

# What is cohort study: types, study design and examples

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All you need to know about cohort study is one fact- it is an observational analysis in which a cohort (the concept is used to refer to groups of subjects united by any characteristics, for example demographic, social, etc., usually consists of a set of two groups) is exposed to the investigated factors for a certain period of time. Therefore, certain pathologies should arise within the association of subjects.

After that, they are compared among themselves for the appearance of these pathologies. Thus it is possible to understand how the studied risk factor is associated with subsequent outcomes. A well-known example of a cohort study is a study of nursing health. It is one of the largest and longest analyzes of women health. It was started in 1976 and is now studying the third generation of nurses from all parts of the US and Canada, with different ages.

Thanks to this research for many years scientists receive a lot of information for studying the risk factors of women's health. Another instance of a cohort study is the Framingham Heart Study. Since 1948, scientists have been studying the risk factors for the cardiovascular system of various groups, which allowed the research to reach a new level. To date, FHS deals with the relationship between genetics and cardiovascular diseases. The design of a cohort study is the best of the results of a scientific method for learning risk factors.

This is because of conducting a more rigorous and reliable type of research for researching risk factors – is unethical. It would be unfair to expose one group of people in a study to a knowingly dangerous risk factor and

deliberately harm their health. Therefore, in this type of research, scientists do not interfere in the natural course of things. They only observe and analyze what happens to the participants.

## **What is a Cohort Study and its Types**

There are 2 types of this analysis: a retrospective and a prospective. If a group of subjects was formed at the present time, and this observation will be in the future, it is about prospective cohort study.

In sociology, this option is used quite often. A cohort can be created if one proceeds from information about the influence of risk factors, and also analyzes it to the present moment. In this case, it is about retrospective cohort study. The most striking example of a prospective study is the research of nursing health. In the framework of this study, all nurses are asked the same, carefully designed questions that would help to track how this or other pathology develops.

After the collection of information, the subjects are observed at a certain time, on the fact that scientists reveal the connection between the way of life and the development of the disease. Retrospective, on the other hand, collects information about the disease, collected during some period in the past. Therefore, retrospective studies are still called historical. Retrospective studies with the definition of what events and experiences from a person's life experience could affect his current state. For example the impact of unemployment on the resumption of criminal activity of a former prisoner.

## **Cohort Study Advantages and Disadvantages**

### **Advantages:**

This type of research has a lot of advantages. First of all, it is connected with the possibility of obtaining reliable information about the source of risk factors. At the same time, it is possible to determine in advance what data is needed and to collect these data in full. A cohort study also allows simultaneous identification of several risk factors for the effects studied. For instance, risk factors for cardiovascular disease and cancer in the study of nursing health.

Also, it allows assessing a wide range of outcomes associated with the effect of a single factor, as well as a wide range of factors for one outcome.

### **Disadvantages:**

However, a cohort study may be ineffective and expensive if the outcome is rare and involves a multitude of subjects in whom the outcome is not found, so this method is not suitable for rare diseases, for example. In addition, the results remain for a long time. This is less true of historical cohort studies, but in this case, the quality of the data may suffer, since the condition for retrospective research is the availability of reliable and sufficiently detailed information on the impact of risk factors.

### **Few Words about Case Control Example**

Case-control studies are a retrospective comparison of the two groups. For example, people who have fallen ill are compared with a group that does not suffer from a disease.

The study investigates the existence of a difference between past exposures to possible risk factors to representatives of two groups. This type of research is suitable for studying the risk factors for rare diseases. And it is often used to develop new hypotheses. One of the most famous studies of case-control type is research related to the establishment of a connection between smoking and the development of lung cancer. Despite the fact that for many years such a method of research was called into question, scientists managed to prove the existence of a cause-and-effect relationship between the disease and the results obtained.

### Cohort Study vs Case Control

Cohort study	Case-control study
provides full information	information is provided
informati on about the subject	through an interview, which can distort facts
not suitable for studying rare	Allows to study rare cases

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obtained,  
but only if  
the sample  
fraction for  
the control  
group is

known.

Both cohort study and case-control research are observational studies of risk factors. Sometimes they are confused with each other. But as we see, the distinctive feature of the method of case-control research is that by the time the investigation began, all the outcomes studied had already occurred. In a cohort study at the beginning of the observation, when risk factors are evaluated, the participants do not yet have the disease being studied. Since the existence of a connection in time between the intended cause and the result serves as an important criterion for evaluating cause-effect relationships, cohort research provides more accurate information.