Describing Research Design

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ABSTRACT

This article explains how the research design of a study can simultaneously be described in many different ways as nonempirical or empirical, case-based or sample-based, observational or interventional, retrospective or prospective, cross-sectional or longitudinal, uncontrolled or controlled, single arm or multiple arm, nonrandomized or randomized, crossover or parallel group, nonblind, single-blind, or double-blind, superiority or noninferiority, exploratory (hypothesis generating) or confirmatory (hypothesis driven), and many others. Some of these categories can be associated with special types of research design as well, such as cohort studies, case-control studies, nested case-control studies, wedge design studies, and so on. Readers should understand which descriptors are mutually exclusive and which are not.

Key words: *Case-control study, cross-sectional study, prospective study, randomized controlled trial, research design*

DESCRIBING RESEARCH DESIGN

Singh *et al*.[1] made a curious observation in an earlier issue of this journal; the gist was that because their study[2] was cross-sectional in design, it could not be considered prospective. Their observation prompted a discussion in eJCIndia,[3] during the course of which it became apparent that there are widespread misunderstandings about how research design is described. This article will not explain research design; rather, it will explain how the same study can be simultaneously described under different heads of research design, and which descriptors are mutually exclusive and which are not.

The box presents ways in which the research design of a study may be described. The list is not exhaustive. Examples of descriptors that are not included are quasi-experimental studies, which are a special type of controlled study; wedge design studies, which are a special type of crossover trial; cohort studies, which are a special type of group studies; nested case-control studies in which cases and controls are identified from within a cohort; and others.

The reader will now immediately see that a study can be classified in many different ways at the same time, as in randomized, double-blind, active- and placebo-controlled, parallel arm superiority trials that are additionally, and almost by definition, empirical, sample-based, prospective, longitudinal, interventional, and hypothesis-driven in nature. The reader will now also understand why the study of Singh *et al*.[2] was

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Box: Examples of how the research design of a study may be described

Non-empirical or empirical
Case-based or sample-based
Observational or interventional
Retrospective or prospective
Cross-sectional or longitudinal
Uncontrolled or controlled
Single arm or multiple arm
Nonrandomized or randomized
Crossover or parallel group
Non-blind, single-blind, or double-blind
Superiority or non-inferiority
Exploratory (hypothesis-generating) or confirmatory (hypothesis-driven)

both prospective and cross-sectional. It was prospective because they recruited subjects and collected new data, as different from extracting data that already existed in paper or electronic records (which would have made it a retrospective study). It was cross-sectional because the subjects were assessed at a single point in time as different from being assessed at repeated time points during follow-up (which would have made it a longitudinal study). Note that cross-sectional and longitudinal studies can each be either retrospective or prospective.

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Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Singh M, Sharma P, Raj D, Sharma S, Kaushal A, Raina SK. Authors' responses to the comments on ''leisure time physical activity and risk of developing depression among the youth of Kangra District, Himachal Pradesh, India''. Indian J Psychol Med 2019;41:94-5.
2. Singh M, Sharma P, Raj D, Sharma S, Kaushal A, Raina SK. Leisure time physical activity and risk of developing depression among the youth of Kangra district, Himachal Pradesh, India. Indian J Psychol Med 2018;40:426-32.
3. Thakurdesai A, Ghosh A, Menon V, Sahoo S, Tripathi A, Harshe D, *et al*. Electronic journal clubs for capacity building: A case study in psychiatry as a model for medical disciplines in developing countries. Asian J Psychiatr 2018;34:93-7.