# Cohort Study [1]

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A cohort study is a research program investigating a particular group with a certain trait, and observes over a period of time.

Some examples of cohorts may be people who have taken a certain medication, or have a medical condition. Outside medicine, it may be a population of animals that has lived near a certain pollutant or a sociological study of poverty.

A cohort study can delve even further and divide a cohort into sub-groups, for example, a cohort of smokers could be sub-divided, with one group suffering from obesity. In this respect, a cohort study is often interchangeable with the term naturalistic observation [3].

There are two main sub-types of cohort study, the retrospective and the prospective cohort study. The major difference between the two is that the retrospective looks at phenomena that have already happened, whilst the prospective type starts from the present.

## Retrospective Cohort Study

The retrospective case study is historical in nature. Whilst still beginning with the division into cohorts, the researcher looks at historical data to judge the effects of the variable [4].

For example, it might compare the incidence of bowel cancer over time in vegetarians and meat eaters, by comparing the medical histories. It is a lot easier than the prospective, but there is no control, and confounding variables [5] can be a problem, as the researcher cannot easily assess the lifestyle of the subject.

A retrospective study is a very cheap and effective way of studying health risks or the effects of exposure to pollutants and toxins. It gives results quickly, at the cost of validity [6], because it is impossible to eliminate all of the potentially confounding variables from historical records and interviews alone.

## Prospective Cohort Study

In a prospective cohort study [7], the effects of a certain variable are plotted over time, and the study becomes an ongoing process. To maintain validity, all of the subjects must be initially free of the condition tested for.

For example, an investigation, over time, into the effects of smoking upon lung cancer must ensure that all of the subjects are free of the disease. It is also possible to subgroup and try to control variables [8], such as weight, occupation type or social status.

They are preferable to a retrospective study, but are expensive and usually require a long period of time to generate useful results, so are very expensive and difficult.

Some studies have been running for decades, but are generating excellent data about underlying trends in a population. The prospective cohort study is a great way to study long-term trends, allowing the researcher to measure any potential confounding variables, but the potential cost of error is high, so pilot studies [9] are often used to ensure that the study runs smoothly.

# Ambidirectional Cohort Study

The ambidirectional cohort study is the ultimate method, combining retrospective and prospective aspects. The researcher studies and analyzes the previous history of the cohorts and then continues the research in a prospective manner.

This gives the most accurate results, but is an extremely arduous undertaking, costing time and a great deal of money.

The ambidirectional study shares one major drawback with the prospective study, in that it is impossible to guarantee that any data can be followed up, as participants may decline to participate or die prematurely. These studies need to look at very large samples to ensure that any attributional losses can be absorbed by the statistics.

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[1] https://staging.explorable.com/cohort-study
[2] https://staging.explorable.com/en
[3] https://staging.explorable.com/naturalistic-observation
[4] https://staging.explorable.com/research-variables
[5] https://staging.explorable.com/confounding-variables
[6] https://staging.explorable.com/validity-and-reliability
[7] http://en.wikipedia.org/wiki/Prospective_study
[8] https://staging.explorable.com/controlled-variables
[9] https://staging.explorable.com/pilot-study