

Case-control study: definition, types and examples

[Business](#)



During forming a group of cases, it is necessary to apply strict, objective criteria for the result. You should be sure of the homogeneity of the result because similar illness or effects may have different risk factors, for example not all diseases of the intestinal infections that are detected in the population under study only in the presence of diabetic syndrome can be selected for the study. It should be sought to use, if possible, "incident" cases (again diagnosed) than "prevalent" (already existing at the given time). During using "superior" cases, the effect of the disease on potential risk factors can lead to complications in the interpretation of data. For example, in a study on the impact of coffee consumption on the risk of peptic ulcer disease, "prevalent" cases (long suffering from ulcers and precautionary coffee drinkers) will differ in relation to the exposure from "incident" cases, in which the disease has occurred relatively recently and what else have not had time to change their attitude to drinking this soda. Observational studies proved, that case-control studies have less reliability than cohort studies.

This is not entirely true: a well-organized case-control study in a number of situations can provide much more reliable results than cohort studies. The main stages are:

- Formation of a sample (cohort) from the general population, taking into account the features of inclusion and exclusion.
- Collecting information on the prevalence of risk factors and illnesses.

What is a Case-Control Study?

The case-control study is one of the very important types of studies, that has a number of obvious benefits. First of all, this scheme of analytical research is excellent for rare diseases (co-study in such a situation, the population of the study may be excessively high). The case-control study allows you to get an answer quickly and, therefore, it is the method of choice during investigating flashes.

In the case-control study, you can study simultaneously (and quickly) a multitude of factors for studying one result. However, only one output can be studied. Problems, encountered in the case-control study vs. cohort study, are related to the fact that interest in the data on the impact of the factor may be inaccessible or inaccurate. Sometimes, it's just not possible to choose a sufficient number of controls that satisfy the requirements set.

The choice of a scheme for analytical research depends, first of all, on specific tasks and main steps, but largely determined by the available resources and timing for it. Knowing the possibilities of different approaches, their advantages and disadvantages allow the epidemiologist to plan research optimally. In the case-control study, it is virtually impossible to identify the rare causes of the disease. In such cases, scanty data does not allow us to assess the validity of the differences in the incidence of risk factors in the comparison groups and, therefore, to draw conclusions about the presence or absence of a causal relationship.

Advantages and Disadvantages of a Case-Control Study, Types of Case-Control Studies

In the case-control study, the search for causal relationships goes in the direction of the investigation to the foreseeable cause.

Case-control study examples can only be retrospective, as it is conducted on the basis of archival data. Often, the source of information in the case-control studies is the history of the disease, which is in the archives of medical institutions, the memories of patients or their relatives in the context of an interview or by the results of the questionnaire. This retrospective study can be done as a preliminary study of the causal relationship between the predicted risk factor and the specific disease. In the future, this problem can be studied in cohort studies. Positive aspects of the case-control study are the possibility of conducting them regardless of the prevalence of the disease under study.

Relatively small expenditures of time, forces and means are needed to create a basic group of patients (even rarely encountered diseases), to pick up a control group for them, to question and make at least indicative conclusions. In the study of such diseases, you have to pick up a cohort of hundreds of thousands of people, to watch them for a long time. This would entail considerable time, material and moral costs. Case-control studies have a relatively short duration. The duration of the research depends directly on the productivity of the personnel involved in the study. In order to obtain conclusions, it is not necessary, as in the cohort study, to conduct observations for a period that exceeds the latent period of disease development.

There is a possibility to identify several risk factors for one disease simultaneously. The main disadvantage is the inability to quantify the risk of a disease (death) from an alleged cause. The case-control study is characterized by relatively small economic costs. This makes them attractive when the researcher is limited in funding. However, you should not forget that each study has its own indications and limitations.