references should be just enough to present solid theoretical bases justifying the investigation.

If data about the study topic should be presented, choose the most current data, preferably those directly obtained from official sources. Avoid using data from local studies, especially when you want to present information about the magnitude of the topic. Give preference to relative indicators (for instance, prevalence or incidence rates) over absolute data.

The length of the introduction will not ensure its adequacy. In fact, a very long introduction probably has information that is not very relevant to understanding the knowledge about the topic. An introduction should not review all aspects related to the study topic, but only the specific aspects that motivated the investigation. Likewise, there is no need to present all knowledge gaps related to the topic, but only those that you intend to address in your investigation.

At the end of the introduction, briefly present the study objectives. Whenever possible, use infinitive verbs; for example: this study aims/aimed "to describe the prevalence," "assess the association," "determine the impact"; that is, unconjugated verbs.

Methods

This section should describe what was planned and what was conducted in sufficient detail to ensure readers will understand the essential aspects of the study, judge whether the methods were adequate to provide valid and reliable answers, and assess whether any deviation from the original plan may have affected the validity of the study.

Start this section explaining in detail the main aspects and characteristics of the study design. For example, in a cohort study, explain how this cohort was designed and recruited, the characteristics of the people comprising this cohort, follow-up time, and exposure status. In a case-control study, the author must describe the source from which cases and controls were selected and the definitions used in the study to characterize individuals as cases or controls. In a cross-sectional study, describe the population from which the sample was obtained and when the assessment/investigation was conducted. Avoid characterizing the study design only with "prospective" or "retrospective," as these terms are not sufficient to ensure an accurate definition of the study design.

In the beginning of this section also indicate whether the investigation is derived from a more comprehensive study. In this case, briefly describe the characteristics of the study and, if available, refer to a previous publication where you can find more details about the study.

Describe the relevant context, locations, and dates, including recruitment, exposure, follow-up, and data collection periods. These are important data for readers to assess the generalizability of a study results. All relevant dates, not just the follow-up time, should be included. For instance, there may be different dates for exposure, outcome, recruitment start and end, and follow-up start and end.

Describe in detail aspects related to the study participants. In cohort studies, describe the eligibility criteria, sources, and participant selection methods. Also specify the follow-up procedures, whether they were the same for all participants, and how the variables were measured and to what extent. In a matched cohort study, provide the matching criteria and the number of exposed and unexposed individuals. In case-control studies, describe the eligibility criteria, sources, and criteria to identify, select, and define cases and controls. Explain the reasons for selecting these types of cases and controls. In a matched case-control study, provide the matching criteria and the number of controls for each case. In cross-sectional studies, describe the eligibility criteria, sources, and participant selection methods.

Clearly and objectively define all variables evaluated in the study: outcomes, exposures, potential confounders, and effect modifiers. Explain the relationship between the theoretical framework and the definition of variables. Whenever necessary, describe the diagnostic criteria. For each variable, provide the data source and details of the measurement methods. When more than one comparison group is used, describe whether the measurement methods were equally used for both groups.

Explain all measures adopted to avoid potential sources of bias. At this point, describe whether the authors used some type of quality control in data collection and whether they assessed the variability of measurements obtained by different interviewers/evaluators.

Explain in detail how the sample size was determined. If the investigation uses data from a larger study that investigates other issues, it is necessary to assess the adequacy of the actual sample size to assess the study topic, for example, by calculating its statistical power.

Explain how the quantitative variables were analyzed, indicating whether any type of transformation (for example, log transformation) was used and why. Where applicable, describe the criteria and reasons for variable categorization.

Describe all statistical methods used in the study, including those for control of confounding. Describe in detail the strategies used in the process of variable selection for multivariate analysis. Describe the methods adopted to analyze subgroups and interactions. If interactions were evaluated, was an additive or multiplicative scale used? Why? Explain how missing data were analyzed. In cohort studies, indicate whether there was loss to follow-up, its magnitude, and how the problem was addressed. Did the study conduct any kind of data imputation? In matched case-control studies, explain how matching was considered in the analysis. In cross-sectional studies, if applicable, describe how the sampling strategy was considered in the analysis. Describe whether any type of sensitivity analysis was performed and its procedures.

Results

This section should be a factual account of what was found; it should be free of interpretations and ideas reflecting the views and opinions of the authors. This section should present aspects related to participant recruitment, a description of the study population, and the main results of the analyses.

Start by describing the number of participants in each stage of the study (example: number of potentially eligible participants, number of participants included in the study, number of participants who completed follow-up and actually analyzed). Then describe the reasons for the losses in each stage of study, and separately for the different comparison groups. Assess the relevance of adding a diagram showing the flow of participants in the different stages of the study.

Describe the sociodemographic and clinical characteristics of participants and information about exposures and potential confounding variables. It is not necessary to present statistical test results or p-values in these descriptive tables.

Describe the number of participants with missing data for each variable of interest. If necessary, use a table to present these numbers.

In cohort studies, present the total and mean (or median) follow-up times. You can also present the minimum and maximum times, or the percentiles of a distribution. The total person-years of follow-up must be specified. This information must be presented separately for each exposure categories.

Regarding the outcomes, present the number of events observed, as well as frequency measurements and their respective confidence intervals (for example, incidence rate or cumulative incidence in cohort studies or prevalence rate in cross-sectional studies). In case-control studies, present the distribution of cases and controls in each exposure category (absolute numbers and proportions).

Regarding the main results of the study, present unadjusted estimates and, if applicable, estimates adjusted for confounding variables, with their respective confidence intervals. When adjusted estimates are presented, describe which variables were selected for adjustment and the selection criteria.

In situations where continuous variables were categorized, inform the cut-off points and the limits of the intervals corresponding to each category. It may also be helpful to present the mean or median for each category.

When possible, consider presenting estimates for both relative risk and risk difference, always with their respective confidence intervals.

Describe any other analysis that has been performed (for instance, subgroup analysis, interaction assessment, sensitivity analysis).

Choose confidence intervals over p-values. Anyway, if p-values are presented (for example, in trend analysis), provide the values observed (for example, p=0.031, and not an indication of whether the value is above or below a critical point; for example, > or <0.05). Remember that p-values will always be above zero, so no matter how low it is, don't present it as zero (p=0.000), but below a certain value (p<0.001).

Avoid so many decimal places.

Discussion

This section should address the main issues regarding the validity of the study and how its results contribute to a better understanding of the topic in question.

Start by synthesizing the main findings and relating them to the study objectives. Data from the results should not be reproduced here; instead, this section should only help readers remember the main results and how they relate to the study objectives.

Discuss study limitations, particularly potential sources of bias or inaccuracy, and the direction and magnitude of these potential biases. Present arguments that help readers judge the extent to which these potential biases may or may not affect the credibility of the study results.

The core of this section is the interpretation of the study results. Carefully interpret the results, considering the objectives, limitations, performance of multiple and subgroup analyses, and available scientific evidence. At this point, the study results must be compared with the theoretical framework previously described and with other similar studies, indicating how the study results affect the level of evidence that is currently available.